



BUREAU INTERNATIONAL DU TRAVAIL
GENÈVE

CABINET DU DIRECTEUR GÉNÉRAL

le 6 janvier 1976

Cher Monsieur,

Comme suite à votre lettre du 5 janvier à M. Fortin, je vous prie de trouver ci-joint la photocopie de la lettre adressée à M. Citti par le Directeur général.

L'oubli du 20 décembre est ainsi réparé, et j'espère que vous voudrez bien m'excuser.

Veillez agréer, cher Monsieur, l'expression de mes sentiments distingués.

Danielle Boile

Monsieur le Professeur Wisner
Département des Sciences de l'Homme au Travail
Conservatoire national des Arts et Métiers
41, rue Gay-Lussac
75005 - Paris

Réf. : PIACT 4-1

le 20 décembre 1976

Monsieur le Directeur,

Vous savez que votre éminent collaborateur, le Professeur Wisner, a été associé depuis plusieurs années aux activités qu'entreprend l'Organisation internationale du Travail dans le domaine des conditions de travail.

Je tiens à vous remercier très vivement des facilités que vous avez bien voulu accorder au Professeur Wisner pour exécuter les activités internationales qui lui ont été ainsi confiées. La qualité exceptionnelle de la contribution d'A. Wisner a été vivement appréciée dans les Etats membres qui ont bénéficié de son concours. J'ajoute que les contacts que j'ai, ainsi que mes collaborateurs, avec A. Wisner sont pour le Bureau une source constante d'inspiration et d'enseignement.

J'ai l'intention de confier au Professeur Wisner, au début de l'année prochaine, une importante mission aux Philippines. Le Ministre du Travail de ce pays, qui est un homme d'action et de progrès, se félicite particulièrement de ce choix. Je ne doute pas que cette mission, comme les précédentes, ne soit couronnée de succès.

En vous remerciant à nouveau de bien vouloir faciliter l'activité internationale du Professeur Wisner, je vous prie d'agréer, Monsieur le Directeur, l'assurance de ma considération très distinguée.

Francis Blanchard

Monsieur Citti,
Directeur,
Conservatoire national des arts et métiers
41, rue Gay-Lussac
75005 - Paris

du programme de sécurité sociale (paragraphe 483 du Programme et budget pour 1974-75), à savoir: préparation, sur demande, d'estimations actuarielles, de bilans de caisses de pensions et autres études financières et actuarielles pour des administrations publiques ou des institutions de sécurité sociale, octroi d'une formation spécialisée dans les techniques actuarielles et services consultatifs. L'opportunité d'un renforcement de ces services a été soulignée par la Sous-commission d'actuaire de la Commission d'experts pour la sécurité sociale (doc. GB.192/8/12, paragraphe 12). Si l'on peut s'attendre que ces activités continueront de bénéficier d'un apport de ressources extra-budgétaires, il n'en reste pas moins nécessaire d'inscrire à ce titre un crédit substantiel au budget ordinaire.

CONDITIONS ET MILIEU DE TRAVAIL

		Dollars des E.-U.
50.3	Statistiques	64 836
60.2	Conditions générales de travail	502 614
60.3	Sécurité et hygiène du travail	684 292
71.2	Perfectionnement des cadres dirigeants et perspectives de carrières	309 630
80.2	Législation du travail et relations professionnelles	311 546
80.3	Administration du travail	31 896
TOTAL		1 904 814

156. Cette dominante correspond d'une façon générale au chapitre intitulé "Améliorations des conditions et humanisation du travail" dans le Plan à long terme. Toutefois, à la suite de la discussion de ce chapitre à la Commission du programme, du budget et de l'administration en février 1974 et en réponse à la résolution concernant le travail et son environnement adoptée par la Conférence à sa 59e session, en juin 1974, le question de l'étendue, du volume et de la nature des activités à entreprendre pendant la période biennale 1976-77 a fait l'objet d'un plus ample examen. En particulier, il a été tenu compte de la résolution susmentionnée de la Conférence qui:

a) déclare dans son préambule que "le problème de l'amélioration du travail et de son environnement devrait être considéré comme un tout" englobant:

la protection contre les conditions et les dangers physiques sur le lieu de travail et sur son environnement immédiat;

l'adaptation des installations et des méthodes de travail aux aptitudes physiques et mentales du travailleur par l'application des principes d'ergonomie;

la prévention de la tension mentale et l'amélioration de la qualité de la vie professionnelle par celle des conditions de travail, comprenant l'humanisation du travail et d'autres questions relatives à l'organisation du travail;

la participation des employeurs et des travailleurs et de leurs organisations à l'élaboration et à la mise en vigueur de nouvelles politiques visant à améliorer le travail et son environnement;

b) dans le dispositif, invite notamment le Directeur général à préparer un programme cohérent et intégré d'action de l'OIT "dans le but de contribuer effectivement à l'amélioration du travail et de son environnement sous tous ses aspects".

157. De même, dans sa réponse à la discussion de son rapport à la même session de la Conférence, le Directeur général a annoncé son intention de lancer un vaste

du programme de sécurité sociale (paragraphe 483 du Programme et budget pour 1974-75), à savoir: préparation, sur demande, d'estimations actuarielles, de bilans de caisses de pensions et autres études financières et actuarielles pour des administrations publiques ou des institutions de sécurité sociale, octroi d'une formation spécialisée dans les techniques actuarielles et services consultatifs. L'opportunité d'un renforcement de ces services a été soulignée par la Sous-commission d'actuaire de la Commission d'experts pour la sécurité sociale (doc. GB.192/8/12, paragraphe 12). Si l'on peut s'attendre que ces activités continueront de bénéficier d'un apport de ressources extra-budgétaires, il n'en reste pas moins nécessaire d'inscrire à ce titre un crédit substantiel au budget ordinaire.

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revenu (paragraphes 138 et 139) et travailleurs étrangers et travailleurs migrants (paragraphe 259). Il reste, toutefois, quelques activités importantes ayant trait au champ d'application, à la planification et à l'harmonisation de la sécurité sociale (Plan à long terme, paragraphes 186-195) qu'il semblerait indiqué de réaliser en 1976-77¹.

150. Premièrement, il est proposé, conformément aux paragraphes 187-189 du Plan à long terme, de poursuivre la série des enquêtes sur le coût de la sécurité sociale et sur l'étendue de la protection dans les systèmes de sécurité sociale de différents pays. Sur la base d'un questionnaire conçu pour permettre de clarifier les informations pertinentes reçues des Etats Membres, la prochaine enquête sur le coût et le champ d'application de la sécurité sociale serait publiée en 1977.

151. Deuxièmement, on continuerait et achèverait, en 1976-77, l'étude comparative sur l'augmentation constante des coûts des soins médicaux, étude commencée en 1974-75 (Programme et budget pour 1974-75, paragraphe 478). D'ici à la fin de 1975, la première partie de cette étude - portant sur les enquêtes faites sur ce sujet dans un certain nombre de pays industrialisés, les méthodes employées et les facteurs examinés - sera achevée. En 1976-77, il est proposé, sur la base de cette étude, d'entreprendre une évaluation internationale de la situation pour déterminer les possibilités de mettre à la disposition des Etats Membres des directives et des recommandations sur:

- i) la meilleure façon de s'attaquer aux causes de l'élévation du coût des programmes de soins médicaux au titre de la sécurité sociale;
- ii) les moyens d'apprécier les conséquences ultimes des tendances constatées en ce qui concerne l'extension de systèmes de sécurité sociale;
- iii) les mesures qui, compte tenu de l'infrastructure existante et du niveau de développement économique, permettraient de remédier à la situation.

152. L'étude finale serait publiée pendant la période biennale. Il serait souhaitable d'en soumettre les résultats à une réunion - soit en 1977 si des ressources extra-budgétaires pouvaient être disponibles à cette fin, soit, si tel n'est pas le cas, en 1978.

153. Troisièmement, il est proposé, pour répondre aux préoccupations provoquées par une inflation effrénée et par l'instabilité monétaire, d'étudier les effets des fluctuations économiques brutales et soudaines sur le financement des caisses de pensions, les prestations et les politiques d'investissement. Il s'agirait là d'une tentative de tirer les leçons de l'expérience acquise ces dernières années dans la lutte contre les effets de l'inflation et de l'instabilité monétaire, en ce qui concerne les politiques d'investissement des caisses de pensions, les mesures visant à sauvegarder le pouvoir d'achat des pensionnés et l'organisation financière de ces caisses en général. On essaierait aussi de voir à quels nouveaux moyens on pourrait recourir pour faire face à cette difficulté. Parallèlement, il est proposé d'organiser un colloque sur ce sujet. Un crédit est prévu à cette fin au titre des programmes "Sécurité sociale" et "Analyse économique".

154. Les travaux relatifs à l'harmonisation de la législation de sécurité sociale se poursuivraient en Europe et dans le tiers monde (par exemple en Afrique et en Amérique latine) où le BIT collaborera étroitement avec les organisations régionales compétentes. Il est prévu, pour jeter les bases des activités pratiques, de procéder à des études ayant pour objet de déterminer l'état actuel de la législation de sécurité sociale au niveau de la sous-région ou d'un groupe de pays à la recherche de leur intégration économique et sociale, ainsi que de découvrir les meilleures méthodes pour réduire les écarts quant à l'étendue et au niveau de la protection à la lumière des normes de l'OIT et des mesures préconisées par les organisations d'employeurs et de travailleurs.

155. Selon toute probabilité, il y aura une demande soutenue, et peut-être même croissante, de coopération technique dans le domaine de la sécurité sociale, particulièrement pour des questions actuarielles. Des crédits sont donc prévus pour les services à fournir à propos de ces questions sur le plan international au titre

¹On a veillé avec un soin particulier à assurer l'entière coordination des activités proposées pour 1976-77 dans le domaine de la sécurité sociale avec les travaux courants de l'Association internationale de la sécurité sociale (AISS).

programme d'action, qui porterait sur plusieurs années et qui "fusionnerait le thème traditionnel des conditions de vie et de travail avec ceux, plus récents, de l'humanisation et de la réorganisation du travail, ainsi que la notion de milieu de travail". Le Directeur général consacrera à ce sujet le rapport qu'il soumettra à la Conférence à sa session de 1975. L'élaboration de ce rapport et les propositions énoncées ci-dessous en vue de diverses activités en 1976-77 marquent le début d'un effort de longue haleine entrepris pour donner effet à la résolution de la Conférence.

158. Cette résolution a été utilisée comme cadre de référence pour la préparation de ce que le Directeur général estime être, pour cette dominante, un programme aussi ambitieux que les contraintes budgétaires le permettent en 1976-77. Les notions de "milieu de travail" et d'"humanisation du travail", telles qu'elles sont définies dans la résolution de la Conférence et dans la réponse du Directeur général, couvrent un très vaste champ. Il n'était pas question d'en faire entièrement le tour dans les propositions ci-après; on a voulu au contraire concentrer les ressources sur un nombre restreint de sujets prioritaires pour chacun des quatre éléments de la résolution de la Conférence (paragraphe 156 a)). C'est dire que les deux programmes qui entrent particulièrement en ligne de compte sont ceux de la sécurité et de l'hygiène du travail et des conditions générales de travail. Toutefois, ainsi qu'il ressort des paragraphes suivants, il y aurait un très net déplacement des centres d'intérêt en ce qui les concerne et une concentration des efforts bien plus grande que par le passé. Deux autres - perfectionnement des cadres dirigeants et législation du travail et des relations professionnelles - joueraient aussi un rôle important en la matière; on se propose en outre de faire pleinement usage des services et des moyens du Centre de Turin et de l'Institut international d'études sociales à ces diverses fins. Comme, à maints égards, les problèmes traités dans la présente section varient, qu'il s'agisse de leur ampleur ou de leur nature, d'une branche d'activité à une autre, il y a lieu d'espérer que les commissions d'industrie et les organismes assimilés continueront d'en débattre.

159. Les activités prévues à ce titre s'adresseront aussi bien aux Etats industrialisés qu'aux pays en voie de développement. Pour ce qui est du tiers monde, on veillera spécialement à ce qu'elles soient toutes axées sur les besoins et les préoccupations qui lui sont propres. Le Directeur général espère que plus ce programme d'action prendra de l'élan, plus il suscitera un apport croissant de ressources extérieures. Il estime cependant que, pour le proche avenir, il serait nécessaire d'inscrire au budget ordinaire un crédit assez important pour les tâches à accomplir au titre de cette dominante.

160. Les propositions ci-après s'articulent en fonction des quatre éléments de la résolution de la Conférence sur le travail et son environnement: protection contre les conditions et les dangers physiques sur le lieu de travail; application des principes d'ergonomie; conditions de travail, y compris l'aménagement des tâches, les profils professionnels et l'organisation du travail; enfin, participation des employeurs et des travailleurs à l'élaboration et à la mise en vigueur des mesures relatives au milieu de travail.

I. Protection contre les conditions et les dangers physiques

161. Dans ce domaine, le fait saillant de la période biennale 1976-77 sera naturellement la discussion, par la Conférence, de deux aspects techniques de cette vaste question qu'est le milieu de travail, à savoir la pollution atmosphérique et le bruit et les vibrations. Les ressources nécessaires sont prévues au titre du programme de la sécurité et de l'hygiène du travail. Abstraction faite de cette activité et des travaux concernant les applications des principes de l'ergonomie (voir plus loin sous II), les ressources proposées pour ce programme seraient consacrées presque entièrement:

à la révision du Règlement type de sécurité dans les établissements industriels;

à la détermination de concentrations admissibles des substances dangereuses et toxiques dans le milieu de travail.

Révision du Règlement type

162. Le Règlement type est le recueil le plus complet de normes techniques de sécurité et d'hygiène de l'OIT; fort de quelque 600 pages, il vise l'ensemble des industries manufacturières. Adopté en 1949, il a été révisé partiellement en 1956, en 1964 et en 1971, mais il appelle aujourd'hui une révision approfondie, les progrès de la technique ayant complètement modifié le milieu physique du travail dans de nombreuses branches d'activité. C'est en 1970 déjà que la Conférence a adopté une résolution invitant le Bureau à réviser et à mettre à jour le Règlement type, tâche qui a été entreprise en décembre 1973.

163. La révision du Règlement est une tâche extrêmement complexe, qui requiert des connaissances spécialisées dans toute une série de domaines. Aussi est-il proposé de consacrer des ressources substantielles à ce travail en 1976-77; le Règlement révisé devrait être achevé et soumis à une réunion d'experts au début de la période biennale suivante.

Niveaux d'exposition admissibles

164. Il n'est pas toujours possible de réaliser tout un processus sous enceinte hermétique ou de remplacer une substance dangereuse par une autre, inoffensive. En conséquence, on a recours de plus en plus, depuis plusieurs années, à la détermination de limites d'exposition aux substances dangereuses. Les limites recommandées ou adoptées pour divers produits chimiques varient souvent beaucoup d'un pays à un autre. Tantôt la différence est due à une autre façon de concevoir la santé et ce qui lui est préjudiciable; tantôt elle est le fait de divergences de méthodes - qu'il s'agisse d'expérimentation ou d'épidémiologie - pour la fixation des limites. C'est là un domaine où, semble-t-il, il serait souhaitable de renforcer la coopération internationale et de diffuser plus largement des informations sur les critères et les méthodes en usage pour l'établissement des limites admissibles.

165. Un certain nombre d'activités sont donc proposées pour 1976-77. En premier lieu, il est envisagé d'établir des directives internationales en vue de la définition de critères et de limites pour l'exposition à des substances dangereuses en suspension dans l'air; à cette fin, on dresserait l'inventaire des connaissances en la matière pour les présenter de façon telle que les autorités compétentes, les dirigeants d'entreprise et les syndicats puissent les utiliser dans leurs campagnes pour l'amélioration du milieu de travail. Il est proposé en outre qu'une réunion tripartite d'experts, qui se tiendrait pendant la période 1976-77, mette la dernière main à ces directives.

166. En deuxième lieu, le Bureau élaborerait un guide de la prévention de l'exposition professionnelle aux substances cancérogènes. Il convient de rappeler qu'à la suite de l'adoption d'une convention et d'une recommandation sur le cancer professionnel lors de sa 59e session (1974), la Conférence a invité le Bureau à fournir des informations sur cette question et à orienter les Etats Membres sur l'application des dispositions de ces instruments internationaux. La rédaction de ce guide donnerait suite à cette demande.

167. En troisième lieu, il est proposé d'entreprendre la révision d'une publication du BIT parue en 1969 (dans la série Sécurité, hygiène et médecine du travail) sur les concentrations admissibles de substances toxiques dans le milieu de travail. Cette publication, dans laquelle on voit un ouvrage de référence utile, est très demandée, mais elle sera vite dépassée. La version mise à jour serait également utile à la réunion tripartite d'experts qui aurait à donner la dernière touche aux directives sur les niveaux d'exposition admissibles mentionnés plus haut.

168. Finalement, il y aurait lieu de réviser la classification de l'OIT des radiographies de pneumoconioses. Cette classification, qui est actuellement illustrée par un jeu de radiographies types, est considérée dans de larges milieux comme un instrument utile, permettant d'établir une base commune pour le dépistage et le diagnostic des différents types de pneumoconioses. Sa première version remonte à 1938 et la dernière révision date de 1971. Pour qu'elle garde sa valeur, il faut soumettre périodiquement à un examen critique, avec le concours d'experts de l'extérieur, l'utilisation tant de la classification que du jeu de radiographies types afin de les mettre à jour, ce qui s'impose à l'heure actuelle.

Autres activités proposées dans le domaine de la sécurité et de l'hygiène

169. Alors que le gros des ressources pour la recherche, les réunions, etc., en matière de sécurité et d'hygiène du travail irait aux travaux mentionnés ci-dessus et à l'application des principes de l'ergonomie (voir plus loin sous II), il est également prévu des crédits pour trois tâches auxquelles il conviendrait, semble-t-il, de s'atteler d'urgence.

170. Premièrement, un crédit est prévu pour la participation de l'OIT à la préparation et aux travaux du huitième Congrès mondial (AISS-OIT) pour la prévention des accidents du travail et des maladies professionnelles. L'OIT a participé dès le début à l'organisation de ce congrès, qui a lieu tous les trois ans, et le Bureau présente chaque fois une vaste étude introductive, à l'échelle mondiale, sur la situation et les besoins en matière de sécurité et d'hygiène du travail.

171. Deuxièmement, il est prévu des travaux de recherche et une réunion d'experts pour la révision de la convention (n° 32) sur la protection des dockers contre les accidents (révisée), 1932, et du Recueil de directives pratiques sur la sécurité et l'hygiène dans les manutentions portuaires (1956). La nécessité de réviser la convention, qui est aujourd'hui dépassée à bien des égards, a été soulignée lors de plusieurs sessions récentes du Conseil d'administration.

172. Troisièmement, il est proposé de réunir, pour donner suite à une résolution adoptée par la Conférence technique maritime préparatoire (Gênes, 1969), une commission d'experts qui mettrait au point un recueil des directives pratiques de prévention des accidents à bord des navires en mer et dans les ports. Il est prévu pour cela des ressources au titre des programmes "Sécurité et hygiène du travail" et "Gens de mer".

II. Applications des principes de l'ergonomie

173. Il s'agit d'un domaine où, certes, l'OIT n'a pas été inactive dans le passé, mais où elle doit, en raison de la résolution de la Conférence sur le travail et son environnement, donner plus de dynamisme à ses travaux futurs. Comme il est dit dans cette résolution, "l'adaptation des installations et des méthodes de travail aux aptitudes physiques et mentales du travailleur" est l'un des meilleurs moyens d'améliorer le milieu de travail; il faut, en conséquence, lui faire une plus large part dans l'ensemble des activités de l'OIT.

174. En fait, l'application systématique des principes de l'ergonomie devrait marquer un tournant important dans les politiques suivies en matière de conditions de travail. On placerait de moins en moins l'accent sur la protection des travailleurs contre des contraintes physiques, mentales ou économiques réputées inévitables, et de plus en plus sur l'adaptation indispensable de l'outil, de la machine, de l'entreprise - dès leur conception - à l'homme au travail, de manière que l'instrument et le cadre de travail ne nuisent pas aux travailleurs. L'ergonomie, grâce à son caractère multidisciplinaire, offre une base scientifique pour imprimer un nouvel élan aux travaux de l'OIT dans ce domaine. Elle constitue notamment un élément essentiel dans les activités proposées pour 1976-77 en ce qui concerne de nouvelles formes d'organisation du travail et de satisfaction au travail.

175. Le programme suggéré ci-après permettrait d'établir des directives pratiques pour l'usage de l'ergonomie, ainsi que d'échanger et de diffuser plus largement des informations à son sujet, à l'intention non seulement des experts et des praticiens, mais aussi des employeurs et des travailleurs directement touchés par ses applications au système constitué par l'homme, la machine et le milieu de travail.

176. Une étude des applications de l'ergonomie à la prévention du stress mental dans l'industrie serait entreprise. Ce stress et les tensions psychologiques dont souffrent les travailleurs de nombreux secteurs sont probablement imputables avant tout aux caractéristiques techniques des méthodes de travail, des machines et des installations, ainsi qu'à d'autres facteurs relevant de l'environnement. A la suite de l'examen de l'état des connaissances en matière de risques associés au stress en cours durant le biennium 1974-75 (paragraphe 446 du Programme et budget pour 1974-75), il est proposé d'étudier de plus près les meilleurs moyens de réduire le stress mental et les tensions en modifiant ces caractéristiques techniques. Cette

étude serait faite avec la collaboration des experts les mieux informés en ces matières; elle devrait frayer la voie à une action future de l'OIT en vue de faciliter l'adoption de mesures appropriées aux niveaux national et sectoriel.

177. Il est également proposé d'organiser un colloque sur la tendance nouvelle à l'optimisation du milieu de travail grâce aux applications de l'ergonomie; il offrirait aux spécialistes et aux représentants des employeurs et des travailleurs une possibilité de se mettre au courant des tendances récentes et des expériences tentées dans ce domaine, et d'échanger des idées à leur sujet. Abstraction faite de la préparation de ce colloque, le coût direct pour le budget de l'OIT serait minime étant donné que les participants supporteraient eux-mêmes leurs dépenses et que le pays hôte couvrirait la majeure partie des frais occasionnés par l'organisation matérielle de la réunion.

178. A part ces activités de caractère général, on mettrait en route en 1976-77 la publication de directives sur l'ergonomie dans la conception de différents types de matériels et d'installations. On s'emploierait, en puisant dans la somme assez considérable des connaissances actuelles en matière d'ergonomie, à sortir une série de publications d'utilité pratique, à l'usage des concepteurs, des fabricants, des acheteurs et des utilisateurs de ces matériels. En 1976-77, on établirait de telles directives pour: les commandes des machines, les outils à main et les bâtiments industriels. Par la suite, le Bureau en publierait de nouvelles pour d'autres types de matériel.

179. Finalement, un cours interrégional de formation en ergonomie serait organisé à l'intention de dirigeants syndicaux. Il aurait pour but de les familiariser avec les possibilités d'améliorer, voire d'optimiser, le milieu de travail offert par l'ergonomie, en vue d'amener les travailleurs à participer davantage à l'aménagement, grâce à l'ergonomie, d'un meilleur milieu de travail. Le cours serait financé sur les crédits de coopération technique inscrits au budget ordinaire.

180. Les activités proposées au titre du programme de la sécurité et de l'hygiène du travail seraient évidemment complétées et soutenues par des activités "courantes", qui sont décrites au chapitre suivant (programme 60.3). Ainsi, le Centre international d'informations de sécurité et d'hygiène du travail (CIS) continuerait à jouer un rôle de centre d'échanges d'informations sur les divers sujets dont il est question plus haut et sur d'autres problèmes de sécurité et d'hygiène. Les crédits de coopération technique du budget ordinaire afférents à ce programme seraient utilisés largement, comme il est dit au paragraphe 128 du Plan à long terme, pour financer une équipe de conseillers en sécurité et hygiène du travail, qui serait chargée d'aider divers pays à élaborer un programme national de prévention, dont l'exécution pourrait fort bien nécessiter par la suite une assistance beaucoup plus étendue de la part de l'OIT. En outre, ces crédits de coopération technique du budget ordinaire financeraient une équipe de spécialistes qui étudieraient la possibilité de définir, par une analyse comparative entreprise dans plusieurs régions du monde, une optique ergonomique simple et peu coûteuse, qui viserait à réduire la pénibilité du travail dans diverses branches de l'ergonomie de pays en voie de développement, telles que l'industrie sucrière, les exploitations minières à ciel ouvert ou les opérations de manutention dans les ports des zones tropicales.

181. Enfin, au titre du programme "Statistiques", il est proposé une étude visant à l'établissement de normes pour les méthodes de rassemblement et de tabulation de données sur les accidents du travail. Il s'agirait d'aider les pays à établir des statistiques sur la fréquence et la gravité des accidents du travail et de faciliter l'élaboration des statistiques internationales comparables. Les résultats de cette étude seraient soumis à une réunion d'experts sur les statistiques des accidents du travail qui serait convoquée en 1977.

III. Conditions de travail et organisation du travail

182. Il est proposé d'imprimer une orientation complètement nouvelle aux activités de l'OIT dans le domaine des conditions de travail. Alors que l'Organisation devra naturellement poursuivre sa tâche "traditionnelle", chercher à éliminer les conditions de travail pénibles et inhumaines et promouvoir à cette fin la pleine application de ses normes, cette tâche s'insérerait dans un ensemble de mesures prises pour atteindre l'un des objectifs fixés par la Conférence dans sa résolution

sur le travail et l'environnement, à savoir "la prévention de la tension mentale résultant du rythme et de la monotonie du travail et l'amélioration de la qualité de la vie professionnelle". Aussi les activités proposées ci-après visent-elles à l'étude non seulement des conditions dans lesquelles hommes et femmes sont appelés à exercer leur métier, mais aussi du contenu et de l'organisation du travail, afin de pouvoir humaniser tant le travail que les conditions de son exécution, conformément aux recommandations du Groupe de travail du Conseil d'administration sur le programme des conditions générales de travail.

183. A cette fin, un programme, assez vaste et ambitieux, de recherche, de publication, de réunions, de services consultatifs et d'activités éducatives a été établi, qui met en jeu les conditions générales de travail et le perfectionnement des cadres dirigeants, ainsi que le Centre de Turin et l'Institut international d'études sociales, qui seraient chargés d'une série d'activités pour le compte du Bureau.

184. L'Institut procéderait - et ce serait là sa contribution principale - à une étude critique d'exposés sur des recherches et d'autres ouvrages consacrés aux conditions et au milieu de travail. Il a déjà été très actif dans ce domaine et grâce à son expérience et à ses contacts universitaires, il fournirait, pour l'usage interne du Bureau des résumés des documents étudiés, et des commentaires à leur propos. Ces informations seraient en outre mises à la disposition des organisations et des personnes intéressées, à l'extérieur du Bureau, par le canal du Bulletin de l'Institut et de rapports publiés sur les recherches de celui-ci.

185. Le fruit de ce dépouillement de la littérature spécialisée serait à la base d'une bonne partie des travaux que l'on se propose d'entreprendre pendant la période biennale sur diverses questions: durée du travail; effet, sur les conditions de travail dans les pays en voie de développement, des transferts de techniques en provenance de pays industrialisés ("transferts négatifs"); organisation du travail et satisfaction au travail.

Durée du travail

186. Il s'agit de l'un des sujets qui, de l'avis du Groupe de travail sur le programme des conditions générales de travail, devraient se voir accorder une haute priorité. Une première étape a déjà été franchie durant le présent biennium, avec deux études sur la durée du travail et l'aménagement de l'horaire dans des pays industrialisés. Il est proposé de les prolonger par deux réunions en 1976-77. La première serait un colloque sur l'aménagement de l'horaire de travail dans les pays industrialisés. Il donnerait l'occasion d'examiner les résultats de différentes expériences et de systèmes nouveaux (horaire souple ou variable, horaire décalé, semaine resserrée) et d'étudier de façon concrète les difficultés pratiques auxquelles on s'est heurté. Il s'agirait d'offrir, grâce à cet échange de données d'expérience, des idées, des suggestions et une orientation utiles pour l'adaptation des horaires de travail aux besoins sociaux et aux préférences individuelles. Cette réunion durerait une semaine; elle réunirait 15 participants qui viendraient en majorité des milieux employeurs et travailleurs. Un bref document de travail, fondé essentiellement sur les études de 1974-75, lui serait présenté et il pourrait être demandé aux participants des communications personnelles sur tel ou tel sujet.

187. La deuxième réunion serait un colloque sur les problèmes sociaux ayant trait au travail par équipes dans les pays industrialisés. Elle ferait suite à l'étude générale de la question qui a déjà été publiée dans le cadre de ce programme et d'une autre, portant expressément sur le travail posté et la santé des travailleurs, qui est prévue dans le programme de sécurité et d'hygiène du travail. Sa tenue répondrait au souci, manifesté lors de diverses réunions à l'OIT et ailleurs, de trouver des moyens de parer le mieux possible à d'éventuelles conséquences préjudiciables du travail par équipes pour ceux qui le pratiquent, alors que ce système gagne de nouvelles industries, branches d'activité et catégories de travailleurs. L'ordre du jour porterait sur les tendances prévalant dans l'utilisation du travail posté; ses effets sur la santé et le bien-être des travailleurs; ses répercussions sur la vie familiale et les relations sociales; les moyens de réduire au minimum tout contrecoup fâcheux (la réunion étudierait, par exemple, les avantages et les inconvénients de différents systèmes de roulement, les services sociaux nécessaires, l'importance de la consultation des travailleurs et de leurs représentants). Les

¹Programme et budget pour 1974-75, paragr. 419.

participants procéderaient à un échange de données d'expérience qui permettrait de dégager des directives pour mieux accommoder le travail par équipes aux besoins de l'homme. Cette réunion durerait neuf jours; elle grouperait 24 participants venant principalement des milieux employeurs et travailleurs mais aussi d'administrations publiques et d'institutions scientifiques. Deux documents de travail lui seraient soumis, traitant l'un des effets du travail par poste sur la santé et l'autre, de problèmes généraux.

188. Il est également prévu, pour la période biennale 1976-77, une étude détaillée de la durée du travail dans les pays en voie de développement: normes légales, durée normale dans différentes branches d'activité, réduction de la durée normale et résultats des mesures prises à cet effet, évolution de la durée effective du travail, pratiques et règlements en matière d'heures supplémentaires, durée du travail dans le secteur informel et résultats des tentatives de la régulariser, possibilités de réduire la durée du travail et répercussions de décisions en ce sens. Son objet serait double: examiner si une réduction de la durée effective du travail est réalisable dans des secteurs qui se caractérisent souvent par des heures trop prolongées et la promouvoir lorsque tel est le cas. Elle compléterait l'étude et les réunions sur les pays industrialisés mentionnés plus haut. Pris ensemble, les résultats de l'une et de l'autre fourniraient les informations détaillées et mises à jour nécessaires pour pouvoir aller de l'avant au cours des périodes biennales ultérieures. L'action future pourrait comprendre la convocation d'une réunion d'experts qui formulerait des conclusions et des directives, l'examen de la pertinence des normes actuelles sur la durée du travail et, éventuellement, l'adoption d'une nouvelle convention aux dispositions plus modernes et plus souples, qui soient applicables à des pays parvenus à des niveaux différents de développement économique.

Effets sociaux des transferts de techniques

189. Dans sa réponse à la discussion de son Rapport à la 59e session de la Conférence (1974), le Directeur général a suggéré que l'OIT accorde une attention particulière au problème des "transferts négatifs", à savoir les conséquences indésirables du transfert de techniques en provenance de pays avancés sur les conditions et le milieu de travail dans le tiers monde. Jusqu'ici, l'OIT s'est surtout occupée, à ce propos, des effets de ces transferts sur l'emploi et la formation, tandis que leurs conséquences sur les conditions de travail étaient quelque peu négligées. Il est donc prévu, pour le programme des conditions générales de travail, des crédits en vue de l'étude de cette vaste question, étude qui s'étendra probablement au biennium 1978-79. On s'y attacherait, sur la base d'études de cas par pays, à déterminer la mesure dans laquelle les techniques et les formes d'organisation du travail importées ont modifié les conditions de travail et de vie dans les pays en voie de développement. La façon dont les individus et les groupes sociaux ont réagi à l'introduction de ces techniques serait également examinée, de même que ce qui a été, ou devrait être, fait pour les adapter aux conditions locales - climatiques, culturelles et sociales - afin d'éviter le plus possible leurs effets secondaires défavorables et d'améliorer le bien-être des travailleurs. Le projet serait, cela va sans dire, étroitement coordonné avec les activités proposées, en matière de technologie et d'emploi, pour le Programme mondial de l'emploi.

Organisation du travail et satisfaction au travail

190. Les tentatives de rendre le travail plus "humain" et d'accroître la satisfaction au travail, grâce à des changements souvent radicaux dans le contenu et l'organisation des tâches, ont éveillé ces dernières années un vif intérêt. En 1974-75, le Centre de Turin étudie la production par groupe (paragraphe 423 du Programme et budget pour 1974-75). Un programme beaucoup plus vaste de recherche et d'information viendrait donner suite en 1976-77 à cette étude.

191. Le rapport entre les conditions de travail et la satisfaction au travail ferait l'objet d'une étude au titre de deux programmes: "Conditions générales de travail" et "Sécurité et hygiène du travail". Elle devrait déterminer dans quelle mesure la satisfaction au travail dépend des conditions réelles sur le lieu de l'emploi - environnement, conditions matérielles, tensions psychologiques et stress mental, mesures de sécurité et d'hygiène et application de l'ergonomie, d'une part, et systèmes de rémunération, durée du travail, cadences, périodes de repos, horaires, services sociaux, de l'autre -, ainsi que du contenu et de l'organisation du travail dans l'entreprise ou encore d'autres facteurs, dont certains d'ordre

sur le travail et l'environnement, à savoir "la prévention de la tension mentale résultant du rythme et de la monotonie du travail et l'amélioration de la qualité de la vie professionnelle". Aussi les activités proposées ci-après visent-elles à l'étude non seulement des conditions dans lesquelles hommes et femmes sont appelés à exercer leur métier, mais aussi du contenu et de l'organisation du travail, afin de pouvoir humaniser tant le travail que les conditions de son exécution, conformément aux recommandations du Groupe de travail du Conseil d'administration sur le programme des conditions générales de travail.

183. A cette fin, un programme, assez vaste et ambitieux, de recherche, de publication, de réunions, de services consultatifs et d'activités éducatives a été établi, qui met en jeu les conditions générales de travail et le perfectionnement des cadres dirigeants, ainsi que le Centre de Turin et l'Institut international d'études sociales, qui seraient chargés d'une série d'activités pour le compte du Bureau.

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externe. On y brosserait un large panorama des recherches faites dans différents pays tout en évaluant les expériences en cours et les pratiques nouvelles. L'étude contribuerait de la sorte à définir plus précisément les éléments les plus significatifs et à mettre en évidence les domaines qui se prêteraient le mieux à une action future en vue d'"humaniser" le travail ainsi que les approches les plus prometteuses (sans oublier le rôle possible des gouvernements, des dirigeants d'entreprise, des organisations d'employeurs et des syndicats).

192. Un projet connexe aurait pour objet de déterminer les moyens de reconnaître et de mesurer la satisfaction au travail. Elle apporterait une réponse à diverses questions: Comment se manifeste la satisfaction au travail ou au contraire le mécontentement? Quels sont les éléments de la satisfaction au travail? Quelles priorités sont-elles accordées par les travailleurs et les employeurs à ces divers éléments? Comment peut-on les mesurer et les comparer? Jusqu'à quel point peut-on se fier aux techniques permettant de mesurer ou de prédire les effets que des modifications apportées à l'aménagement des tâches ainsi qu'aux conditions et au milieu de travail auront sur la satisfaction au travail?

193. L'objet des deux études susmentionnées serait de définir les besoins à satisfaire en priorité - tant par une action nationale que par une action internationale - pour rendre le travail plus satisfaisant et plus "humain".

194. Pour élargir les activités entreprises par le Centre de Turin en 1974-75 au sujet des méthodes de production par groupe, il est proposé d'examiner sur place, au niveau de l'entreprise, d'autres formes nouvelles d'organisation du travail. On le ferait grâce à un projet exécuté conjointement par le BIT et le Centre de Turin, projet qui associerait techniques et sciences sociales. L'accent serait mis sur l'évaluation directe de certaines de ces innovations, avec les chefs d'entreprise et les travailleurs immédiatement intéressés par ces expériences. Les résultats de ces expériences, leur coût et leurs avantages pour les employeurs et les travailleurs, ainsi que leurs répercussions sur les conditions de travail, seraient enregistrés, analysés et diffusés systématiquement. Durant le biennium 1978-79, les résultats de l'étude pourraient être utilisés par une réunion d'experts chargée d'évaluer l'intérêt des constatations faites sous l'angle de la politique de l'OIT en la matière et des activités pratiques. Un autre projet permettrait d'examiner les critères utilisés pour assurer un aménagement judicieux des tâches. L'étude porterait sur l'importance relative accordée aux critères économiques, technologiques, physiologiques, psychologiques et sociaux par l'aménagement des tâches dans différentes branches d'activités et dans diverses régions; on s'attacherait à déterminer comment l'ordre de priorité varie selon les pays et les cultures, s'il y a conflit entre certains d'entre eux et comment assurer l'équilibre entre les critères économiques et techniques d'une part, et les critères "humains" de l'autre. Les résultats de cette recherche de base seraient repris par l'OIT dans ses activités pratiques de formation de cadres et d'ingénieurs (voir plus loin, paragraphes 197 et 198).

195. Une recherche serait également entreprise, au titre du programme des conditions générales de travail, sur les coûts et les avantages économiques des mesures d'humanisation du travail. En général, ces mesures sont qualifiées de purement sociales, conçues pour le seul bien des travailleurs. Il est parfois admis qu'elles pourraient en outre accroître la productivité de l'entreprise dans son ensemble, sans que, pour l'instant, cette affirmation soit d'ordinaire corroborée par des données chiffrées ou des preuves bien établies. Ce projet devrait contribuer à combler cette lacune. Sur la base d'expériences concrètes, menées au niveau de l'entreprise dans plusieurs pays industrialisés, on tenterait de définir le coût et les avantages, pour l'entreprise, de diverses mesures: horaire souple, nouveaux systèmes d'organisation du travail, nouvelles méthodes de gestion, accroissement de la sécurité et du confort sur le lieu de travail, participation à la prise des décisions, etc. Non seulement on prendrait en considération l'influence directe de l'application de telles mesures sur le rendement, mais on essaierait aussi d'expliquer leur effet sur d'autres éléments pesant sur les coûts: conflits du travail, absentéisme, défaut de motivation et de discipline, absence du sentiment d'être "engagé", etc.

196. On espère que les conclusions qui se dégageraient de cette recherche, une fois publiées, contribueraient à l'établissement de priorités et de programmes fondés sur la réalité des choses et sur une base économique saine. Les résultats ainsi obtenus seraient aussi utilisés pour des séminaires de formation à la gestion, des cours d'éducation ouvrière et des sessions de formation organisées à l'Institut et au Centre de Turin.

200. Au titre du programme de la législation du travail et des relations professionnelles, un crédit est prévu pour une étude qui ferait suite au colloque d'Oslo mentionné plus haut; elle porterait sur les méthodes appliquées présentement dans divers pays, industries et entreprises pour accorder aux travailleurs une plus grande latitude de déterminer comment ils s'acquitteront de leurs tâches. On s'y attacherait en outre à voir jusqu'à quel point les travailleurs et leurs organisations sont associés, dès le stade de la conception, aux innovations apportées à l'aménagement des tâches et à l'organisation du travail, quels ont été les résultats obtenus et ce que sont les politiques, l'attitude et les activités des syndicats dans ce domaine. Une étude analogue, étroitement liée à celle-ci, est prévue, au titre du programme de la sécurité et de l'hygiène du travail sur la participation des travailleurs aux mesures destinées à améliorer le milieu de travail du point de vue de la sécurité et de l'hygiène.

201. Des ressources sont également prévues, dans le cadre du programme "Législation du travail et relations professionnelles", pour un projet de recherche sur les problèmes qui se posent aux syndicats du fait de la tendance à des formes nouvelles d'organisation du travail. Ce projet, dont l'Institut international d'études sociales serait chargé, consisterait à réunir des informations sur les questions soulevées dans différentes industries, par l'adoption de diverses formes d'organisation du travail, questions sur lesquelles les syndicats ont besoin d'informations plus détaillées pour pouvoir se prononcer à leur égard. Des rapports, publiés ou non, présentant des exemples d'innovations de ce genre seraient analysés sous l'angle des modifications apportées: à la charge de travail (des points de vue quantitatif et qualitatif); aux responsabilités et à l'exercice de l'autorité; aux perspectives de carrière; aux salaires (en chiffres absolus ou relatifs et quant au mode de paiement); à l'entrée en emploi, aux systèmes d'ancienneté, etc.; aux qualifications requises; aux relations entre les travailleurs; aux conditions matérielles du travail; à la satisfaction au travail; aux effectifs occupés, à la sécurité de l'emploi, etc.

202. Parallèlement à ce projet, l'Institut organiserait un colloque de spécialistes de la recherche, ainsi qu'une réunion, dans le cadre du programme des "perspectives sociales"¹ afin de permettre des échanges de vues sur ces sujets entre, d'une part, ces chercheurs et, de l'autre, des praticiens provenant des milieux gouvernementaux, employeurs et travailleurs.

203. Des crédits sont également prévus pour une étude que l'Institut entreprendrait sur les répercussions, pour la direction et les syndicats, d'une plus large participation des travailleurs, au niveau de l'atelier, aux décisions relatives au milieu de travail. Une participation directe des travailleurs, à ce niveau, entraîne nécessairement des répercussions sur le rôle et les fonctions aussi bien des contremaîtres, des cadres moyens, des formateurs appartenant à l'entreprise, des conseillers, des délégués d'atelier et d'autres représentants syndicaux dans l'entreprise que des représentants syndicaux étrangers à celle-ci. On y analyserait en particulier différents types de participation et leurs répercussions, pour les employeurs et pour les syndicats, dans diverses situations. Ce que l'Institut ferait dans ce secteur serait complété par une étude comparative, prévue au programme de perfectionnement des cadres dirigeants, des changements de méthodes, qu'il s'agisse de l'encadrement du personnel, du contrôle de la qualité ou des communications, que la participation accrue des travailleurs à l'aménagement des tâches rend nécessaires. Comme pour le projet décrit au paragraphe précédent, un colloque de recherche et une réunion au titre des "perspectives sociales" seraient organisés par l'Institut à l'occasion de ce projet.

204. Un autre projet, très proche, serait entrepris par l'Institut pour étudier les effets de l'organisation du travail sur les relations professionnelles et la politique sociale en général. La manière dont le travail est organisé a engendré des difficultés aiguës et de vives controverses en matière de relations professionnelles dans un certain nombre de pays, surtout dans certaines branches

¹Les réunions de l'Institut dans le cadre du programme des perspectives sociales donnent à des praticiens l'occasion de réfléchir sur des problèmes du travail et des questions sociales dans une large perspective et dans une atmosphère dégagée des tensions propres aux négociations ou aux prises de décisions. Elles ont pour objet de mettre les praticiens à même de connaître les fruits de la réflexion critique et novatrice des universitaires et de diriger l'attention des chercheurs sur des problèmes pratiques qu'il convient d'étudier, tout en facilitant des échanges d'idées constructifs entre praticiens et universitaires.

d'activité. En l'absence d'informations complètes sur les secteurs industriels et les types de travail où des problèmes de relations professionnelles risquent de se poser du fait de l'organisation du travail, comme sur les catégories de travailleurs en cause dans les divers pays, le rassemblement et l'analyse de renseignements à ces sujets s'imposent si l'on veut savoir où de tels problèmes peuvent surgir et quelles en sont la nature et l'étendue. Le projet aiderait aussi à signaler les mesures à prendre pour remédier à pareil état de choses dans différentes situations et jetterait les bases de politiques mûrement réfléchies par les syndicats, les employeurs, les organismes publics et l'OIT. L'Institut organiserait, en relation avec ce projet, deux réunions dans le cadre de son programme des "perspectives sociales" afin de permettre à des chercheurs comme à des praticiens venant des cercles gouvernementaux, employeurs et travailleurs de confronter leurs opinions et leurs expériences.

205. Il est enfin proposé, dans le cadre du programme de perfectionnement des cadres dirigeants, de poursuivre les études commencées en 1974-75 sur les aspects sociaux de la fonction de direction. Les activités en cours à ce titre consistent en une étude générale des idées actuellement reçues en la matière et en une étude comparative, dans la région asienne, des responsabilités sociales que les chefs d'entreprise estiment devoir assumer envers leurs travailleurs, la collectivité à laquelle ils appartiennent et la société dans son ensemble. L'étude générale des réflexions et des pratiques dans les Etats Membres serait poursuivie. Un projet analogue de recherche serait exécuté en Amérique latine, fondé sur les résultats de l'étude menée sur place en Asie et de la réunion d'experts sur les responsabilités sociales des cadres dirigeants en Asie, tenue en 1974. Il serait suivi d'une réunion d'experts organisée dans la région. Tant l'étude générale des tendances que la recherche sur le terrain et la réunion en Amérique latine auraient pour objectifs de faire mieux saisir, par les chefs d'entreprise, le contenu social des décisions qu'ils ont à prendre, de renforcer, grâce à des mesures pratiques, le sens de leur responsabilité envers les travailleurs qu'ils occupent et la collectivité tout entière pour ce qui touche au milieu de travail et de vie, aux services sociaux et sanitaires, à l'emploi, dont celui des membres de minorités sociales et des handicapés, à la formation et aux perspectives de carrière, aux services fournis aux consommateurs et aux utilisateurs et enfin, de stimuler l'intérêt qu'ils portent aux besoins de la société. Il s'agirait de définir une série d'indicateurs à utiliser pour évaluer ce que devrait être, du point de vue social, la gestion de l'entreprise, compte tenu de la diversité des facteurs socio-économiques et culturels.

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206. Enfin, étant donné le rôle clé que l'inspection du travail joue dans les efforts déployés pour améliorer le milieu et "humaniser" le travail, il est proposé d'entreprendre une étude pour évaluer l'état actuel de l'inspection du travail dans un certain nombre de pays industrialisés. A l'échelon national, l'étude serait confiée à une équipe tripartite de trois consultants qui, avec l'accord et à l'invitation des gouvernements intéressés, se rendrait sur place afin de déterminer l'efficacité pratique des systèmes nationaux d'inspection du travail et la mesure dans laquelle ils répondent à ce que les pouvoirs publics, les employeurs et les travailleurs en attendent. Un crédit figure à cette fin au titre du programme "Administration du travail".

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207. Etant donné que l'action entreprise par l'OIT sur le plan international viendra sans doute épauler les efforts d'ensemble comparables qui pourraient être déployés sur le plan national - par exemple sous la forme de programmes nationaux intégrés pour l'amélioration du milieu de travail -, des crédits de coopération technique seront réservés dans le budget ordinaire pour aider les pays qui en feraient la demande à mettre au point de tels programmes. Cette assistance pourrait notamment porter sur la révision des législations ou des codes du travail.

DOCUMENTS D'ORGANISATION

SOMMAIRE DES CONFÉRENCES -
PROGRAMME DES CARREFOURS

UNDP ~~WHS~~ BENTRAGON TALAGONE ABELLA INCIONG VORSA PIZOYO SANKHARAN MAUMDAR SEDONO / FES
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Asian Consultation on working conditions
 and environment and choice of technology
 Manila 9 December 1977

ZAIDI x

MENDUZA x

AHMED x

MATIWAR x

KUPPEL x

A. WISNER x

~~MAR~~
RAMUS DA x

KAGI x

UMMI NAYAR x

THURMAN x

SPYROPOULOS x

JAIN x

KAJIYAKI x

HELLEN x

ABIR x

RAO x
DY

LAGASSE

ARSENAS

x HUSSAIN

x BEKTI

x CHOWDURY

DIAZ

UNDP BENTRABON TALAGONE ABELLA INCIONG VORSA PITOYO SANKHARAN MAUMDAR SEDIANO / FES
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DY

LAGASSE

ARSENAS

HUSSAIN

BEKTI

CHOWDURY

DIAZ

- Special period of history of working conditions
- Industrial Technology
 - machines
 - factories
 - buildings
 - noise
- New knowledge on man
 - Ergonomics
 - posture
 - heari
 - attention vigilance
 - Sociocultural
 - ideology of man
 - facto
- A broad analysis of the new industrial sector
 - why people are working to feed themselves and family
 - why it is facing green to produce goods in market context to give employment

- changing the place of work but also the social conditions / human health

working conditions
 → feed production
 → conditions
 staying same

WORKSHOP 1: WORKING CONDITIONS, TRAINING AND CHOICE OF TECHNOLOGY

MONDAY AFTERNOON, 12th DECEMBER

SESSION 1 WORKING CONDITIONS AND CHOICE OF TECHNOLOGY IN INDUSTRY

MODERATOR: Dr. Quintin Kintanar
Science Research Chief
National Science Development Board

2:00 - 3:30 Working Conditions and Choice of Technology

Ms. F. J. Dy
Conditions of Work and Life Branch
ILO

no

Choice of Technology and Working Conditions:
A Social Assessment Framework

no

Dr. Bruce Koppel
East-West Technology and Development
Institute
Honolulu, Hawaii

3:30 - 4:00 Merienda

4:00 - 5:30 Choice of Technology, Working Conditions
and the Filipino Worker

Mr. Jose Gatchalian
Head, Research Department
Asian Labor Education Center
University of the Philippines

no

Socio-Technological Impact of the Low-Cost
Automation Technology in Philippine Enterprises

Mr. Rodolfo Sumicad
Deputy Director
Institute for Small-Scale Industries
University of the Philippines

no

WORKSHOP 1 - Continued

TUESDAY MORNING, 13th DECEMBER

SESSION 2 WORKING CONDITIONS AND CHOICE OF TECHNOLOGY
IN AGRICULTURE

MODERATOR: Mr. Jeremias Montemayor
President
Federation of Free Farmers

9:00 - 10:30 Choice of Technology and Working Conditions
in Rural Areas

Prof. A. Manuaba
Associate Professor and Head of the
Department of Physiology
School of Medicine
University of Udayana
Denpasar, Bali, Indonesia

nr

Study on the Working Conditions and Environment:
Impact of Innovations in Rice Technology

Dr. Bart Duff
Associate Agricultural Economist
Agricultural Engineering Department
International Rice Research Institute

nr

10:30 - 11:00 Merienda

11:00 - 12:00 Quinlogan: Improving Conditions of Work and
Life in a Frontier Community

Mr. Reynaldo Mendoza
Fellow II
Development Academy of the Philippines

nr

12:00 - 1:30 Lunch

J V S D L
6
14th
17th
19

WORKSHOP 2 - Continued

TUESDAY MORNING, 13th DECEMBER

SESSION 2

MODERATOR: Eleo Cayapas
Executive Director
Employees' Compensation Commission

8:30 - 9:15

Improvement of Working Conditions and
Environment in Various Philippine Enter-
prises (PMAP Survey Report)

Mr. George Winternitz
President
System Safety Management Corporation

no

9:15 -10:30

Labor Standards Policy and Implementation

Antonio Nuesa
Director
Bureau of Labor Standards
DOL

+

10:30 -11:00

Merienda

11:00 -12:30

Information and Training Needs for Choice of
Technology and Working Conditions

Prof. A. Wisner
Professor of Labour Physiology
and Ergonomics
National Conservatory of Arts and Crafts
Paris, France

no

Issues on the Integration of Safety and
Working Conditions with Skills Training

Mr. Zacarias Maribbay
Director
Office of Manpower Skills and Development
National Manpower and Youth Council

+

TUESDAY AFTERNOON, 13th DECEMBER

ENTERPRISE ACTIONS, PRODUCTIVITY AND
IMPROVEMENT OF WORKING CONDITIONS:
A PRESENTATION OF ELEVEN ENTERPRISE CASE STUDIES

MODERATOR: Carmelo Noriel
Director
Bureau of Labor Relations
DOL

1:30 - 2:30 PANEL 1:

CASE STUDIES BY:

1. Magnolia (San Miguel Corporation) †
Mr. Antonio Zulueta
Vice President and General Manager
2. California Manufacturing Corporation †
Atty. Emeterio Asinas
Administrativ Manager
3. American Wire and Cable Co. †
Mr. Arlington Betts
Personnel Manager




2:30 - 3:30 PANEL 2:

4. Benguet Consolidated Incorporated
Col. Francisco Paraan
Vice President for Personnel
5. Pantranco North Express, Inc. †
Mr. Pablo de Gracia
Administrative Manager



3:30 - 4:00 Merienda

TUESDAY AFTERNOON, 13th DECEMBER
(Continued) .

4:00 - 5:00 PANEL 3:

6. Trident Stevedoring Corporation 
Commander Vicente Perez
Vice President
7. B.F. Goodrich 
Mr. Rodolfo Pangilinan
Vice President of the BF Goodrich
Employees Union
8. Imperial Textile Mills
Mr. Teody Cayetano 
Assistant to the Vice President
for Production

5:00 - 6:00 PANEL 4:

9. Canlubang Sugar Estate
10. Metal Lux Industries, Inc. 
Dr. Andrew Liuson
Manager-Motivator
11. Philippine Packing Corporation 
Mr. Bernardino Hernandez
Personnel Director
Bogo Cannery

WEDNESDAY MORNING, 14th DECEMBER

8:30 - 10:00 Policy Issues and Recommendations Related
to the Promotion of Better Working Conditions
and Environment

Atty. Ruben D. Torres
Chief, Research and Publication Service
ILMS

Employer Paper

Mr. Aurelio Periquet, Jr.
Director
Employers' Confederation of the Philippines

Worker Paper

Mr. Democrito Mendoza
Secretary-General
Trade Union Congress of the Philippines

10:00 - 10:30 Merienda

10:30 - 12:30 Workshop Sessions:

WORKSHOP 1: Proposals and Recommendations on
Working Conditions, Training and
Choice of Technology
(Manila Bay Room)

MODERATOR: Manolo I. Abella
Executive Director
Institute of Labor and
Manpower Studies

WORKSHOP 2: Proposals and Recommendations on
Enterprise Action, Government Policy
and the Improvement of Working Conditions
(Bahia)

MODERATOR: Antonio Nuesa
Director
Bureau of Labor Standards

12:30 - 2:00 Lunch

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BAHLEM HOTEL

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- X PEREZ
- X PANGILINAN
- X CAUETANO
- X HERNANDEZ
- X METAL LUX

-
- X JOSE
 - X INOCENTES
 - X CONFESOR



INSTITUTE OF LABOR AND MANPOWER STUDIES

6 December 1977

Dear Participant:

Attached herewith are the copies of the papers to be presented at the Conference. A few, which we are unable to send to you at this time, will be given to you during the Registration at the Secretariat Room.

In order that representation in the workshops be truly tripartite, we have designated you to be a discussant in Workshop 2.

Thank you.

MA. NIEVES R. CONFESOR
Coordinator
National Tripartite
Conference on Improving
Working Conditions and
Environment

4. SCHEDULE

MONDAY MORNING, 12th DECEMBER

8:00 - 9:00 Registration at the Secretariat Room
(Sulu Sea)

9:00 - 10:30 Opening Ceremonies

10:30 - 11:15 Merienda

11:15 - 12:00 Objectives of the Conference and Other
Matters

Manolo I. Abella
Executive Director
Institute of Labor and
Manpower Studies

12:00 Lunch
Los Mares Ballroom (Manila Bay)

MONDAY AFTERNOON, 12th DECEMBER

Workshop Sessions
(See Next Pages)

TUESDAY MORNING, 13th DECEMBER

Workshop Sessions
(See Next Pages)

MISSION B.I.T. de A. WISNER

MANILLE 1 - 19 Décembre 1977

FRÉD
DAVID
tel
Cherry
15
Mary

Jeudi 1er Décembre

PARIS - BRUXELLES (Auto)
BRUXELLES - SINGAPOUR (SN 287)

Vendredi 2 Décembre

SINGAPOUR - MANILLE (54 66)
- Adresse à Singapour :

Hôtel RAFFLES
1.3 Beach Road
Tél. 32 80 41
Télex RS 21 586

Samedi 3 Décembre

MANILLE

BAYVIEW PLAZA HOTEL
Roxas Boulevard
ERMITA - MANILA (Philippines)
(non confirmé) tel 50.3061

Travail :
adresse postale

P/O Monsieur UNNI NAYAR
Director ILO OFFICE
P.O. Box 2 965
MANILA (Philippines)
Tél. 86 40 11

adresse

New Neda Building
Amor Solo Street
LEGASPI VILLAGE
MAKATI METROMANILA (Philippines)

Samedi 17 Decembre
Dimanche 18 Décembre

MANILLE - SINGAPOUR (52 65)
SINGAPOUR - BRUXELLES (SN 272)

à SINGAPOUR
HOTEL
RAFFLES

Lundi 19 Décembre

BRUXELLES - PARIS (Train le malin)

INTERNATIONAL LABOUR ORGANISATION

INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT OF
WORKING CONDITIONS AND ENVIRONMENT
(PIACT)

Asian Consultations on Working Conditions
and Environment and Choice of Technology
(Manila, December 1977)

PROVISIONAL LIST OF PARTICIPANTS

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Mr. R. A. Majumdar (Bangladesh),
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Mr. A. B. Talagune (Sri Lanka),
Secretary of Labour

Mr. S. Reantragoon (Thailand),
Chief of International Labour Affairs,
Department of Labour

Saturday

INDONESIA	4
INDIA	25
BANGLADESH	1
THAILAND	1
PHILIPPINES	2
THAILAND	1
MALAYSIA BRUNDAUN	1

Employers:

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Chenab Textile Mills Ltd.;
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*International
Confederation
of
Trade
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GENEVA

-4-

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Mr. Bhaskar V. Rao,
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Working Conditions and Environment Department,
International Labour Office,
GENEVA

Mr. Eric Hellen,
Chief
Occupational Safety and Health Branch,
Working Conditions and Environment Department,
International Labour Office,
GENEVA

Assisted by:

Mr. I. D. Amir,
Regional Expert for Asia on Occupational
Safety and Health,
ILO Regional Office,
BANGKOK

WORKSHOP I

Session No. 1

Date: December 12, 1977 Time: 4:00-4:45

Paper: Socio-Technological Impacts of Low Cost Automation
(LCA) Technology in Philippine Small Manufacturing
Enterprises

Authors: Mr. Rodolfo O. Sumicad
 Mr. Eduardo Q. Canela

Discussant: Mr. Cedric Bagtas

Summary of the Paper:

1. The paper attempted to present a methodology or "system" for assessing technological impacts using the Low Cost Automation Technology in the small-scale industry sector.
2. Essentially, the LCA technology refers to the introduction of methods for production, gauging, inspection, materials handling, packaging, etc. which use standard self-acting components, instruments, jigs and contraptions logically assembled. The LCA is designed to minimize cost of operations and/or increase productivity of a given production system. The transfer of this technology has been done by the UP Institute for Small-Scale Industries through its LCA training program and industrial extension program.
3. To assess the impacts of LCA technology in the small-scale industries, the ISSI conducted an experiment utilizing an "extremely" modified version of the Delphi Methodology. Nine participants were selected on the basis of their exposure to the technology and whose opinions were considered as reflective of the sector that has adopted the technology. The results of the Delphi-Simulation Exercise showed (a) the various impacts of the LCA technology on the operator or worker, the worker and his group, the machine itself and management, (b) the

WORKSHOP 1

Session No. 2

Date: December 13, 1977 Time: 11:00-12:00 A.M.

Paper: Working Conditions and the Choice of Technology in
the Shoe Industry and in Food Processing

Author: Mr. Jose Gatchalian

Discussants: Mr. Cedric Bagtas
Mrs. Clarita Palma
Mr. Roberto Bautista
Mrs. Lilia Faigmane

Summary of Paper:

1. The paper presented the findings of a study of the existing technology and working conditions in two shoe firms and two food-processing enterprises in the Philippine Metro-Manila area which was conducted in 1977 by UP-Asian Labor Education Center.
2. The study specifically aimed to answer the following questions:
 - 2.1. What is the type of technology utilized by the selected establishments?
 - 2.2. What are the conditions of work likely to be associated with the types of technology prevailing in these establishments?
 - 2.3. What effects on the workers are closely associated with the given technology and working conditions?
3. The study's methodology has several limitations, namely (a) the degree of the workers' acceptance of and tolerance for the working conditions was measured from the point of view of the workers which was constantly changing instruments to measure working conditions and environment (i.e. noise, light) were lacking.

raw and weighted "popularity" score of each impact among the participants, (c) the directions (i.e. negative or positive) of the impacts on labor and management aspects of the firm, (d) the magnitude of the various impacts, and (e) the "topographical behaviors" (i.e., points of emergence, optimization and dissipation) in the various stages of the technology adaptation process (i.e., planning, trial runs, first, third and fifth years).

Issues Raised:

1. Technology is not the only factor affecting levels of productivity. Factors such as work simplification, work incentives and improvement of working conditions likewise have a bearing on productivity. Therefore, the other factors must be considered in the search for the answer to the problem of low productivity.
2. In the introduction of LCA technology, the minimal displacement of workers should always be emphasized.
3. The ISSI experiment showed a trade-off between safety and employment. Since safety is greatly stressed in the adoption of LCA technology, lay-off of workers can only be minimized.
4. Labor-intensity should be an important consideration in the type of technology to be used. However, a more important consideration is whether or not the employment of more workers will be profitable to the small-scale enterprise. If lower-level technology, which is labor-intensive, and higher-level technology which is not, have the same costs, then the small-scale enterprise should opt for the lower-level technology.

4. The analysis proceeded in three phases, namely:
 - 4.1. a presentation of a background on the industry, firms and respondents included in the study;
 - 4.2. identification of the type of technology employed; and
 - 4.3. examination of the working conditions as they affected the individual workers.

5. One important recommendation given by the author is the use of this study as a point of departure for other studies. Since this study was limited to the physical working environment, other studies should focus on wage-work bargaining, protection against hazards and sickness, protection against arbitrary authority and workers' need for greater participation in decision-making on choice of technology, machines, designs and processes.

Points Raised:

1. The quality of human settlements must be considered when studying the working environment.

2. A multi-disciplinary team should conduct any study on working conditions in order that their physiological and psycho-socio-economic effects on the workers could be accurately and objectively measured.

3. There are three factors which may contribute to the facility and ease of conducting researches on working conditions and environment namely (a) identification of the problems, (b) identification of the people who are capable of conducting the researches and (c) identification of the institutions willing to finance these researches. It is

seldom that these factors meet so that financing institutions sometimes direct funds to other less urgent problems. A group could be formed where these factors would meet and which could come up with a research program for other agencies to carry out.

4. It would be better if the people concerned, the workers, take the lead in the identification, the analysis and the resolution of the problems pertaining to working conditions and environment. As it is, the workers have a nonchalant or resigned attitude towards their situation. Moreover, the trade unions are usually solely concerned with wage increases.

Session Moderator: Mr. Reynaldo Lantin

Rapporteured by: Miss Amelita King

Session No. 1

Date: December 12, 1977

2:30-3:30 p.m.

Paper: Shift Work in Developing Economies

Author: Dr. K. Kogi

Document n^o 8.

Discussants: Mr. E. Helen
 Dr. F. Casanova
 Dr. P. Reverente
 Mr. I. D. Amir

Summary of Paper

1. With the modernization of technology, multiple shift work on rotational basis such as (a) two shifts with weekly holidays and (b) three shifts with or without weekend work became the trend in developing economies at the threshold of the industrial system.
2. Types and problems of shifting vary among countries and among industries.
 - 2.1 Rotation types maybe for long or for short periods of time depending on the climatic conditions and traditional practices of the country. The same may be negotiated in a collective agreement between the union and management or it may be stipulated by law. Premium rates are oftentimes merely provided by law.
 - 2.2 In certain industries where operations are continuous, the four-team-three-shift scheme is adopted.
3. Common problems found are absenteeism, ill-health, social inconvenience, negative employee attitudes, and liability to accidents relative to night shifts.
 - 3.1 Minors and women are required to work at night where their particular manual skills and dexterity are required.

4. It was suggested that multiple shifting be restricted to the utilization of the second shift which should not extend to late night hours and that the first shift should conform to the daily schedule of the community.
5. Action-oriented researches on the effects of multiple shifting should be undertaken.

Points Raised

1. Shift work produces more employment but entails hazards to the health and social lives of the employees.
2. No marked difference is found in accidents and absenteeism in night shift workers from that of the day shift.
3. There is no adequate health, dental, medical and transportation facilities for night shift workers.
4. Shifting should be developed under local economic and social conditions of the country.
5. Joint-action-oriented researches on the effects of shifting should be undertaken by the government, employers, and union groups. Expenses should be defrayed from the State Insurance Fund with technical assistance from ILO.
6. It was suggested that the length of rotation be reduced to conform to ILO standards.

Moderator: Atty. Ruben D. Torres

Reporteured by: Atty. Estelde Bautista
Mr. Elmer D. Juridico

iba:

WORKSHOP II

Session No. 1

Date: December 12, 1977 Time: 1:30-2:30 p.m.

Paper: Survey of Health Hazards and Diseases in Industry

Author: Dr. Francisco Jose

Discussants: Mr. Eric Hellen
Dr. Felicidad Casanova
Dr. Benito Reverente, Jr.
Mr. D. I. Amir

Summary of Paper:

1. Studies on industrial hazards and diseases are hampered by inadequate statistics on account of the fact that diseases arising from occupations are sometimes not reported. Nonetheless, the results may be considered as an enough indication of the extent of the dangers posed by occupational diseases.
2. A study of Dizon et. al on lead poisoning in four establishments engaged in the manufacture of storage batteries showed an increased absorption of lead among workers who complained of weakness, anorexia, metallic taste and abdominal colic, suggesting lead intoxication.
3. Another study by Dizon et al. (1963) in five battery plants showed that 13% of the workers examined were suffering from symptoms of mild lead poisoning.
4. Dizon's findings of lead poisoning were confirmed by a similar study conducted by Jose in two battery plants and two paint establishments. Many workers in the establishments studied were found to be suffering from mild lead poisoning.
5. A study of silicosis in a mining firm (1961) also by Dizon et al. showed an incidence of 0.44% among workers exposed

6. A study of the extent and severity of chest diseases, notably byssinosis in two cotton textile plants (Jose, 1974) showed a frequency rate of 6.3% among those examined.
7. A study about the noise hazard in a textile mill, an asbestos plant, a metal stamping plant and two steel mills revealed that the noise generated in these establishments exceeded the threshold level of 85 dB, and workers were suffering a marked impairment of hearing.
8. In a study of chronic respiratory diseases in six selected industries (Jose and Chiponghian, 1975), it was found that a high degree of correlation exists between the incidence of chronic bronchitis and the dust concentrations in these plants.

Summary of Discussion

1. The Philippines is not alone in the problem of non-reporting occupational diseases. Even industrialized countries encounter the same problem. The reason is that only listed compensable diseases are reported and not all occupational diseases are listed as compensable.
2. There is also a problem in the detection and control of occupational health hazards resulting mainly from the lack of sophisticated technological equipment and devices for this purpose. It was stressed that the conference should address itself to this problem of detection and control of occupational diseases.

3. Many of the diseases in the list of so-called occupational diseases are not really work-connected. For instance, while chronic bronchitis may actually occur among workers exposed to concentration of dust, it also occurs among clerical workers not exposed to the hazard. On the other hand, there were suggestions that more work-connected diseases be added to the present list of compensable occupational diseases.
4. It was pointed out that many of the occupational diseases are caused by air pollution and noise in the workplaces. The latter usually leads to serious mental stresses especially among workers performing routine and repetitive tasks.
5. An apparent absence of standards regulating the maximum load a person can carry was noted. It was pointed out that in most cases, the life expectancy of cargadores (loaders) is shorter than those of other categories of workers, and that the cargadores are prone to tuberculosis because of prolonged exposure to excessive burdens. The need for control measures was emphasized.

Session Moderator: Atty. Ruben D. Torres

Rapporteured by: Atty. Estela Bautista
Mr. Elmor Juridico

WORKSHOP II

Session No. 2

Date: December 13, 1977

Paper: Choice of Technology and Working Conditions
in Rural Areas

Author: Mr. Adejano Manuaba

Discussants: Dr. Bruce Koppel
Dr. Rolando Bautista

Summary of Paper:

Based on the Bali experience, modern technologies are not always automatically and universally appropriate; thus, it is recommended that developing countries be cautious in the choice of technology. When Bali engaged in high yielding varieties, working conditions deteriorated. The worker has to stop during harvesting because of the shorter stem of the new varieties or they could no longer bind the rice bundles. Because of this, the concern for ergonomics in both the agricultural and industrial sectors came up. It was included as part of the curriculum and students were used to disseminate information and create awareness in the government group, workers and employers.

Summary of Discussion :

1. In the adoption of a certain technology, there is always a trade-off between the economic benefits such as increased output, on one hand and the welfare and protection of the workers, on the other.
2. To disseminate information on ergonomics to decision-makers, the university should be used as medium to bring together the tripartite group to appreciate the importance of improving working conditions. Training

a fourth party like the university, an effective rural organization should be mobilized. These were taken from the Bali experience.

3. Women in Bali spend an average of 16 hours on the farm during harvesting time in addition to their household chores. At present, there is no technology adapted to remedy the situation but they have dealt on the exploration of possibilities of improving the methods of work to lessen the burden.

Session Moderator: Mr. Reynaldo Lantin

Rapporteured by : Ms. Judy Castro

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WORKSHOP I

Session No. 2

Date: December 13, 1977 Time: 2:00-3:00 p. m.

Paper: Evaluating the Quantitative and Qualitative
Employment Effects of Technological Change In
Rice Production

Author: Bart Duff

Discussants: Ms. Clarisa Rubio
Mr. Rey Mendoza
Mr. Manuaba
Mr. Lantin

Summary of Paper:

1. This paper assessed the effects on employment of modern technology in rice production. The assessment was done at two levels of generality, namely, a) the overall effects of the modern rice technology on labor utilization by country and operation and, b) labor use by task in relation to level and intensity and the energy expenditure required.
2. The paper is significant because agriculture may be a major source of employment opportunities for the bulk of the growing population in Asian countries and because the measurement of local employment in this sector remains a problem.
3. The data showed that changing technology has and will continue to have widespread effects on labor use in rice production. Specifically, the findings were as follows:
 - 3.1 Introduction and use of the modern rice varieties have tended to increase overall labor inputs, although there has been a change in the proportional composition of labor allocated to each task.
 - 3.2 Labor used for weeding and harvesting-threshing has tended to increase because the returns to

- 3.3 Growing use of mechanized equipment has reduced the labor input (primarily family) in land preparation, although the hired component has increased over time.
- 3.4 There is an increasing number of landless laborers involved in rice production.
- 3.5 Use of hired labor is increasing and there are changing institutional mechanisms for employment of this labor.
- 3.6 With traditional methods, transplanting, weeding and harvesting appear to have the highest energy requirements per unit of output. While reducing overall energy requirements, some mechanical innovations have tended to increase the stress levels or time rate of energy consumptions.
- 3.7 Overall labor productivity in rice production has increased as evidenced by the decreased labor requirements per unit of output.

Points Raised:

1. Although the primary objective of promoting farm mechanization from the point of view of IRRI is to raise productivity, the same could likewise improve working conditions.
2. The generalizability or adaptability of the innovations developed by IRRI in Laguna to other agricultural areas which have different social structures and cultural patterns was raised.
3. The introduction of new rice technology has resulted in the increase of the percentage of hired labor which are mostly landless workers and the displacement of family labor. Thus, the following questions were raised:

- 3.1 What happened to the displaced workers? What should be done to provide gainful employment for them?
- 3.2 What provisions must be made for the new hired labor considering that they mean new patterns of working relationships?
4. While it is true that the agricultural institutions have been involved in innovations on rice technology, these may not have not been disseminated to the small farmers. Moreover, very little effort has been geared towards ascertaining the acceptability of these innovations.
5. The long-term costs of these innovations have not been considered in terms of the:
 - 5.1 Effects of fertilizers, pesticides and herbicides on the traditional emergency sources of food of poor farmer such as hito, dalag and frogs;
 - 5.2 Impact on the social interaction opportunities and the total community life of the farmers; and
 - 5.3 Inability of poor farmers to afford, perhaps without depending on loan sharks, the high capital requirements of the innovations.

MODERATOR: Manolo I. Abella

RAPPORTEURED BY: Amy King

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MODERATOR: Manolo I. Abella

RAPPORTEURED BY: Amy King

WORKSHOP II

Session No. 2

Date: December 12, 1977 Time: 4:00-5:30 p.m.

Paper: Study on the Living and Working Conditions in the Mining Industry

Author: Mr. Antonio Inocentes

Discussants: Col. Francisco Paraan
Com. Francisco Fuentes
Engr. Florentino Manuel

Summary of Paper:

1. The survey covered a total of 227 workers randomly drawn from the roster of the different companies. The mine workers were categorized into three types: the capataces, those skilled workers who can read plans, supervise, and exercise certain discretionary functions; the miners who operate manning machines, drilling equipments and the like; and the muckers, the unskilled workers who perform mostly manual work. The paper primarily focused on the working and living conditions presently existing in the mine sites.
2. The average age of the mine worker is 34 years. The bulk (70.8 percent) clustered in the 25 to 44 years old bracket. Majority of all the workers covered finished elementary education but were not able to complete their secondary education.
3. The environment in the mine sites was found to be fairly adequate and normal. Ventilation and lighting were found to be adequate. The noise level was measured by the workers to be of tolerable levels. As to other irritants, almost 91 percent noted existence of chemicals, dusts and the like in the underground area. The paper also found that most underground mine workers provide for themselves

protective equipments such as footwear, safety helmets, gloves, eye-covering, etc.

4. The paper noted that on the whole, 92.5 percent of the underground mine workers received daily wages higher than the minimum wage. The average rest day rate was approximated at 127 percent, 3 percent below that provided for by the Labor Code. The same was true with the average regular holiday rate which is offered at 191 percent, 9 percent below the minimum legal standards. The workers, however, enjoy an average rate 177 percent for work performed on special holidays. As to the number of working days, the population surveyed had a mean number of 26.8 working days in a month. A majority of the workers volunteered information on acceptance of other benefits such as: cost of living allowance, 13th month pay, SSS & Medicare and State Insurance Fund.
5. While 48 percent of the sample live in single houses, still 44.5 percent occupy bunk houses. For electricity and lighting facilities, the mine workers were well provided, considering that most of them enjoy electric power and electric lighting in their homes. However, the sources of water and the toilet facility needs to be improved from the standpoint of health, sanitation and cleanliness. The existence of educational, medical and recreational facilities were also touched by the paper.
6. In general, it was considered that a good relationship between labor and management exists. Relationship between workers and their immediate supervisors were generally

described as pleasant. Relationship among workers were found to be generally congenial. Around 55.9 percent of the total sample believed that their leaders were not working for their welfare.

7. Despite all these, the worker, however, generally found a sense of fulfillment or obtained a measure of satisfaction in his work.
8. In quantifying the degree of initiativeness used in their present work, a little more than half of the workers indicated the ability to use their initiative in some aspects of their work while 72.9 percent asserted that their skills were harnessed to the full extent.
9. Yet when asked as to the chances of promotion, over 50 percent answered in the negative. They perceived a very slim chance of getting higher in the hierarchy. Such awareness however did not abate the level of satisfaction existing among these workers, 63.4 percent of whom remained moderately satisfied with their work.
10. Nevertheless, the average underground mine worker was seemingly "contented" with his work for no other reason than that there is a limited choice as to the kind of work he can perform.
11. A transfer, of course, meant adjustment problems added to the already many economic difficulties.

Points Raised:

1. There is a need to study closely the problem relating to absenteeism and constant turnovers presently besetting the mining industry.

2. Rapid technological changes in the industry have negatively affected the workers' level of job satisfaction.

Session Moderator: Atty. Ruben D. Torres

Rapporteured by: Atty. Cynthia Tong Sy
Ms. Rebecca R. Paz

WORKSHOP II

Session No. 2

Date: December 12, 1977 Time: 4:00-5:30 p.m.

Paper: Study on the Living and Working Conditions in the
Sugar Plantations

Author: Ms. Ma. Nieves R. Confesor

Discussants: Mr. Antonio de Leon
Mr. Rosendo Coruña

Summary of Paper:

1. The study presented was undertaken primarily to assess the working conditions among agricultural workers in the sugar industry.
2. The skills of most of the workers are limited to sugar cultivation thus making them highly dependent on the industry for income. This has also resulted in the high degree of geographical and occupational immobility.
3. Daily earnings have remained relatively low at an average of ₱6.65 per day during the off-milling seasons (₱124.81 monthly) and ₱7.87 per day during the on-milling seasons (₱161.87 monthly). Consequently, based on accepted poverty levels, more than one third of total families are below the food threshold during the off-milling season improving by less than 5% during the milling season. The same trend can be noted for the total threshold but the percentage of those below the threshold are bigger.
4. Wages differ according to region, size of farm, type of plantation worker and the sex of the worker. Generally, those in Negros Oriental, those in small farms, the pangayaws and female workers receive lower wages.

5. Facilities available to the worker in terms of housing, lighting, toilet and medical services are quite poor.
6. More than 50 percent enjoy living allowances and the 13th month pay. About 44 percent receive social amelioration bonuses; for the other benefits, particularly on health, the percentages are much smaller.
7. Farms of medium to large sizes have bigger productivity and offer better wages and benefits.
8. Trade unionism is generally weak in terms of the number and quality of membership. They have thus not proven instrumental to the improvement of working conditions.
9. The implementation of government laws and policies have been hindered greatly by workers' unawareness of their rights, the weakness of unions and the inability of DOL to reach the plantation workers.

Points Raised:

1. Methodological aspects of the study questioned were mostly on the area covered and the sample used in the study. The group was assured however that in the sampling process, such variables as location of plantations and size of farms based on acceptable definitions have been considered for greater objectivity.
2. It was claimed that the findings of the survey on the area of the provision of medical services is understated. Contrary to the survey results which show that 74.4% know of no medical facilities, it was pointed out the region indeed has a sufficient number of hospitals. This finding therefore

indicates a low level of awareness among workers as to the availability of these facilities. Moreover, it was stressed that the number of existing hospitals do not constitute a sufficient measure. A reconsideration of a new strategy for the provision of medical facilities was suggested.

3. The social amelioration program and the SIFI covers the whole sugar industry but in actual implementation, the number benefited are way below the target population. Moreover, the time lag in the distribution of cash bonuses extends to about a year or two. The strategy and the distribution scheme will have to be restudied.

Session Moderator: Atty. Ruben D. Torres

Rapporteured by: Atty. Cynthia Tong Sy
Ms. Rebecca R. Paz

WORKSHOP II

Session No. II
December 13, 1977

IMPROVEMENT OF WORKING CONDITIONS AND ENVIRONMENT IN VARIOUS PHILIPPINE ENTERPRISES

Mr. George V. Winternitz

Open Forum

Summary of Paper:

1. The improvement of working conditions in the Philippines is implemented on a piece-meal basis. In addition, these improvements are neither systematically nor thoroughly documented.
2. The survey conducted by the Personnel Management Association of the Philippines (PMAP) showed technical flaws such as the samples polled, the returns received and published, nature of questions asked as well as the truthfulness of the response.
3. It is suggested that surveys on work improvement and safety should be done systematically and the plant's productivity before and after such improvements should be documented. Statistician(s) should be availed of initially and throughout the survey. More meaningful and logical questions should be asked.
4. Many companies are now aware of the need for the improvement of occupational safety and health.
 - 4.1 Measures taken via the employees' suggestion box are in terms of the introduction of improved work schedules, job-enrichment schemes, improved lighting conditions for night work, delineated work areas, the installation of dust collector and exhaust devices in carpentry operations and the "customization" of machines to suit the Filipinos or the employment of taller Filipinos and the purchase of machines made in other Asian countries.

5. Poor working conditions result in job dissatisfaction which in turn results in employees' absenteeism, tardiness and higher accident occurrences.
6. Safety and working conditions contribute positively to productivity in terms of output increases and reject reduction brought about by job satisfaction though, admittedly, not the only factors in productivity.
 - 6.1 It is suggested therefore that management attend to safety and working conditions not only because it is profit-inducing but also because human dignity so requires.
 - 6.2 On the other hand, union should concern itself not only to economic demands but likewise to its members' working conditions.

Summary of Discussion

1. Workers and employers join hands in improving the occupational health and safety policies and working conditions of employees. Management should act on the recommendations of the safety committee.
2. Factors to be considered besides job satisfaction in improving working conditions are time and remuneration.
 - 2.1 Means of arriving at such measures are through suggestion system, intervention by experts, safety or work committees, and social auditing system where labor and management report annually on factual conditions for evaluation and improvement.
3. More systematic and objective researches should be undertaken to quantify information on the matter.

WORKSHOP II

Session Number 2

13 December 1977

Time:

LABOR STANDARDS POLICY AND IMPLEMENTATION

Antonio Nuesa

Director, Bureau of Labor Standards

Discussants:

1. Mr. Benedicto Arcinas
2. Ms. Purificacion Quisumbing
3. Atty. Erasmo Damasing

Summary of Paper:

1. Labor Standards policy has a dual thrust: (a) improvement of the working conditions; and (b) improvement of the working environment. The former is concerned with workers' protection, the adoption and implementation of labor standards, while the latter is aimed towards the elimination or reduction of occupational health and safety hazards.
2. Labor Standards are found in Books III and IV of the Labor Code, Safety Orders, Policy Instructions and the proposed Occupational Health and Safety Standards.
3. Enforcement of labor standards is carried out through a national inspection program. Experience of the past three years showed that current inspections made tremendous improvements compared to inspections before Martial Law.
4. However, maximum effectivity is still hampered by the following constraints:
 - 4.1 low safety consciousness among the people;
 - 4.2 the high cost of compliance with labor standards;
 - 4.3 the overlapping functions among government enforcement agencies;

- 4.4 The adequacy and quality of the labor inspecto-
rate; and
- 4.5 the tremendous cost of enforcement (to government)
- 5. Recognizing the above constraints, the Bureau of Labor
Standards proposed the following action plans:
 - 5.1 the creation of an Occupational Health and Safety
Institute to conduct in-depth studies and resear-
ches on occupational health and safety;
 - 5.2 recruitment of young and dynamic personnel and a
continuous manpower development program;
 - 5.3 updating of Inspection Service Manual;
 - 5.4 an all-out information campaign;
 - 5.5 improvement of laboratory and testing facilities;
 - 5.6 development of appropriate technology; and
 - 5.7 continuing inter-agency dialogue on occupational
health and safety to minimize overlapping.

Issues Raised:

1. The issue of tripartite action in the formulation of
labor policies was discussed **time and again**. Without
impairing the governments' traditional role of stan-
dard setting, the tripartite system should be
strengthened even as a system of bipartism should
also be encouraged. Labor and management should be
given the chance to discuss their problems thoroughly and
even before government should come in for a tripartite
action.
2. It was suggested that in all tripartite discussions,
government should give the parties sufficient time
to consider the points at issue. The government
should also make available to the parties concerned

all studies undertaken. The proposed rules and concepts should also be presented for the benefit of all.

3. On the other hand, it was pointed out that the tripartite arrangement is not enough. What is important is that the spirit of cooperation forged in a tripartite dialogue should be carried over to the implementation or enforcement stage. Right attitudes on the part of labor, management, and government is also necessary. The government besides should be serious in the implementation of laws. It was pointed out that when government wavers in the implementation of labor legislation the workers suffer.
4. The constitutional mandate which assures workers just and humane conditions of work, social justice and social services was noted. It was pointed out that the Constitution is unequivocal in its concern for the workers. A point was raised, however, as to whether the Labor Code, by revising and shortening the list of compensable diseases, is in fact true to the constitutional mandate of social justice and social services.
5. Questions were raised on the policy guidelines enumerated in the paper:
 - 5.1 On the policy of inspection priorities - How were the priorities arrived at? Given the state of workers' militancy, how can the DOL assume that workers will come forward to file complaints under oath?

- 5.2 On the non-arbitrability of labor standards -
In trying to get what rightfully belong to them, the workers, in fact, need the services of lawyers. How many workers, especially among the unorganized, can afford to hire lawyers? In the case of the organized workers, it was pointed that unions handle only big cases and tend to disregard small individual complaints.
6. An optimistic view on the future of labor standards enforcement was made. It was pointed out that the fight against occupational diseases in the Philippines will succeed given sufficient time. The total approach to labor standards and occupational health and safety adopted by the Philippines is considered an alternative to the piece meal approach adopted by many European countries.
7. It was also stressed that the educational and training program for workers and employers undertaken by the Department of Labor is a step in the right direction if the objective is to raise the level of safety consciousness among the people.
8. A final point was raised on the need to emphasize the preventive aspect of occupational health and safety. It was lamented that much attention is being given to the enforcement aspect of labor standards. Yet, the problems attendant to enforcement and the incidence of occupational diseases can be minimized if the thrust can be re-oriented to the prevention aspect.

Group II

Date: December 13, 1977 Time: 3:00 - 6:00

Case Studies: Magnolia
California Manufacturing Corporation
Pantranco North Express, Inc.
American Wire and Cable Co.
Benguet Consolidated Inc.

Authors:

Discussants: Atty. George Eduvala
Dr. K. Kogi
Mr. M. R. Chowdhury
Mr. G. Imperial

Issues Raised:

1. The experiments being conducted by the five (5) companies on work hours and rest periods, particularly Benguet Consolidated, Inc., and California Manufacturing Corp., may be difficult to sustain on strictly legal grounds. The Labor Code of the Philippines allows work after 8 hours or after 6 days only on specified circumstances (i.e. force majeure, accidents, urgent work on machines, danger to perishable goods and unexpected volume of work). Moreover, the law compels payment of overtime and premium rates instead of just providing for compensatory rest periods as what was done in the experiments. It is therefore better to adopt experiments which do not invite difficult or legal uncertainties.
2. It is necessary that the actions taken on the enterprise level be flexible. For instance in Pantranco, there may be a rotation of driving schedule every 2 to 3 months although this is basically fixed. In Benguet Consolidated Inc., flexibility is all the more necessary since the laborers do not wholly conform to the 12 days-3 days work schedule.

3. Because of the unusual work environment of underground mine workers, it may not be worthwhile for them to work for 12 days straight as what was done in BCI. It is possible that their efficiency is decreasing. An expert group should study this aspect.
4. With respect to Pantranco, fatigue as a factor of the rate of accidents should be looked into.
5. It seems that the experiments of the companies have been evaluated in terms of their contribution to higher productivity. Since these experiments are very much related to the physical aspect of the workers, these experiments should include measurement of their physiological functions. These should be related to the family life and sex performance of the workers.
6. Considering that workers have an optimum physiological capacity for work and for enduring stresses, work experiments should be evaluated also from the point of view of the workers' health.
7. With respect to the mining companies, they must feel accountable to the communities which they have created. These communities must be prepared to engage in other economic activities when the mining companies have exhausted the mines and leave the sites.

Group I Workshop II

December 13, 1977

Enterprise Actions, Productivity and Improvement of Working Conditions: A Presentation of Eleven Enterprise Case Studies

Director Carmelo C. Noriel

Points Raised:

1. The improvement of working conditions and environment are enshrined in the Constitution of the Philippines. The Department of Labor is tasked with implementing the constitutional mandates appurtenant to labor.
2. Unionization of workers and unification of unions are necessary to promote national consciousness for the improvement of working conditions.
3. Organized workers are in a better position to demand for better work conditions and more benefits through collective bargaining.
4. There are still a great mass of unorganized workers where the main area of concern is labor protection and enforcement of labor standards. This constitutes close to 95 percent of the total labor force.
5. The following are suggested as factors in the improvement of working conditions and environment:
 1. Organization of the workers
 2. Education of both labor and management on trade unionism and collective bargaining
 3. Unification not only of the trade union movement but also the industries so as to inaugurate collective bargaining by industry and completely eliminate intra-union and inter-union conflicts.
 4. The need responsible collective bargaining concerning terms and conditions of employment, the effective application of the tripartite approach and a national awareness on what and how working conditions and environment can be improved.

*Document
d'organisation*

NATIONAL TRIPARTITE CONFERENCE ON IMPROVING WORKING CONDITIONS AND ENVIRONMENT

12-14 DECEMBER 1977

SILAHIS INTERNATIONAL HOTEL, MANILA

SPONSORED BY:

**INSTITUTE OF LABOR AND MANPOWER STUDIES
INTERNATIONAL LABOUR ORGANISATION
(PIACT)**

THE PHILIPPINE DEPARTMENT OF LABOR

Welcome to the National Tripartite Conference on Improving Working Conditions and Environment. This Conference is sponsored by the Department of Labor through the Institute of Labor and Manpower Studies in collaboration with the International Labour Organisation. This is the first of its kind to be held in Asia under a new international program of ILO.

We are glad that you have taken time out from your hectic schedules to join us in this critical and **important** conference which shall focus on the improvement of working conditions and environment by tripartite action. Together, we hope to focus on the following areas:

- a) Improvement of conditions of work and life in the agricultural and industrial sectors;
- b) Enterprise action and the improvement of working conditions
- c) Government policy and the improvement of working conditions.

We will be together until the fourteenth of December and we hope your stay will be fruitful and pleasant.

The details of the organization and administration of the conference are found in the succeeding pages.

MANOLO I. ABELLA
Executive Director
Institute of Labor and
Manpower Studies
5th Floor DOL Building
Intramuros, Manila

1. Administrative and Financial Arrangements
2. Organization and Structure of the Conference
3. Guidelines for Moderators and Paper Readers
4. Schedule
5. List of Participants
6. Papers to be Presented at the Conference

1. ADMINISTRATIVE AND FINANCIAL ARRANGEMENTS

1.1 Work Rooms

The following rooms will be used for the Conference:

December 12

Registration will be at the Secretariat Room (Sulu Sea) which is located at the second floor. The Opening Ceremonies will be held at the Los Mares Ballroom which is also on the second floor.

Workshop sessions start at 1:30 and end at 5:30. The workshop rooms are:

Workshop 1 - Tatlong Puno

Workshop 2 - Los Mares (Manila Bay Room)

December 13

The workshop rooms in the morning are:

Workshop 1 - Bahia

Workshop 2 - Los Mares (Manila Bay Room)

The case studies will be presented at the Los Mares Ballroom to the participants of both workshops.

December 14

Sessions in the morning will be held at the Bahia for Workshop I and the Manila Bay Room for Workshop II.

1.2 Meals

Lunch and two meriendas daily will be provided during the Conference. All participants and guests are asked to secure their meal tickets at the Secretariat Room every morning. The following are the dining halls to be used:

December 12 - Los Mares (Subic Bay Room)
December 13 - Capriccio
December 14 - Capriccio

Drinks and other special orders will be charged individually.

1.3 Room Accomodations

For those who wish to stay at the Silahis International Hotel during the Conference, special rates have been arranged:

Single Room - US \$ 18.00
Double Room - US \$ 20.00

plus 10% service charge and 13% governmental tax. Tax is waived provided payment is made in acceptable foreign currency.

2. ORGANIZATION & STRUCTURE OF THE CONFERENCE

2.1 Programs

The programme has been systematically prepared to ensure the full participation and cooperation of everyone. The Conference has been divided into two workshops. Workshop 1 will focus its discussions on the working conditions; training and choice of technology; while Workshop 2 will deal on enterprise action, productivity, working conditions and governmental policy. The discussions will be informal, and it is hoped that each participant will share his individual expertise and experience.

All participants will be given name cards. The name cards of all participants have been coded in the following way:

Workshop 1 - Blue
Workshop 2 - Yellow
Observers - White
Secretariat - Orange

2.2 Organization

Each session will have its own Chairman or Moderator. Each paper reader will be given a maximum of 15 minutes for his delivery. Use of visual aids is encouraged. A panel of reactors will give their views and comments for a maximum of 5 minutes. This will be followed by an open forum. Ample time will be given for each session to allow for more thorough and rigid discussions and all paper readers are requested to be in the room during the session. Reports containing the main elements and issues arising from the discussions will be provided by the Secretariat on a daily basis. On the last day, discussions on the proposals and recommendations on working conditions, training, choice of technology, labor-management action, and government policies will be presented at the plenary session.

2.3 Secretariat

The Conference Secretariat is located at the Sulo Sea. It shall prepare the daily reports for distribution to the workshop discussants not later than Tuesday (December 13) afternoon.

The Secretariat shall provide the necessary equipment for presentation of papers and shall issue the meal tickets.

3. GUIDELINES FOR MODERATORS AND PAPER READERS

3.1

The oral delivery of papers shall be limited to a maximum of fifteen (15) minutes. This shall be strictly followed to provide for a full discussion by participants of issues raised in the paper. All papers presented at the Conference have been reproduced and have been sent to the individual participants a week before this Conference.

3.2

The use of visuals is encouraged. Please get in touch with the Secretariat for your equipment needs. We have the following available for use: overhead projectors, slide projectors, recorders, boards, etc.

3.3

Two reactors will be among the participants to present their comments after the oral delivery of the paper. A maximum period of five (5) minutes for each is given.

3.4

An open forum shall follow the reactors. Participants may now address their questions to the paper readers.

OPENING CEREMONIES

THE PHILIPPINE NATIONAL ANTHEM

WELCOME ADDRESS

Mr. MANOLO I. ABELLA
Executive Director
I L M S

REMARKS:

Mr. G. Spyropoulos
Chief
Conditions of Work and
Life Branch
Working Conditions and
Environment Department
International Labour
Organisation

Atty. Benildo G. Hernandez
Vice President
Employers Confederation
of the Philippines

Atty. Democrito Mendoza
Secretary General
Trade Union Congress of
the Philippines

KEYNOTE ADDRESS:

Hon. Blas F. Ople
Secretary of Labor

Merienda will be served.

REPORTS PREPARED FOR THE NATIONAL
TRIPARTITE CONFERENCE ON IMPROVING WORKING
CONDITIONS AND ENVIRONMENT

PAPERS TO BE PRESENTED IN WORKSHOP 1

- Work Doc. Working Conditions and Choice of Technology
2
- Miss F.J. Dy
Conditions of Work and Life Branch
Working Conditions and Environment
Department
International Labour Organisation
Geneva, Switzerland
- Work Doc. Choice of Technology, working Conditions
7 and the Filipino worker
- Mr. J. Gatchalian
University of the Philippines-Asian Labor
Education Center
Diliman, Quezon City
- Work Doc. Socio-Technological Impact of the Low-Cost
14 Automation Technology in Philippine
Enterprises
- Mr. Rudy Sumicad
Institute for Small-Scale Industries
University of the Philippines
Diliman, Quezon City
- Work Doc. Information and Training Needs for Choice
3 of Technology and working Conditions
- Professor A. wisner
Conservatoire National des Arts et Metiers
41, rue Gary-Lussac
75005 Paris, France
- Work Doc. Issues on the Integration of Safety and
15 Working Conditions with Skills Training
- Dr. Zacarias Maribbay
Office of Manpower Skills Development
National Manpower and Youth Council
Taguig, Metro Manila
- Work Doc. Choice of Technology and Working Conditions:
4 A Social Assessment Framework
- Dr. Bruce Loppel
East-West Technology and Development
Institute
1777 East-West Road
Honolulu, Hawaii, 96822 USA

Work Doc. Choice of Technology and Working Conditions
6 in Rural Areas

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WORKING
DOCUMENTS

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LIST OF ILO PAPERS PREPARED FOR THE PHILIPPINE
TRIPARTITE CONFERENCE

- Document n°9 1. Technologies for Improved Working Conditions and Environment in Phil. Forestry - - Iftikhar Ahmed
- Document n°5 2. The Use of Technology to Improve Working Conditions and Environment - - M. R. Chowdhurry
- Document n°2 3. Working Conditions and Choice of Technology - - Miss F. J. Dy
- Document n°7 4. Choice of Technology, Working Conditions and the Filipino Worker - - Mr. J. Gatchalian
- Document n°8 5. Shift Work in Developing Economies - - Dr. K. Kogi
- Document n°4 6. Choice of Technology and Working Conditions: A Social Assessment Framework - - Dr. Bruce Koppel
7. Choice of Technology and Working Conditions in Rural Areas - - Prof. A. Manuaba
- Document n°11 8. Working Conditions and Environment and the Choice of Technology - - U. S. Mathur
- Document n°10 9. Extract from Transfer of Technology in Indonesia - - S. Sediono
- Document n°1 10. PIACT in the Philippines: Framework Paper for the Phil. National Tripartite - - Mr. J. E. Thurman
- Document n°3 11. Information and Training Needs for Choice of Technology and Working Conditions - - Prof. A. Wisner

Copies of these papers are available at the Secretariat Room (Sulu Sea).

INTERNATIONAL LABOUR ORGANISATION

INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT (PIACT)

Philippine National Tripartite Conference on Improving
Working Conditions and Environment
(Manila, 12 to 14 December 1977)

Working Document No. 1

PIACT in the Philippines : ILO
Background Paper for the Philippine
National Tripartite Conference

by

Joseph E. Thurman

Conditions of Work and Life Branch
Working Conditions and Environment
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International Labour Office

Geneva
International Labour Office
1977

PIACT IN THE PHILIPPINES

The ILO's International Programme for the Improvement of Working Conditions and Environment¹ is just beginning a long-term effort to improve the conditions of working men and women throughout the world. This effort is based on the idea that member States of the ILO, actively encouraged and technically supported by the Office, are capable of making important progress toward making work more human.

The progress made in different countries will depend on many factors, the most important of which is their commitment to making improvements. While the modalities of action will depend on each country's problems, the potential for progress is present everywhere.

In the Philippines, the response to PIACT has been early, positive and energetic. The members of the delegation of the Philippines to the 1977 International Labour Conference welcomed the idea that the Philippines should be one of the first countries in Asia to participate in PIACT activities. Expert missions from the ILO have contributed to arranging what has become the Philippine National Tripartite Conference on Improving Working Conditions and Environment. This Conference is the first event of its kind to be held with PIACT technical support, and may be expected to serve as an example for further PIACT activities.

The ILO's support for the National Tripartite Conference has consisted in the provision of technical reports and expertise. This has been done in two ways. In the first place, a series of feasibility studies has been commissioned within the Philippines, in order to insure that action proposals fully reflect local conditions and potential. Secondly, additional technical work has been provided from outside the Philippines. This has hopefully brought some new approaches and allowed a fresh view of possibilities for action within the Philippines.

The purpose of this report is to provide background on PIACT and some information on the issues which have been placed on the agenda of the National Tripartite Conference as particularly relevant to action in the Philippines to improve working conditions and environment.

¹ Called PIACT, from the French initials.

PIACT: The International Programme¹

Conditions of work and occupational safety and health have always been central concerns of the ILO. In the last two years, the Organisation has sought to give a new orientation and a new impetus to its action in these fields through the launching of the International Programme for the Improvement of Working Conditions and Environment (PIACT). The programme had its origins in the Report of the Director-General to the 60th Session of the International Labour Conference on Making Work More Human. That report was aimed at reinvigorating both ILO action and action within member States on an issue which, as the Director-General observed, there had been a temptation "to put off to a better tomorrow". The Conference welcomed this initiative and unanimously adopted a resolution supporting the new programme suggested by the Director-General and solemnly reaffirming that "the improvement of working conditions and environment and the well-being of workers remains the first and permanent mission of the ILO".

After thorough technical preparation and discussion with members of the ILO's tripartite constituency, inter-governmental organisations and specialists from various circles, detailed proposals on an International Programme for the Improvement of Working Conditions and Environment were submitted to the Governing Body, which at its November 1976 Session approved the broad lines of the programme.

This programme, which has come to be known as PIACT after its French initials, represents a blend of continuity and innovation. Its technical scope covers some of the earliest preoccupations of the ILO together with some of the newest problems and concerns; its methods of action combine the traditional tools of the ILO with a new approach designed to reinforce their effectiveness in practice.

The approach is new in many ways. Chief among them are that -

- it encourages member States to set definite objectives for the improvement of working conditions and environment;
- it seeks to use in a co-ordinated fashion the different means of action of the ILO to help member States attain these objectives;

¹ The description of PIACT in this section is taken from the report "Examination of Proposals for the Agenda of the Ninth Asian Regional Conference" prepared for the Seventeenth Session of the Asian Advisory Committee (Manila, 29 November - 8 December 1977), pages 34-35.

- it treats problems of working conditions and environment globally, articulating more closely than before, for example, the traditionally separate fields of conditions of work and occupational safety and health; and
- it views these problems in the wider context of general economic and social policy.

Under this approach, the scope of working conditions and environment is very broad. It includes -

- safety and health in the work process and at the workplace;
- ergonomics;
- hours of work and other problems of working time;
- specific aspects of remuneration, such as payment by results;
- work organisation and content;
- working conditions and choice of technology; and
- the living environment as it relates to work.

Which of these areas, and which of the vast range of specific subjects and problems they encompass are of most immediate concern, will necessarily differ from country to country. The choice of priorities, objectives and methods of action must depend on the level of development, the employment situation, the availability of resources, and other factors.

PIACT is designed to take full account of this diversity: one of its fundamental aims is to bring ILO action on working conditions and environment as close as possible to reality. For this reason, PIACT is bound to have a strong national and regional emphasis. The exchange of experience and information, the review of objectives and of progress made in reaching them, the examination of difficulties and obstacles, the orientation of ILO activities in countries with similar problems - all this can be done concretely and realistically at the regional level. Hence the importance of discussion at Advisory Committee meetings and Regional Conferences.

What is the relevance of PIACT for Asia? Is the improvement of working conditions and environment really a matter of urgent concern for Asian countries and developing countries

in general? If at one time there were doubts about this, there now seems to be widespread acceptance of the proposition in the Director-General's Report on Making Work More Human that "in underdevelopment there is no situation in which greater attention to the working conditions of men and women and resolute action to improve these conditions are not likely to bring about beneficial results tomorrow out of proportion with the effort put in today".

To affirm that greater efforts should be aimed towards improving working conditions and environment is not to deny that hard choices must often be made. Developing countries are constantly faced with the dilemma of choosing between different objectives, sometimes between conflicting social objectives. But neither economic development nor even employment creation will necessarily serve a social purpose if pursued in isolation. Thus, the Declaration of the World Employment Conference adopted the triple objective of employment, freedom of association and decent working conditions.

If, as the Secretary of Labor of the Philippines said at the International Labour Conference, "man is and ought to be the centre of development", then surely it must be the aim of every country, even the least developed, to secure for its workers minimum standards of working conditions and environment.

Conference Agenda Items

Enterprise-level action to improve working conditions and environment

Within the workplace, where managers and workers confront daily the problems of production, the possibilities and constraints faced in the improvement of working conditions are found in concrete terms. We are faced with a particular work facility, specific machines, well-defined jobs. Workers are engaged, directly or indirectly, in the production of goods and services, and their wages - based, in principle, on their contribution to production - are the basic motive for their presence and their efforts.

In these circumstances, why should there be concern for improved working conditions? It may be useful to list two basic motives -

- (a) poor conditions affect the health and well-being of the workers, often cumulatively, in ways which are always personally meaningful and which can be financially disastrous. The basic principle gaining increasing

acceptance is that "Production requirements or urgency of work should never take precedence over the safety and health of workers. . . "1; and

- (b) in numerous circumstances, poor conditions directly contribute to lower productivity or increased costs. In these circumstances, managers and workers both have a direct interest - assuming the value of increased production or reduced costs is shared - in improving productivity.

It should be noted that in many cases it is society which shares the costs of poor, unsafe or unhealthy conditions. The burden of an occupational accident, for example, is often shared by the nuclear or extended family, or by society as a whole in the form of social security. The exhaustion and nervous strain which workers often endure has effects long after working hours are over. Finally, the aggregate economic losses to society of poor working conditions and environment are impressive by any standards. Occupational accidents alone, for example, cost the United States \$14,000 million in 1973, or \$165 per worker.

One first problem to be faced improving working conditions at the enterprise level is that of awareness. It may be difficult to step back and carefully reconsider what can be changed in the workplace and how this can be done. This is a painful paradox for those who want to improve conditions. No matter how bad problems are, no matter what opportunities exist for improvement, it almost always seems easier to do nothing. One important input to this National Tripartite Conference, then, has been the collection of examples of what can be done. A critical issue for discussion at the Conference would therefore seem to be how to use these examples to generate widespread action.

Before turning to the mechanisms which can be used to encourage the spread of enterprise-level improvements, it seems important to discuss constraints. The first constraint, in an economy concerned with growth and competitiveness, is that of finding ways of covering the costs of improvements. This issue is discussed in detail under the agenda item relating to productivity. It should be recalled here, however, that large increases in productivity can result from improvements in working conditions and environment. Nevertheless, productivity increases or cost reductions may not be automatic: they have to be designed into the improvement in conditions. A second constraint, especially relevant to undercapitalised, small firms, is the problem of the size of investment required. It is amazing what can be done at

¹ ILO: Code of Practice on Safety and Health in Shipbuilding and Shiprepairing, paragraph 1.S.1(1) (Geneva), 1974.

little cost, but some problems can require investments beyond the means of small enterprises, even if the change is known to be cost effective. A third constraint - perhaps the most limiting of all - is the lack of access to information. This information can be costly, but it is more frequently just too difficult or inconvenient to obtain. Once again, the nature of the constraint suggests a policy option.

The range of possible improvements in working conditions is very broad. It covers, in fact, all the technical areas - occupational safety and health, working time, organisation of work and job content - which are listed in the introductory part of this paper.¹ Moreover, in the workplace itself these areas are closely inter-related, where, for example, an improvement in work schedules undertaken to reduce fatigue may also reduce accidents.

The mechanisms for improvement at the enterprise level are relatively well known.² The fundamental problem is to make them function well. The main types of mechanisms are listed below -

- (a) suggestion schemes. These are often coupled with contests and cash rewards. They tend to be concerned primarily with productivity, secondarily with safety and rarely with other conditions;
- (b) management-labour committees. In the Philippines, these are concerned primarily with safety. They have the advantage of getting managers and workers together to focus on the problem. Unfortunately, they are often powerless, which makes them ineffective and finally ignored;
- (c) collective bargaining. The Rules for Implementing the Labour Code of the Philippines farsightedly require provisions concerning working conditions for a collective bargaining agreement to be registered. This helps to focus attention on such provisions, which are often easy to ignore in the wage-oriented adversary atmosphere of collective bargaining; and

¹ In addition to the case studies and other work available from within the Philippines, a number of examples of improvements are available in papers submitted to this Conference concerning other countries. For example, working time is covered in K. Kogi: Shift Work in Developing Economies (PNTC/1977/D.8), and information on enterprises involved in international technology transfer is to be found in S. Sediono: Transfer of Technology in Indonesia (PNTC/1977/D.10).

² A number of suggestions are to be found in V.S. Mathur: Working Conditions, Environment and the Choice of Technology (PNTC/1977/D.11) and M.R. Chowdhury: The Use of Technology to Improve Working Conditions and Environment (PNTC/1977/D.5).

- (d) interventions by experts. This can include private consultants, staff from government or privately sponsored institutes and centres, and (an often ignored possibility) labour inspectors in an advisory role.

Trade unions have a role which cuts across all these mechanisms. They can stimulate worker concern, represent workers in committees, bargain and sponsor their own expert investigations. In order to do this, they have their own needs for workers' education, for trade union research centres and for other means of strengthening their knowledge and concern in this area. This is particularly important in view of the increasing finding that the workers themselves are in the best position to suggest improvements in their own work, if only they are adequately motivated, they are adequately informed and they have effective mechanisms for putting their ideas into action.

Two interesting additional possibilities exist for increasing the likelihood of the above mechanisms being fully effective. These are the use of social audits and inter-enterprise bodies. Social audits require a labour-management report on the factual situation concerning working conditions, occupational safety and health, social relations in the enterprise, etc., and are used to evaluate progress. Inter-enterprise bodies are often able to provide services - for example, concerning ergonomics or occupational medicine - which are beyond the means of individual small enterprises. These possibilities are interesting in that the first provides a means of annually focussing attention on progress made concerning working conditions and environment while the second helps to overcome problems related to access to technical information.

Working conditions and environment and productivity

In many workplaces, the productive capacity of machinery is very fully utilised. This is much more rarely true of workers, who usually have skills and energies which are unused and who therefore can contribute, under favourable circumstances, a major increase in productivity. This gap between actual and potential productivity can be looked at in two ways. First, it can be treated as a result of unnecessary costs attributable directly or indirectly to workers. Second, it can be analysed from the point of view of the potential for an increase in the volume of production. In both cases, it can be seen that working conditions and environment play a major role in determining productivity.

The costs of poor working conditions and an unsafe or unhealthy working environment are difficult to calculate accurately. An idea of their potential size can be given by the following list of sources of costs:

- (a) absenteeism and tardiness. These can be related to a number of aspects of working conditions and environment: accidents, occupational diseases, excessive hours, fatigue and strain, etc. They are costly to an enterprise in a variety of ways, primarily through hindering the normal operation of the production system;
- (b) turnover. This also has a variety of causes, many of which relate to working conditions and environment. Costs include the training of replacements, terminal benefits, recruitment costs, wage increases motivated by recruitment difficulties;
- (c) costs of accidents and occupational diseases. These are extremely costly, to society as well as the enterprise. In addition to the costs of loss-time accidents, the costs of incidents in which near-accidents cause production stoppages and damage to equipment can be very high;¹
- (d) losses of production due to strikes and grievances. It is a mistake to think that workers react only to pay and ignore the conditions in which they work. Intolerable conditions can be as explosive a source of industrial unrest as can low pay;
- (e) maintenance costs. Workers cannot be expected to deal carefully with equipment when they are themselves poorly protected; and
- (f) poor production quality and inventory use. The care that a worker takes on the job is related to his working conditions, especially where physical or mental strain is great.

These sources of costs must, in most cases, be added to the unused potential for increases in the quantity of production when considering the productivity effects of a change in working conditions and environment.

The question of increasing the volume of production merits a closer look. In general, there is potential for an increase

¹ This factor has been discussed in detail in the Asian context in ILO: Occupational Safety and Health in Relation to Productivity, Proceedings of the Asian Regional Seminar on Occupational Safety and Health in Relation to Productivity, Singapore, 24 November - 4 December 1975 (Bangkok), 1976.

in production based on improvements in working conditions and environment whenever one or more of the following conditions exist:

- (a) physical or mental strain and fatigue due to excessive muscular effort, heat, noise, vibration, pollution, repetitive work, danger, long hours or a host of other factors;
- (b) poor use of the skills and abilities of workers; and
- (c) poor motivation due to the above and other factors, including career frustration, supervision and pay.

Traditional personnel practices tend to take jobs and working conditions as given and attempt to deal with the human factor of production using such procedures as testing and selection, pay incentive systems or training. These are undoubtedly important, but they usually ignore the basic nature of the problems workers are facing and the possibilities for changing jobs to make better use of the workers' potential.

Technology for the improvement of working conditions and environment

Technology provides tremendous potential for improving working conditions and environment. Significantly, this potential is no less important for small enterprises and the rural and agricultural sectors than for large scale modern industries. There is thus the possibility of improving conditions where other means of action find their greatest difficulties.

Unfortunately, technology is an ambiguous, complex and difficult concept. The process by which machines and work methods are chosen in particular enterprises is far from perfectly understood. Technical processes are found in vast numbers, and alternatives depend on a number of factors specific to particular industries. Moreover, the idea that technical choices can be made for social reasons instead of engineering and economic ones is new and relatively untested.

Nevertheless, a preliminary investigation by the ILO¹ has shown the following:

- (a) working conditions and environment depend heavily on choices of products, product designs and production facility designs;

¹ F.J. Dy: Working Conditions and Choice of Technology, Paper submitted to the Philippine National Tripartite Conference on Improving Working Conditions and Environment (ILO, doc. PNTC/1977/D.2).

- (b) choices of technology are normally made without reference to the impact on working conditions and environment; and
- (c) economically viable choices of technology exist in almost all circumstances which significantly improve the conditions of working men and women.

While the potential for improved working conditions and environment through better choices of technology clearly exists, it is not easy to define mechanisms that will effectively lead to better choices. One important step, the use of a wide range of training and information programmes, is to be considered at this Conference.¹ Such programmes presume, however, the existence of information about the existing technologies in use and the available alternatives. Such information is often lacking, even for some of the most important industries and sectors.²

Training for the improvement of working conditions and environment

Training is the means whereby workers acquire the skills they need to be productive. This training can be formal or informal; it can take place in a classroom or on the job; and it can range from the development of manual skills to advanced engineering or other studies.

The various groups who could benefit from improved training on working conditions and environment, and proposals for the context of their training, are specified in another paper for this Conference.³ The purpose of the present discussion, therefore, is to present two issues which are

¹ A. Wisner: Information and Training Needs for Choice of Technology and Working Conditions, Paper submitted to the Philippine National Tripartite Conference on Improving Working Conditions and Environment (doc. PNTC/1977/D.3).

² A number of the papers for this Conference attempt a preliminary exposition of the implications of technology for working conditions and environment. See B. Koppel: Choice of Technology and Working Conditions: A Social Assessment Framework (PNTC/1977/D.4); A. Manuaba: Choices of Technology and Working Conditions in Rural Areas (PNTC/1977/D.6); Asian Labor Education Center: Choice of Technology, Working Conditions and the Filipino Worker (PNTC/1977/D.7); I. Ahmed: Technologies for Improved Working Conditions and Environment in Philippine Forestry (PNTC/1977/D.9).

³ A. Wisner, op. cit.

critical to the success of using training to improve working conditions and environment. The first of these issues relates to the integration of social material into training undertaken for other reasons; the second concerns the relation of training to the balance between skills and expectations of workers and the content of jobs.

The process of acquiring skills, whether basic or advanced, also involves the acquisition of habits of thought and behaviour which greatly influence future actions. Thus a worker who learns how to operate a particular machine or carry out a specific process will develop a pattern of working during his training which is difficult to change afterward. If work methods during training do not include, for example, systematic attention to the specific safety problems of the job in question, then it is unlikely that the habits developed there can be overcome by a safety course given later. On the contrary, it is to be expected that unsafe practices will be more common on the job than in training. However, it is not only unsafe practice which may be acquired during training. Engineers or economists, for example, may develop preferences for particular techniques of analysis which provide little scope for the inclusion of social concerns.

The process of acquiring skills, then, greatly determines how those skills will be used. This suggests a powerful need for integrating the various concerns for better working conditions and environment into all levels of education and training, whether for workers or for those who directly or indirectly influence the design of workplaces.

A second basic problem related to training is that poor use of the skills and abilities of workers can generate considerable frustration. Rising dissatisfaction among workers with their career prospects and with jobs which afford neither interest nor responsibility is not limited to industrialised countries. Training, including on-the-job training, provides numerous opportunities for more skilled workers. It is important to insure that the jobs of these workers take appropriate account of the skills they have.

Labour standards and their enforcement

The merit of labour standards can be seen by imagining the chaotic and exploitative conditions which would easily arise in their absence. Such standards establish minimum conditions and a system of enforcement and appeal which are the basis of adequate conditions of labour.

The question is not, therefore, whether labour standards should exist, but what they should prescribe and how they should be applied. The following questions are pertinent in this regard:

- (a) what conditions should be covered by labour standards?
- (b) to what extent are complex standards self-defeating in that they are difficult to apply and enforce?
- (c) what is the appropriate relation between standards and the ability of enterprises to meet those standards?

- (d) what are the appropriate roles of management, trade unions and the labour inspectorate in formulating, applying and enforcing standards?

While each country will find different answers to these questions, some general principles emerge -

- (a) Labour standards are only one of several means of improving working conditions. Their content should be carefully based on the effectiveness of other mechanisms (e.g. collective bargaining, promotion of improved technologies, training and information programmes) and on optimum use of the available enforcement resources, for example by emphasising problem sectors.
- (b) Standards have to be known and understood to be applied. This suggests information campaigns and the use of inspectors in an information-providing role.
- (c) Enforcement of labour standards is particularly difficult in small, undercapitalised enterprises. If the goal of the standards is to reach the workers with the poorest conditions, this suggests a concentration of effort on such enterprises, in both the formulation and enforcement of standards.

Government policies for the improvement of working conditions and environment

The International Labour Conference, in the Resolution¹ calling upon the ILO to establish PIACT, also discussed national action. The Resolution, after reaffirming "that the improvement of working conditions and environment remains the first and permanent mission of the ILO" and calling upon PIACT to be "designed to promote or support the activities of member States in this field", invites member States -

- "(1) to promote the objectives of an improvement of working conditions and environment with all aspects of their economic, educational and social policy;
- (2) to set periodically for themselves a number of definite objectives designed to reduce as far as possible certain industrial accidents and occupational diseases or the most unpleasant and tedious of jobs;

¹ Resolution concerning Future Action of the International Labour Organisation in the Field of Working Conditions and Environment; adopted unanimously on 24 June 1975.

- (3) to normalise the application of scientific research so that it is carried out for man, and not against him and against his environment."

The Resolution thus sets out three basic national goals.

The first such goal is a national policy. The need for such a policy is rooted in the leadership role of the government in raising national consciousness and establishing national priorities. An important aspect of the policy is integration with economic, educational and social policy.

The second goal is the setting of definite national objectives. In order to accomplish these objectives, specific action is necessary.

The final goal is to see that research is centered on man. An emerging international theme - that of the use of science and technology for development in the human as well as economic sense - is thus suggested as a national priority.

These are ambitious goals. It is hoped that the National Tripartite Conference on Improving Working Conditions and Environment will make concrete progress toward their achievement.

INTERNATIONAL LABOUR ORGANISATION

INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT (PIACT)

Philippine National Tripartite Conference on Improving
Working Conditions and Environment
(Manila, 12 to 14 December 1977)

Working Document No. 5

The Use of Technology to Improve
Working Conditions and Environment

by

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Geneva
International Labour Office
1977

THE USE OF TECHNOLOGY TO IMPROVE WORKING CONDITIONS AND ENVIRONMENT ¹

As most of the member countries of International Labour Organisation are aware that since 1919 the I.L.O. has been deeply concerned with the safety and healthiness of work for one of the tasks set in the preamble to the ILO Constitution is, "the protection of the worker against sickness, disease and injury arising out of his employment". For 57 years now the ILO has been active in this field.

Means to enforce the general principle of eight and forty-eight hours of work daily and weekly respectively was the first item on the agenda of International Labour Organisation General Conference's First Session that took place in Washington, in October 1919.

The Report of the Director-General to the International Labour Conference in 1975 was entitled "Making Work More Human" and it has ushered in what will be a new era in this field of endeavour. Francis Blanchard described in his Report as the first stage in a vigorous and long-term ILO campaign to help all member States to take urgent measures to improve working conditions and the environment. He referred in particular to three objectives. These were firstly, that work should respect the workers' life and health: this the Director-General said is the problem of the safety and healthiness of the workplace. Secondly, work should leave the worker with free time for rest and leisure; this is the question of hours of work and their adaption to an improved pattern for life outside work; and thirdly, work should enable the worker to

¹ The views expressed in this article are those of the writer and do not imply the expression of any opinion by the Bangladesh Jute Mills Corporation.

serve society and achieve self-fulfilment by developing his personal capacities; this is the problem of the content and the organisation of work.

It was on these three objectives that the full Report was based. In it, the Director-General reiterated that; " the improvement of the working environment should be considered a global problem in which the various factors affecting the physical and mental well-being of the worker are interrelated". These include protection against physical conditions and dangers at the workplace and in its immediate environment, for example, the hazards associated with heat, radiation, dust, atmospheric pollution, noise, air pressure, vibration, dangerous chemical substances and explosives. They also include the adaptation of installations and work processes to the physical and mental aptitudes of the worker through the application of ergonomic principles. There is also the prevention of mental stress, due to the pace and monotony of work and the promotion of the quality of working life through the amelioration of the conditions of work, including job design and job content and related questions of work organisation.

Evidently, the working conditions and environmental problems of workers have started receiving increasing attention, both nationally and internationally in recent years. It however naturally started first with the man behind the machine in the growing industrialised countries. The industrial labour force, who are comparatively well-organised and have greater bargaining power and are more conscious of their own rights and privileges were in a better position to attract and focus national and international attention to improve their working conditions and environment.

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However, in developing countries it is commonly emphasised that improvements in working conditions and environment must not be accomplished at the cost of efforts to create employment. These countries are so much overpopulated with less job opportunity that the people need work; they have no time to be choosy about the content of the work. But at the same time the need to improve basic working conditions is absolutely vital in the developing countries, even if the policies adopted do not emphasise certain problems which are usually restricted to advanced countries. Developing countries should show willingness to draw lessons from the experience of advanced countries and avoid their errors.

In an endeavour to achieve the objective of improving Working Conditions and environments in the industries of the developing nations technical know how in this respect may be taken under ILO's new P.I.A.C.T. programme. PIACT are the initials of the denomination in French for "International Programme for the improvement of Working Conditions and Environment".

Safety, health and the working environment should be the primary areas of improvement. Therefore, the following fields need to be studied in an endeavour to use modern technology for improvement:-

1) In the field of occupational safety and health:

- harmonisation of occupational accidents and diseases statistics;
- costs of occupational accidents and diseases;
- policies for their prevention;
- regulations about determination of responsibilities;
- organisation of safety and health within the enterprises including methods of participation of workers;

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- problems related to mental stress and psychosomatic disorders;
- problems of exposure of workers to airborne toxic substances;
- problems related with effects of dusts;
- all other occupational health problems.

2) In the field of working conditions:

- all problems related with hours and schedules of work with emphasis on certain conditions existing in services, construction industries and agriculture; for certain special groups of workers (particular profession, young and old workers, arduous work);
- relation between hours of work and employment (in particular those risen in countries that have set up employment creating policies);
- shift and night work problems;
- arrangement of working time aiming at better work schedules fitted to preferences or needs of special groups of workers;
- career work patterns and increasing individual choice, including paid occasional leave, gradual retirement, and other means looking to give workers greater freedom to take up, interrupt or leave work and to enlarge the choices available between education and training, and work and leisure;

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- Work organisation and content in order to avoid dissatisfaction with certain jobs or form of work too limited, monotonous, repetitive, fragmented or otherwise uninteresting; as well as to look for meeting new patterns or improving or implementing new experiences;
- assisting in setting up national policies or programme for the improvement of working conditions and environment;
- actions aiming at establishing of "social services" or "social development programme" in enterprises or specific sectors of the economy;
- studies to reduce or upgrade the most unpleasant or tedious jobs;

3) In the field of ergonomics:

- all problems related to the adaptation of work to man in order to reduce workload, work pace and stress, to increase the safety and comfort of people at work;
- adding to the man - machine relationship the environmental factors at work as well as in life in general;
- organization of the working environment at the stage of planning industrial buildings;

- means to give quick practical effects to the results of research work so that they can be directly used by factory managers, engineers, physicians or workers' representatives;
- Ergonomics in the safety or workplaces;
- means of action in the application ergonomics at the enterprise level or at specific professions or work levels;
- adjustment of the workload to the temperature and humidity of the workplace and to particular biometric characteristics of workers;
- Encouragement of ergonomic specifications in design and purchasing of modern technical equipment and installations, as well as office furnitures and machines and also even simple tools or elementary ones (in particular in agricultural activities).

4) In the field of general conditions of work facing with transfers of technology:

- looking out and overall particular climatic, sociological and anthropological conditions involved in new investment contracts specifications with regards to working conditions and environment;
- looking for same respects in the various co-operation projects for development;

5) In the field of working and living environment:

- actions for better housing, standards of nutrition, health, education etc. all social and leisure services for workers;
- low-cost housing programmes involving participation of informal sector workers in the benefits of these programmes, the training of workers involved, the choice of appropriate construction methods, the optimal use of locally available materials and the adequate construction standards concerning safety and health etc.

So far I dealt with the organised sector of labour i.e. Industrial workers, I would now like to deal with the vast and salient majority of rural workers who are absolutely dis-organised and little conscious of their rights and privileges, and are yet to make their voice felt and acted upon effectively to invite sufficient attention of all concerned for bringing about needed improvements in their life and work conditions. It is this group of rural work force in developing countries who live in abject poverty and resultant hunger, malnutrition, diseases and other privations. They virtually

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lead a subhuman life. Of late, struck by the magnitude and severity of the problems of rural workers and their impact on overall growth of the economy, there has been steady shift of emphasis on the part of the national Governments and the leading international agencies like the ILO and the World Bank which led to the serious efforts in identification of the problems of the rural workers and initiate suitable action programmes for mitigating the problems. It is a very welcome policy re-orientation.

The term "Rural Workers" as defined in an ILO document; Organisation of Rural Workers and their Role in Economic and Social Development 1974 includes "any person engaged in agriculture, handicrafts or related occupation in rural area, whether as a wage earner or as a self-employed persons, such as a tenant, share-cropper or small owner occupier to derive his main income from agriculture and who works on land himself or with the help only of his family or of occasional outside labour for certain clearly defined tasks".

The working conditions for the rural workers may perhaps be broadly classified under 3 major groups: (i) Physical, (ii) Socio-economic and (iii) Institutional. It will no doubt be very difficult to have any clearly defined classification since these factors act and react on one another to give rise to a complex

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set up situation. While physical conditions may primarily be influenced by the geographical characteristics of the rural setting, some of the effects of which are also borne by all strata of rural people with only variation in the degree of privations.

Housing, sanitation, rural infrastructure etc. which also greatly influence the working conditions of the rural worker also exemplify the need for improving the physical working condition.

The Socio-economic conditions influencing the life and work of the rural workers emanate specially from their weak economic base and resultant weak socio-political standing. These conditions will be somewhat different and diverge for different groups of rural workers. There is also little social stratification to discriminate rural workers from other groups of rural people. There was however some abhorrence towards agricultural work among the richer section of the farming community and the agricultural workers were generally ~~look~~ look down upon. This tradition was continued from the vedic era. with the modernization and innovations of agriculture and with gradual induction of educated rural people to take to agricultural pursuits in the wake of green revolution this tendency of abhorrence is fast dying out.

The economic setting against which the rural workers work is dismally poor and unsatisfactory. The productivity of the small and marginal farmer is very low because he has very small farm unit to

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operate and little to invest in improving productivity as he has restricted approach to the sources of agricultural inputs and credit due to his poor socio-economic standing. His income is therefore very low to buy for him his basic needs for a humanly subsistence. The landless share-croppers' production is low as his operational area under share tenancy is increasingly being reduced in view of the swelling ranks of sharecroppers in recent years. Besides, many of the below subsistence farmers are to take resort to share-cropping after selling off or mortgaging their lands for their very survival. Security of share tenancy also continued to pose a serious threat to his share-cropping expectation. His access to the source of agricultural inputs is therefore still more restricted compared to the small farmer. In absence of his title to land, he could not borrow from the institutional credit agencies. He has also little alternate employment opportunities to supplement his income.

The working conditions of their rural workers like artisan, carpenter, blacksmith etc. are however little better. Often times, such non-agricultural works are done by them - small farmers, share-croppers and landless agricultural to augment their income during the lean season. There are also full time non-agricultural labourers, but their proportion will be quite low.

Traditional types of physical works in agriculture

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tend to become great drudgery on the rural workers. While tools and implements those were used by Pharaoes, 4000 years B.C. are displayed at present in the Egyption Museum, traditional similar to those age old premitive type agricultural implements like hoe or spade with its short hand forcing the farmers to bend all the time, thr broom used at the threshing floor or at home with no hand at all with all the difficulties and in efficiency in its are used by the rural workers of most of the developing countries. Hence the fruits of modern technology and innovations must be brought to the easy reach of the rural workers for easing out their drudgery. This technology should be sodesigned as to facilitate creation of more employment opportunities rather than displace labour.

In order to deal with the situation and improve the working conditions and environment the following steps may be considered:-

- 1) There should be a series of policy-oriented studies to identify the major problem areas in respect of different categories of rural workers like below-subsistence farmers, share-croppers, landless agricultural labourer and other types of rural workers and to develop appropriate method of dealing with the problems. In this endeavour, all the concerned ministries of the respective countries dealing with rural workers, may work closely in co-operation with

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ILO/FAO. These should be followed by pilot projects for initiating appropriate action programmes.

- 2) For improving physical conditions of life and work of the rural workers, their economic standing must first be improved upon. This could be done only through increasing productivity and through generation of greater employment opportunities in the rural areas. For increasing productivity, their access to the institutional agencies catering to the input requirement should be made increasingly easier through proper vigilance and institutional reforms. Establishment of Special Development Agency should also be considered seriously to ensure that their specific requirements are met adequately under State patronage.
- 3) Greater attention should also be laid on making available requisite inputs for the use of the agricultural workers through establishing special co-operatives for these groups under dedicated management. The setting up of rural cottage industries, poultry, pisciculture etc. could also be initiated through such special co-operatives for these groups, particularly under the auspices of the afore-mentioned specialised Development Agency.
- 4) Serious efforts be made to usher in technological

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innovations of simple and intermediate types for work simplification.

- 5) The Rural Electrification Programme is a welcome step to enlighten the rural areas which were hitherto under darkness, figuratively and otherwise. This should foster the growth and development of small-scale cottage industries throughout the country. It would be desirable to identify and select a few of such "Rural Growth Centres" as pilot projects for setting up suitable agro-industries and initiating other development activities for which assistance from ILO and other international agencies may be solicited.
- 6) Apart from encouraging growth of cottage industries and crafts in the rural areas, for which all the needed facilities and patronage must be offered by the state, the industrial policy should be so developed as to facilitate dispersion of industrial units in the rural areas as far as practicable.
- 7) Greater attention must be laid on educating the rural workers in improving their skill and productive efficiency in the respective fields. There should be increasing formal and informal vocational training facilities for the different groups of rural workers and Government

Should come out with liberal assistance to enable these groups to avail of these facilities. Assistance from ILO/FAO may also be solicited to set up and run such training centres.

- 8) Organizations for the different groups of rural workers should be encouraged and fostered by the Government to arouse consciousness of these people towards their rights and obligations and induce them to initiate collective action for their economic and social upliftment. This should be done strictly on a non-political level.

We may now examine in the context of developing nations the recommendation duly adopted by the general conference of I.L.O. during its 63rd Session which held in Geneva in June, 1977 concerning the protection of workers against occupational hazards in the working environment due to air pollution, noise and vibration.

The recommendation may be cited as the working environment (Air pollution, Noise and vibration) Recommendations, 1977 which is reproduced below:-

1. Scope

1. (1) To the greatest extent possible, the provisions of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, and of this Recommendation should be applied to all branches of economic activity.

(2) Measures should be taken to give self-employed persons protection in the working environment analogous to that provided for in the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, and in this Recommendation.

II. PREVENTIVE AND PROTECTIVE MEASURES

2.(1) The competent authority should prescribe the nature, frequency and other conditions of monitoring of air pollution, noise and vibration in the working environment to be carried out on the employer's responsibility.

(2) Special monitoring in relation to the exposure limits referred to in Article 8 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, should be undertaken in the working environment when machinery or installations are first put into use or significantly modified, or when new processes are introduced.

3. It should be the duty of the employer to arrange for equipment used to monitor air pollution, noise and vibration in the working environment to be regularly inspected, maintained and calibrated.

4. The workers and/or their representatives and the inspection services should be afforded access to the records of the monitoring of the working environment and to the records of inspection, maintenance and calibration of apparatus and equipment used therefor.

5. Substances which are harmful to health or otherwise dangerous and which are liable to be airborne in the working environment should, as far as possible, be replaced by less harmful or harmless substances.

6. Processes involving air pollution, noise or vibration in the working environment as defined in Article 3 of the Working Environment (Air pollution, Noise and Vibration) Convention, 1977, should be replaced as far as possible by processes involving less or no air pollution, noise or vibration.

7. The competent authority should determine the substances of which the manufacture, supply or use in the working environment should be prohibited or made subject to its specific authorisation, requiring compliance with

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particular measures of prevention or protection.

8.(1) In appropriate cases the competent authority should approve standards for the emission levels of machinery and installations as regards air pollution, noise and vibration.

(2) Those standards should be attained as appropriate by -

(a) design; or

(b) built-in devices; or

(c) technical measures during installation.

(3) An obligation to ensure compliance with these standards should be placed on the manufacturer or the supplier of the machinery or installations.

9. Where necessary, the manufacture, supply or use of machinery and installations which cannot, in the light of the most recent technical knowledge, meet the requirements of Paragraph 8 of this Recommendation should be made subject to authorisation by the competent authority requiring compliance with other appropriate technical or administrative protective measures.

10. The provisions of Paragraphs 8 and 9 of this Recommendation should not relieve the employer of his obligations in pursuance of Article 6 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977.

11. The employer should ensure the regular inspection and maintenance of machines and installations, with respect to the emission of harmful substances, dust, noise and vibration.

12. The competent authority should, when necessary for the protection of the workers' health, establish a procedure for the approval of personal protective equipment.

13. In pursuance of Article 9, subparagraph (b), of the Working

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Environment (Air Pollution, Noise and Vibration) Convention, 1977, the competent authority should, as appropriate, provide for or promote, in consultation with employers' and workers' organisations, the reduction of exposure through suitable systems or schedules of work organisation, including the reduction of working time without loss of pay.

14. In prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take into consideration the most recent codes of practice or guides established by the International Labour Office and the conclusions of meetings of experts which may be convened by the International Labour Office, as well as information from other competent bodies.

15. In prescribing measures for the prevention and control of air pollution, noise and vibration in the working environment, the competent authority should take account of the relationship between the protection of the working environment and the protection of the general environment.

III SUPERVISION OF THE HEALTH OF WORKERS

16.(1) The supervision of the health of workers provided for in Article 11 of the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977, should include, as determined by the competent authority -

- (a) a pre-assignment medical examination;
- (b) periodic medical examinations at suitable intervals;
- (c) biological or other tests or investigations which may be necessary to control the degree of exposure and supervision the state of health of the worker concerned;

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(d) medical examinations or biological or other tests or investigations after cessation of the assignment which, when medically indicated, should be made available as of right on a regular basis and over a prolonged period.

(2) The competent authority should require that the results of any such examinations or tests be made available to the worker, and at his request to his personal physician.

17. The supervision provided for in Paragraph 16 of this Recommendation should normally be carried out in working hours and should be free of cost to the worker.

18. (1) The competent authority should develop a system of records of the medical information obtained in pursuance of Paragraph 16 of this Recommendation and should determine the manner in which it is to operate. Provision should be made for the maintenance of such records for an appropriate period of time to assure their availability, in terms which will permit personal identification by the competent authority only, for epidemiological and other research.

(2) To the extent determined by the competent authority, the records should include information on occupational exposure to air pollution, noise and vibration in the working environment.

19. Where continued assignment to work involving exposure to air pollution, noise or vibration is found to be medically inadvisable, every effort should be made, consistent with national practice and conditions, to provide the worker concerned with suitable alternative employment and to maintain his previous income through social security measures or otherwise.

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20. In implementing this Recommendation, the rights of workers under social security or social insurance legislation should not be adversely affected.

IV. TRAINING; INFORMATION AND RESEARCH

21.(1) The competent authority should take measures to promote the training and information of all persons concerned with respect ~~to~~ to the prevention and control of, and protection against existing and potential occupational hazards in the working environment due to air pollution, noise and vibration.

(2) Representatives of the workers of the undertaking should be informed and consulted in advance by the employer on projects, measures and decisions which are liable to have harmful consequences on the health of workers, in connection with air pollution, noise and vibration in the working environment.

(3) Before being assigned to work liable to involve exposure to hazards of air pollution, noise or vibration, workers should be informed by the employer of the hazards, of safety and health measures, and of possibilities of having recourse to medical services.

22. (1) The competent authority, in close co-operation with employers' and workers' organisations, should promote, assist and stimulate research in the field of prevention and control of hazards in the working environment due to air pollution, noise and vibration, with the assistance, as appropriate, of international and national organisations.

(2) All concerned should be informed of the objectives and results of such research.

23. Employers' and Workers' organisations should take positive action to carry out programmes of training and information with respect

to the prevention and control of, and protection against, existing and potential occupational hazards in the working environment due to air pollution, noise and vibration.

24. Workers' representatives within undertakings should have the facilities and necessary time, without loss of pay, to play an active role in respect of the prevention and control of, and the protection against, occupational hazards in the working environment due to air pollution, noise and vibration. For this purpose, they should have the right to seek assistance from recognised experts of their choice.

25. Such measures as are necessary should be taken to secure that, in connection with the use at a workplace of a substance liable to be harmful to health or otherwise dangerous, adequate information is available on -

- (a) the results of any relevant tests relating to the substance; and
- (b) the conditions required to ensure that, when properly used, it is without danger to the health of workers.

V. MEASURES OF APPLICATION

26. Each Member should -

- (a) by laws or regulations or any other method consistent with national practice and conditions take such steps, including the provision of appropriate penalties, as may be necessary to give effect to the provisions of this Recommendation;
- (b) provide appropriate inspection services for the purpose of supervising the application of the provisions of this Recommendation, or satisfy itself that appropriate inspection is carried out;

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(c) endeavour to do so as speedily as national conditions permits

27. In giving effect to the provisions of this Recommendation the competent authority should act in consultation with the most representative organisations of employers and workers concerned, and, as appropriate, manufacturers' suppliers' and importers' organisations.

28. (1) The provisions of this Recommendation which relate to the design, manufacture and supply of machinery and equipment to an approved standard should apply forthwith to newly manufactured machinery and equipment.

(2) The competent authority should as soon as possible, specify time limits appropriate to their nature for the modification of existing machinery and equipment.

Therefore, if we go through the Article 8 of 14 of the Convention No.148, we may see that import, installation of monitoring equipments for determining the hazards of exposure to air pollution, noise and vibration is employers obligation. Keeping technically competent persons for operation of these equipments would be primarily the responsibility of the employers as well. Research work to be promoted in the field of prevention and control of hazards in the working environment due to air pollution, noise and vibration.

In the wake of industrialisation, the developing countries may not think at this stage to transfer of such technology to improve working conditions and environment ~~neither~~ the countries can possibly afford.

However, humble start may be done with some of the recommendations 156 like supervisions of the health of workers, training, information,

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research and personal protective equipments and exhaust of dust and fumes etc. In most of the countries there are however provision in Factories Act covering the aforesaid measures to suit individual national requirement.

In the rural sector, recent surveys in my country show that the bargaining capacity of the share croppers has decreased because the number of landless peasants is increasing. This study, however, holds that technologically it is feasible to double or even triple agricultural production in the country if the tenurial and other social constraints are removed like motivation of landlords with regard to share the produce at certain percentage when input is provided by the landlords and the share-croppers.

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INTERNATIONAL LABOUR ORGANISATION

INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT (PIACT)

Philippine National Tripartite Conference on Improving
Working Conditions and Environment

(Manila, 12-14 December 1977)

Working Document No. 7

Choice of Technology, Working Conditions
and the Filipino Worker

by

The Research Staff,
Asian Labor Education Center,
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Geneva
International Labour Office
1977

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This is an abridged version of a report submitted to the Conditions of Work and Life Branch of the International Labour Office. The original report was more extensive and contained tables, annexes and textural material which have been omitted in the interest of brevity.

CHAPTER I

Introduction

Importance of the study

Concomitant with the rapid growth of the economy and industrialisation comes the transfer of technology. An examination of the prevailing technology and working conditions as they relate to the individual workers in some selected establishments could shed light on the individual and social consequences of the importation of foreign technology into a developing country.

Problems and objectives

The study specifically seeks to find answers to the following questions:

- What is the type of technology utilised by the selected establishments in the footwear and food-processing industries in the Philippines?
- What are the conditions of work likely to be associated with the types of technology prevailing in these selected establishments?
- What effects on the workers are closely to be associated with the given technology and working conditions of the selected establishments?

The research initially identifies the methods and techniques of production employed by the establishments as well as the prevailing physical, temporal and organisational conditions of work in these establishments. It further determines the effects of the given technology and working conditions on the physical and psychological make-up of the individual workers in the selected establishments. Finally, an over-all assessment of the technology and working conditions as they relate to the individual workers is given considering the labour standards legislated by the Government.

Survey of literature

A number of studies have been undertaken concerning the safety and health conditions in selected establishments and industries in the Philippines. There has been no attempt, however, to examine in particular the impact of given technology and working conditions on the individual workers in the establishments.

The Trade Union Congress of the Philippines conducted a survey from June to August 1975 to find out how safe and healthy the working conditions are in unionised factories or workplaces (TUCP, 1976).

The TUCP survey revealed that workers of agricultural workplaces are more likely to get sick from exposure to conditions such as excessive heat, dust, poor lighting, fumes and vapour (agriculture - 100 per cent; manufacturing - 87 per cent; mining - 75 per cent; others - 41 per cent). The agricultural workers had also the highest proportions exposed to chemicals and/or toxic materials causing burns, nausea, headache, sore throat or other illnesses. In the metalworking industry, the findings showed that unguarded machinery is the most frequent cause of accidental injuries and excessive heat is the constant cause of workers' sickness.

Protection against work hazards as well as the existence of first-aid training and safety committees were likewise examined; 34 per cent of the respondents had first-aid training while 19 per cent did not elicit any response. Gloves were the most frequent type of protective equipment provided by the employers. Forty-five per cent of the establishments had safety committees while 21 per cent did not give any response. Large plants were far more likely to have safety committees than small plants. In 9 out of the 54 plants with safety committees, labour and management shared equal representation.

A study was made by the Department of Environment and Occupational Health, Institute of Public Health, to evaluate the noise hazard in certain industries of the country (JOSE, 1976).

It was found that noise levels were quite high, varying from 86 to 119 decibels. Audiometric results revealed hearing losses for workers exposed to excessive noise even when corrected for age.

Two battery plants, two paint establishments and one company manufacturing lead oxide were studied to evaluate the extent and intensity of lead hazard (JOSE, 1972).

It was observed that levels of lead in air, lead concentration in the urine and stippled red cell count were higher in the lead oxide and battery plants than in those engaged in paint manufacturing.

El Samra and Associates, likewise, made an environmental, clinical and spirometric study of a cotton textile mill to investigate the prevalence of respiratory disease among workers exposed to cotton dust (El Samra, et al., 1972).

Cases were discovered which suffered from asthmatic symptoms and chest tightness which could be related to exposure to cotton dust.

Operational definition of terms

For purposes of this report, specific definitions are adopted for the following terms:

- Technology is the application of scientific knowledge in technical systems and technical methods of production of different products.¹
- Working conditions refer to the physical, temporal and organisational status of the workpost.
- Physical working conditions include the illumination, temperature, humidity, cleanliness, sound, health and safety, layout of the workpost.
- Temporal working conditions cover the hours of work, rest periods and the length of the working holidays.
- Organisational working conditions pertain to the systematic arrangement of the workflow, workspace and the job content.
- Worker's physical make-up covers his state of health and his relaxation.
- Worker's psychological make-up includes his morale, motivation, job satisfaction, security, sense of alienation and self-perception.
- Type of technology is based on the establishment's capital-labour intensity and the level of mechanisation. Capital-labour intensity criteria adopts Dr. Chico's direct production worker's coefficient. The level of mechanisation adopts Blauner's framework classifying technology as craft, machine-tending, assembly-line and continuous-process operation.
- Craft technology covers work done mostly by hand rather than by machines.
- Machine-tending technology involves mechanised and standardised work processes. Bulk of productive process is carried out by workers who "mind" machines.
- Assembly-line technology includes highly rationalised work organisation. For example, the automobile conveyor belt carries cars in the process of completion past lines of "semi-skilled" operatives, each of whom makes his contribution to the assembly of a particular part on the body or chassis.

¹ M. Meissner: Technology and the Worker, San Francisco, Chandler Publishing Co. 1969.

² Robert Blauner: Alienation and Freedom, Chicago, University of Chicago Press, 1964, p. 6.

- Continuous-process operation is the most advanced kind of technology, e.g. industrial chemical industry. All production processes are carried out automatically in a series of chemical reactors through which the product flows continuously.

Scope and limitations

The present study covers two shoe firms and two food-processing enterprises in the Philippine Metro-Manila area. The analysis revolves around the existing technology and working conditions as they relate to the individual workers in the establishments.

The research team encountered a variety of obstacles in the course of the study. Initially, the tapped establishments were not very co-operative, as expected. Operating as profit organisations, the selected companies were cautious in their dealings. The researchers had to assure them that they were not inspectors from the Ministry of Labor. Secondly, the limited budget prevented the group from utilising the needed apparatus for the objective measurement of the prevailing working conditions like noise, atmospheric pollution, etc. Again, the financial constraint coupled with the relatively short period for research reduced the samples to just two firms for each industry. The range of technology levels was likewise cut down to just two.

The pioneering nature of the study accounts for many of the weaknesses in conceptualisation and methodology.

CHAPTER II

Methodology of the study

This report is the outcome of an in-depth case study conducted by the use of the survey method. The main objective was to gather data and information on the prevailing technology and working conditions, as they relate to the individual workers in some selected establishments. The survey was conducted from June to July 1977.

Selection of the industry and sample firms

The criteria given for the choice of the industry were the nature of the existing technology, the accessibility and the degree of co-operation that can be derived from the industry. The nature of the existing technology or the type of technology considered the industry's capital-labour intensity and the level of mechanisation. The main objective was to cover a wide range of technology as much as possible.

Preliminary investigation pointed to the shoe and the food-processing industries.¹ Initially, these two industries exemplified different technology and methods of production.

The shoe industry has existed for a much longer time as a homecraft than perhaps any other industry.² It represents a low-level technology whereby operations are done manually. The industry has been composed mostly of individual shoemakers or shoe-shop producers who practise the same primitive methods handed to them by their forefathers. They operate on a hand-to-mouth existence depending for their production on orders from the larger factories.

Marikana, regarded the shoe centre of the country, is barely a few kilometres from the university. Location-wise, the shoe industry is very accessible.

The food-processing industry, on the other hand, has a more advanced type of technology. Corporations prevail in the industry with a combination of capital and labour intensity. The level of mechanisation ranges from machine-tending to continuous-process operation.

The major deciding factors for the choice of the food-processing industry were the accessibility and assured co-operation from the industry.

A sample of firms listed under the shoe and food-processing industries was drawn using the stratification criteria for the capital or labour intensity of a firm (Chico, 1976). Specifically his direct production worker's coefficient was employed, whereby

$$Z = \frac{\text{Machines and equipment cost}}{\text{Number of production workers}}$$

If $Z > \text{P}12,000.00$, it is capital-intensive.

Since the report is considered a case study, and with the limited time and small budget, only the firms located within the Metro-Manila vicinity were tapped. All in all, four companies, two in each industry, were included which were taken from the population through Chico's capital-labour intensity stratification criteria.

¹ The original plan of including the textile industry was foregone due to the difficulty of penetrating the listed firms.

² Proceedings of the 2nd National Footwear Industry Workshop Convention, Marikina, Rizal, 27-30 April 1976.

Choice of respondents

From the selected firms, the respondents chosen were mostly production workers from the different departments who were strategically occupying key operating positions. These workers were distributed over all the various stages of production. Supervisors from the departments were correspondingly represented in the purposive sample. The personnel officer or the labour relations officer was likewise tapped. The sample gives a broad coverage of the production situation.

Instruments for data gathering

The respondents were personally interviewed by members of the ALEC Research Section. A combined structured/unstructured survey questionnaire was used in the interviews. The questionnaires contained questions designed to elicit data relevant to the specific objectives of the study as well as other background information on both the respondent and his company.

The formal interviews were complemented with the researcher's observations on the actual industrial setting. The researcher employed a predesigned checklist in recording his observations.

Existing government policies and legislation on labour were likewise examined, as they bear on the working conditions standards from the national perspective. From time to time, collective bargaining agreements of firms with organised trade unions were examined for cross-checking and related purposes.

Scheme of analysis

The analysis proceeds in three phases - a background on the industry, firms, respondents, included in the sample; identification of the type of technology employed; an examination of the working conditions as they affect the individual workers in the selected establishments. The analysis winds up with an over-all assessment of technology and working conditions as they affect the workers, considering the labour standards legislated by the Government.

(a) Profile analysis

The history and growth of the establishments included in the survey are given. The company profile, likewise, includes the products produced, capitalisation, size of workforce, type of ownership, organisational structure and worksite.

The respondents' profile considers the demographic and socio-economic background characteristics. These cover variables such as sex, age, civil status, educational attainment, occupation, salary, size of family, residence and length of company service.

The profile is discussed by industry. The analysis employs percentages and mean scores. Variables are presented in one-way or two-way tables.

(b) Identification of the type of technology

The type of technology is based on the company's capital-labour intensity and its level of mechanisation. The capital-labour intensity adopts Dr. Chico's direct production worker's coefficient. The level of mechanisation is identified employing Blauner's classification.

This portion examines the establishments' technology touching on the two criteria. The section, likewise, includes the methods, techniques of production together with the tools and machines used by the selected establishments. The two industries are discussed separately.

(c) An examination of the working conditions

The physical, temporal, organisational conditions of work prevailing in the establishments studied are presented. At this stage, it is important that distinction be made between working conditions that are technological imperatives and those that are not. Note, that if a hazard or a negative aspect in the work environment is a technological imperative, either something beyond or apart from technology can

be done to remedy it or to soften its impact, or the technology itself giving rise to the hazard has to be modified or replaced altogether. If the hazard or negative aspect in the work environment is not a technological imperative, however, something can be done without tampering with the technology itself.

This phase examines working conditions as they relate to individual workers. Technology and working conditions are evident in the workplace and in the particular jobs performed by the workers. The worker, then is observed in the two situations - the work environment and in the tasks he performs. He acts and reacts according to the given situations.

The physical working conditions existing in the workplace are related to the individual workers. These include lighting, sounds, colour, music, ventilation, temperature, appearance, layout, health and safety, as against the physical make-up of the worker - health and relaxation.

The organisational and temporal working conditions attached to the job are, likewise, viewed against the worker's physical and psychological make-up. Some of these are job content, workflow, workspace, hours of work, overtime, rest pauses, as against health, motivation, job satisfaction, security, morale.

The relative rankings of job characteristics and conditions of work given by the workers will have to be considered. Such job-related factors may be perceived by the worker as present or absent from his particular work and work environment.

It would be helpful to look into worker's attitude in analysis. Matching of respondent's background characteristics may prove to be useful.

Whenever feasible, summary measures for a section, an establishment or an industry are standardised to neutralise the influence of background characteristics and worker's attitudes.

CHAPTER III

Results and discussion

Results of the survey as analysed will be discussed in this chapter. It includes a section on selected industry profile which gives a description of the profile of the industries, the respondents selected and the type of technology used, and a section on the working conditions which assesses the physical, temporal and organisational state of the workers in the two selected industries.

Selected industry profile

Shoe industry

The two firms selected were not entirely homogeneous in characteristics. Both were somewhat dependent on the use of handicrafts. However, a distinction is made for one firm owner who chose to have his products remain handmade because he wanted among other things to preserve an image of being a producer of beautifully handcrafted made-to-order shoes, and also because the workers themselves wanted to preserve the craft tradition of their trade. The other company owner reflected that if given the choice it might resort to more mechanised production, and only attributes its being craft-oriented to its sheer financial condition.

A comparison of the two companies' profiles can be seen in table 1.

Company A - date of establishment. This company is owned by an enterprising young woman in her late thirties who learned the art of shoemaking from her father. Her shop started operations in June 1965 with barely a sum of capital at hand. Small orders from friends were taken, with the owner herself designing, cutting and stitching the parts together with a rented stitching machine from a neighbour. As people began to order more shoes from her, she enlisted the help of her brothers and sisters. The proceeds of such a family endeavour were not much, but she was able to save enough to buy two stitching machines and one grinding machine, despite what she terms "Isang Kahig, Isang Tuka" (likening it to a hand to mouth existence as this is translated "One scratch, one peck" of a chicken).

Capitalisation and the workforce. The company has survived the years through the prudence and frugality of the owner. Capitalisation reached ₱10,000.00 as a result of conscientious savings and investing by the owner. But the workforce remained small, as there are only ten workers in the firm. Actually only eight are directly involved in the production process as two of them work as errand boys, bringing orders to customers and doing odd jobs such as shoe shining.

Nature of product. Company A makes ladies' and children's shoes, slippers and wooden shoes with leather uppers strictly on a made-to-order basis. Orders are usually produced in bulk but the owner also accedes to individual orders from friends and old customers. There are no regular outlets for the products of this company and sales are often made through the word of mouth of friends and relatives.

Volume of production. The owner could not exactly say how many shoes are produced in a period of time. The response was that it depends on work orders. However, it was noted that a great quantity are ordered during Christmas time and during the opening of the classes (in June).

Production capacity for the workers nevertheless is as follows: four pairs a day for uppermakers and one dozen pairs daily for shoemakers.

Organisation set-up. Relationships are very personal as this is composed of family workers. The owner performs a myriad of roles. As the boss she plans, organises and directs her work team towards some production goals. She likewise takes care of quality control and sees to it that the shoes made conform to the orders given. The owner also is a co-worker, as she does the designing, the cutting of the materials and some other initial steps in shoemaking. Finally, the owner has a relative - a sister, a cousin-in-law and close friend - and this role is not divorced even if she is the proprietor. Informal face-to-face interaction thus exists.

Table 1. Companies profiles

	Shoes		Food	
	Company A	Company B	Company C	Company D
Date of establishment	June 1965	Sep. 1971	Oct. 1957	July 1975
Type of ownership	Single proprietorship	Single proprietorship	Corporation	Corporation
Capitalisation	₱10,000	₱20,000	₱15 million	₱45 million
Size of workforce	10	25	1,520	350
Product produced	Ladies' shoes	Men's shoes	Processed meat, canned meat, canned meat fruit and veg., pork and beans, sotanghon and tuna	Processed meat, canned meat
Facilities and services provided	Comfort rm. cots	Comfort rm. cots, basketball courts, free lodging	Canteen, comfort rm. drinking facilities, medical clinic, emergency kits, protective equipment	Canteen, comfort rms. drinking facilities, basketball courts, volleyball, pingpong and chess, rest house, medical clinic, emergency kits, protective equipment, guidance and counselling

As mentioned, there are only eight workers involved in the production process. This is composed of four uppermakers who prepare and cut the patterned materials, stitch them together, and form shoemakers or "sapateros" who complete the shoe-making process.

Company B - date of establishment. Company B started operations relatively later than Company A, having commenced production in September 1975. The owner is a young man, perhaps in his late thirties also, and definitely belonging to the upper-class level of society. He is educated and well-travelled and his designs reflect foreign-made styles.

Geographical location. The company maintains two shops and one store. One shop is located in the owner's house garage at the back of a big commercial store in Quezon City, while another is located in Concepcion, Marikina, about 7 kilometers from the other shop. Division of location is along functional lines. The cutters are stationed in the house's garage area at Quezon City while the shoemakers or "sapateros" work in the Marikina area. The store is located a block away from the owner's house for convenience.

Capital and size of workforce. For Company B the capital invested amounted to ₱20,000.00 or twice as much as Company A. There are 25 workers in the company, all of whom were recruited by the owner from his home province, Pampanga.

Nature of product. Men's shoes, distinctly styled, are the speciality of Company B. It makes exclusive styles for the big commercial establishments in the Metro Manila area and marks them "exclusively made" for the store. It, however, stamps its own trade mark on shoes which are offered for sale at its own store. Styles are the exclusive design of the owner who gets his inspiration from foreign magazines and from his observations on his travels. The owner also emphasised that styles are not repeated in order to preserve the image of its products. For such, it maintains as regular customers the upper strata of society who can afford the price of its shoes.

Volume of production. On average Company B produces 20 pairs of shoes a day or 90 pairs per week. The output is somewhat lower than Company A because the workers at Company B use their own hands to shape the shoes while a grinding machine is used by the other company.

Organisational set-up. The owner manages the company himself, therefore he decides all things for the company. His brother carries out the marketing function and is usually the person who makes contact with the customers.

The Quezon City shop is devoted to shoelast and uppershoe preparation while the Marikina workshop is for shoe completion only. Of the seven workers stationed at the garage site, there is one shoelast fitter who fits the designs into specific patterns, the cutter who traces the patterns in the leather materials and cuts them, and four uppermakers who stitch the cut parts.

Eleven shoemakers or "sapateros" work at the Marikina area. These "sapateros" or "maglalapat" as they are also called, work on the shoeuppers and make finished products out of them. These shoemakers do everything by hand. They prefer this method to the use of sophisticated machines because the workers are afraid of ruining the craftsmanship and the quality of their shoes.

Relationships are personal because of the size of the workforce but not as personal as Company A could be. There is somewhat a boss-worker relationship because the workers are not related to the owner. However, since they all come from the same locality and speak the same dialect as the boss, there is more face-to-face interaction as the workers regard their employer like an elder brother.

Food industry

Company C - date of establishment. As seen in table 1, Company C started operations ten years ago, having been established in October 1957. It is an all-Filipino owned corporation.

Geographical location. This food-processing company is located in the town of Marikina, Rizal, a few meters away from several shoe factories and other food-processing plants. It occupies approximately 1 1/2 hectares of lot and is surrounded by residential houses in the block.

Capital and size of workforce. Total capitalization of Company C amounts to fifteen million pesos (P15,000,000). Of this amount P2.4 million is invested in meat processing, P2.0 million for canning and P1.1 for cold storage. At present it employs 1,520 workers which includes both managerial and rank and file employees. The breakdown for meat processing workers is as follows: 105 workers for abattoir, 201 for meat processing, and 20 workers for canned meat operators.

Nature of product. Company C produces a variety of food products including cured meat products like ham, hotdog, salami, liversausage, bologna and bacon; and canned meat like sausage, corned beef and luncheon meat. It also produces canned fruits and vegetables; vermicelli (sotanghon) or noodles made out of mung beans; canned tuna fish and even worcestershire sauce.

Volume of production. As the target for this survey is the meat processing workers, data on the volume of production for this company was limited to the meat processing operation. As gathered from one official of the company, some 250 tons of finished products are produced every month.

Organisational set-up. The manufacturing concern is divided along products and process lines. Hierarchical levels picture a steep structure as there are four managerial personnel with several subsections under them reporting to the Manufacturing Chief. Formal communication upward and downward passes the Supervisor, the General Supervisor, the Plant Superintendent and the Production Manager, in that order. Each supervisor has administrative control and supervision over the workers in his section, but the General Supervisor assumes over-all supervision, over all the sections under him and he reports to the Plant Superintendent. The Plant Superintendent in turn is accountable to the Production Manager who is responsible for all the Plants assigned to him.

Company D - date of establishment. Compared to Company C, which has been in the meat processing business for ten years, Company D only started its meat operations a little more than two years ago. Such operations commenced last July 1975 when basically a flour manufacturing company embarked on this type of production.

Geographical location. Company D's meat processing plant is located at a small town of Laguna, which is about 37 kilometers away from its main plant at Mandaluyong, Rizal. It occupies a sprawling lot at the heart of the town and is accessible from Manila or Quezon City by public transportation.

Capital and size of workforce. The capital of this company is quite big compared to the other food processing firm. Amount invested for its meat processing operations amounted to forty-five million pesos (P45,000,000) compared to Company C's total capital of fifteen million pesos (P15,000,000). But then the other company was established eight years ahead of this company when machines, equipment and ingredients used were not as expensive as they were two years ago.

A total of 350 workers are employed by Company D at the Laguna plant (this includes 287 workers and 63 administrative personnel).

Nature of product. As mentioned earlier, the main product of Company D for many years was flour and flour products like noodles and cake mixes. Later it added to its operations processing and canning of meat products like hotdogs, sausages, salami, bologna, ham, bacon, corned beef, and other meat products. Aside from this it produces canned pork and beans, bottled baby food and tomatoe sauce. It also has its own poultry, and animal farm where it raises pigs, cows and carabaos for its own meat processing business.

Volume of production. Unfortunately, Company D did not want to divulge information on this aspect.

Organisational set-up. The whole Laguna set-up is run by a Plant Manager. He has two officers directly reporting to him, the Procurement Officer and the Plant Superintendent. There is an accounting office in the Laguna plant, but its personnel are under the administrative supervision of the Vice-President for Finance at the main office.

The Plant Superintendent takes charge of all the meat processing operations of the company, from the killing of the animals to the packaging or canning of the finished products. The abattoir and cold storage department, the processed meat department, the packaging department and the canning department are therefore all under his charge. These four divisions each have one clerical personnel under them, for record-keeping purposes.

There are two divisions under the abattoir and cold storage department. One is the hot side division which includes livestock caretaking, killing and rendering operations; the other is the cold side division which takes care of the cut floor, the cold storage and the curing operations. Three divisions fall within the scope of the processed meat department, namely the emulsion section, whose function is to take charge of grinding, cutting and blending the ingredients; the linked, and the kitchen smokehouse section which has charge of the smokehouse and the ham boiler.

All packing and packaging operations fall under the packaging department.

General respondents' background

The respondents of both the shoe and food processing establishments are analysed simultaneously. Table 2 reveals a summary of the individual characteristics of the respondents.

Sex. Eighty-five per cent of those interviewed in the two industries were males. It is somehow a reflection of the distribution of tasks in the food industry. Here the operation of machines is usually assigned to males while the assisting functions are given to females. In the shoe industry, the females are mostly delegated the tasks of shoe preparation like cutting and making the designs. The men frequently complete the shoe, hammering and attaching the parts together.

Age. Ninety per cent of the respondents belong to the 20-39 age bracket. The mean age is 30.45 years. In the shoe industry the shoemaker in his early or late forties starts venturing on his own if he is able to acquire a certain amount of capital. The shoeworkers mostly aim for this goal. In the food plants, on the other hand, the worker is usually promoted to foreman when he reaches forty - attributable to his age and gained experience.

Place of birth. Workers from Company A were all born and raised in Marikina, Rizal while those of Company B have Pampanga Province as their place of origin but are now living in the shoe compound of the owner at Quezon City and only go back to Pampanga during weekends. Respondents from Company C came from different localities.

Most of Company D respondents are from Laguna Province, by birth and by residence.

More than three-fourths of the total respondents are married and have family responsibilities.

Educational attainment. Respondents from the food companies have a higher level of education than those from the shoe firms. Majority reached at least high-school, and 20 per cent even had at least college education. As a contrast, only about one-fourth of the shoeworkers respondents were able to have a secondary education as the majority only finished elementary level.

All the respondents belong to the Catholic community, with the exception of one worker from a food company who stated that he is a member of the Jehovah's Witness Sect. Everyone of these, however, is exposed to the doctrines of christianity which teaches submissiveness, obedience to authority and encourages one to be unmindful of the conditions of this world as the rewards lie in the life hereafter.

Membership in organisation. Almost 69 per cent of the food industry workers belong to a union. All respondents coming from the plant located near the Manila area are unionised while more than one-fifth (or 21.4 per cent) of the respondents from the other company did not join the union in that company.

The shoeworkers, as reflected in table 2 do not see any need to join organisations. The small size of the firms and the relatively few number of workers they employ have a bearing on this observation. There is personalised relationship, paternalistic treatment of the workers by the owner and even individual bargaining for wages and conditions of work.

Another possible reason for not joining any group is provided by the respondents who said that they are involved all the time with their families and therefore have no time for such things, (Company A).

Table 2. Characteristics of the respondents

	S H O E		F O O D	
	N	%	N	%
SEX				
male	11	79	23	88.5
female	3	21	3	11.5
TOTAL	14	100.0	26	100.0
AGE				
19 and below	1	7.1	0	0
20 - 29	3	21.4	14	54
30 - 39	8	57.2	11	42
40 - 49	2	14.3	1	4
TOTAL	14	100.0	26	100.0
CIVIL STATUS				
single	3	21	6	23
married	11	79	20	77
TOTAL	14	100.0	26	100.0
EDUCATIONAL ATTAINMENT				
Primary	1	7.1	0	0
Intermediate	9	64.3	2	7.7
High School	4	28.6	19	73.1
College	0	-	5	19.2
TOTAL	14	100.0	26	100.0
RELIGION				
Catholic	14	100	25	96
Jehovah's Witness	0	0	1	4
TOTAL	14	100.0	26	100.0
MEMBERSHIP IN ORG. ¹				
Unions			23	70
Basketball teams	1	7.1	5	15
Parent/Teacher Ass.			1	3
Civic Organisation			2	6
None	13	92.9	2	6
TOTAL	14	100.0	33	100.0

¹ Multiple response.

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None	13	92.9	2	6
TOTAL	14	100.0	33	100.0

¹ Multiple response.

Table 4. Percentage distribution of respondents by position in the Company

	N	%
Total	40	100.0
SHOES		
Patternmaker	1	2.5
Cutter	1	2.5
Uppermaker	5	12.5
Shoemaker	7	17.5
FOOD		
Butcher	5	12.5
Storageman	2	5
Spicemaker	1	2.5
Packer	1	2.5
Soakerman	1	2.5
Operator	7	17.5
Leadman	5	12.5
Mechanic	3	7.5
Meat Inspector	1	2.5

Table 5. Percentage distribution of respondents by length of service in the Company

No. of Years	S H O E				F O O D			
	Co.	A	Co.	B	Co.	C	Co.	D
Total	6	100.0	8	100.0	11	100.1	15	100.0
1					2	18.2	1	6.7
2					1	9.1	12	80.0
3			1	12.5	1	9.1	2	13.3
4			3	37.5	1	9.1		
5	2	33.3	1	12.5				
6	1	16.7	2	25.0	1	9.1		
7	1	16.7	1	12.5				
8					1	9.1		
9								
10					3	27.3		
11								
12	2	33.3			1	9.1		

Table 6. Percentage distribution of respondents by salary

Salary/month	Company C		Company D	
	N	%	N	%
₱200 - 349	2	20.0	3	30.0
350 - 499	7	70.0	7	70.0
500 - 649	1	10.0	-	-
TOTAL	10	100.0	10	100.0
No information	1		5	

Based on level of mechanisation, the shoe establishments clearly fall under the first category as they are mainly craft undertakings. The food processing firms, on the other hand, can be said to take on a type of technology which combines machine-tending and assembly-line processes. In both industries, nevertheless, there is clear-cut division of labour between the workers. In the shoe industry, particularly, specialisation is given the workers, and regard is given to the division of labour.

The production process

Like technology, the production process is seen under two aspects: the process flow and the tools and equipment used in turning out the intended products.

The shoemaking process

Shoemaking in the Philippines has been found to be of three levels of mechanisation: the hand-operated, semi-mechanised and mechanised according to Institute of Small-Scale Industries 1976 study on this industry. Based on this classification, both companies included in our study fall under the hand-operated category as machine stitching is utilised only in assembling the shoe uppers.

As gathered in interviews with the owners, shoemaking in both companies follows relatively the same process. The owners do the designing themselves, then the shoelasts are prepared for the designs. Afterwards the designs are executed into patterns on a cartolina. These are given to the cutter who traces the patterns on the shoe materials (e.g. leather) and later cuts the traced parts. When this is done, uppermakers stitch the various parts of the shoe with the use of stitching machines. Prepared shoe uppers are then given to the sapateros for finishing. Here Company A and B differ in their operations. Company A uses grinding machines to chop and refine excess materials in the heels. Company B workers do this task by hand. The sapateros attach the uppers to the soles and nail these afterwards to the heels. The sapateros do all the finishing touches by the use of their hands. At Company B, they also do the shining but at Company A two shineboys do this task. Checking the output for quality control is a task taken by both owners of shoe firms as they deem it their own outlook to detect defects of their product before releasing them for sale or delivery.

When it comes to tools, equipment and machines used, Companies A and B differ slightly in these aspects. Company A uses scissors, pliers, betas (shoe knives), hammers, plastadors, two stitching machines and one grinding machine. Company B utilises all of the above with the exception of the grinding machine. It has four stitching machines, compared to Company A's two, and aside from these, it also makes use of cutters which Company A does not use.

Food processing

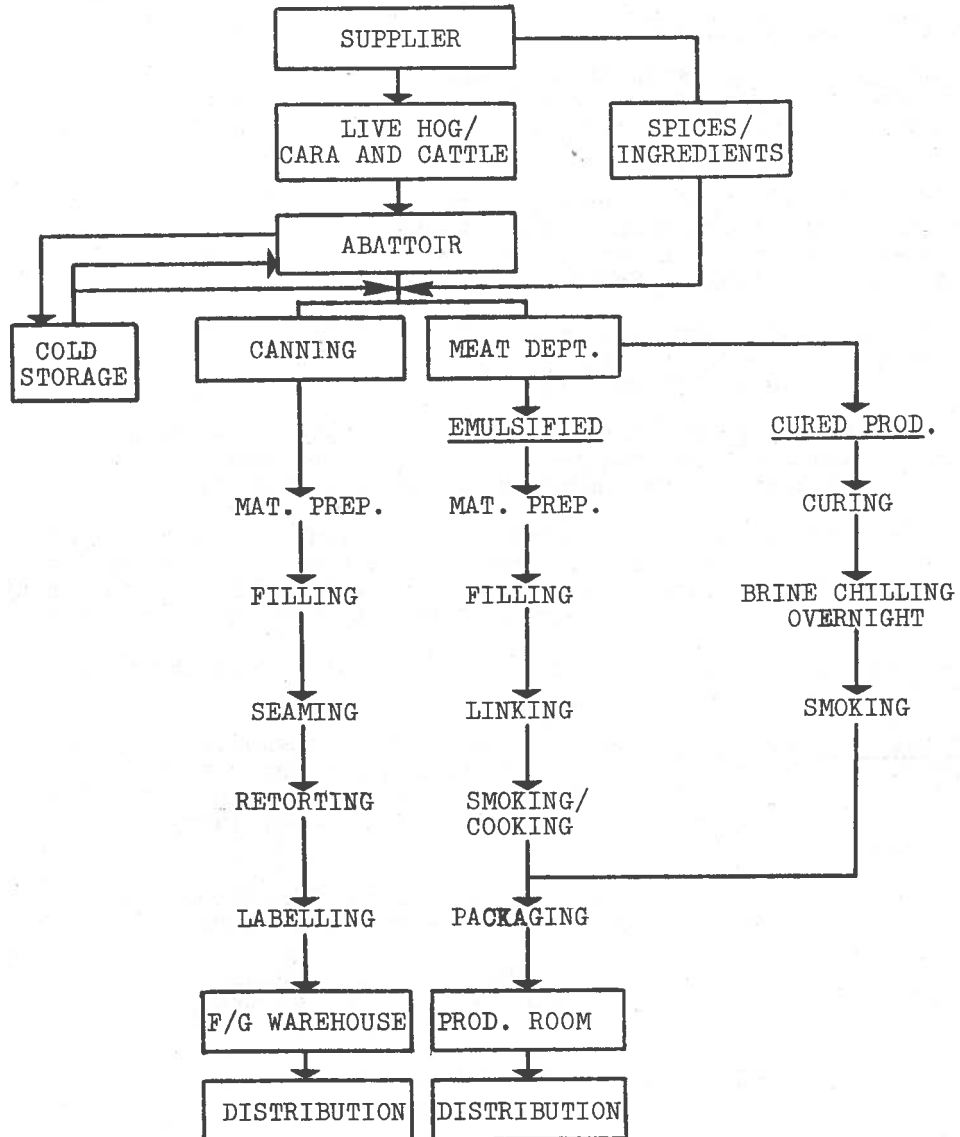
Figure I depicts the production flow of the meat processing operations of both respondent companies. As gathered from interviews with personnel concerned in both companies, the flow of operations are similar, hence the drawing of one flow chart.

Working conditions

Technology and working conditions are visibly seen in the workplace and in the particular jobs performed by the workers. The worker, then, is viewed in the two situations in the work environment and in the tasks he performs. The physical working conditions make up the environment while the temporal and organisational working conditions compose the job framework.

The two situations are tackled separately. An initial observer's view is given followed by the worker's perception. An assessment winds up the discussion for each portion.

Figure I
MEAT PROCESS FLOW¹



¹ Based on an exclusive interview with the production control man.

Physical working conditions: the workplace
and the worker - shoe industry

Company A. The area is an integrated portion of the owner's house. It is divided into two vicinities - Work Area I for the upper preparation function and Work Area II for the shoe completion.

Upper preparation work area

Observers' view. Work Area I covers a 3 1/2 by 4 meter space. There are two entrances - one coming from the sala and the other from the back door. Working tables, benches and stools are provided. Shoe racks and open cabinets are utilised for finished shoes.

The uppermakers gather around working table 1. The materials are laid upon the table for the day's task. They take turns in using the stitching machine near their working table. The stitching machine near the window is seldom utilised due to inadequate lighting. Shoes ready for delivery are laid on working table 2.

A fluorescent light is provided for each of the working tables. The lights are lowered just above the eye level. These lights are dangling, posing as electrical hazards to the workers.

The walls are gray and unpainted. They give a shaded atmosphere to the vicinity emphasising the smallness of the working area. The shop generally appears cluttered. Materials are massed up all over the working table and the floor.

The constricted space is ventilated by windows in the livingroom and a single open window near the back door. The window near the working table 1 opens to the diningroom. Temperature is not much of a problem since the company is located in a semi-urban community. The air is filled by the smell emanating from the glue.

Boredom is replenished by the radio. Music from the radio is heard in between chat talk of the girls.

Workers' perception. The uppermakers are amenable to the arrangement of the work area. They consider the place sufficient for the tasks performed. One uppermaker aptly remarked: "This is okay. Anyway, we are just a few". They agreed to the clutteredness of the place: "It's really topsy-turvy when we work. It gets cleaned when we finish our jobs".

No complaint was given with regard to the lighting. They considered the illumination adequate for the performance of their work.

On the other hand, they considered the stitching machines very noisy, especially when there are large orders. The radio is always tuned to add life to their pep talks.

The ventilation and temperature of the room highly depended on the weather. They said the place is too hot during summer and too cold during the Christmas season.

Shoe completion work area

Observers' view. Work Area II occupies a 5 by 7 meter floor area. Practically only one half of the room is utilised. The remaining half is filled by worn-out shoelasts thrown to one side. A cot is provided for the shoemakers to rest on.

The shoemakers are positioned according to specific tasks performed. The first three shoemakers, SM1, SM2, SM3 attach the shoe uppers and the insole. The last shoemaker, SM4, attaches the outsole and the heel. SM4 is situated near the grinding machine. He constantly employs the machine in his task. The heel rack is also placed behind his back. The other shoemakers use the machine only on certain occasions, such as shaving the shoelast or properly shaping the leather.

The shoemakers gather together at one long working table. They each occupy a three-fourths meter by half meter space. The materials are laid on the long table. Finished shoes are placed on the smaller working table beside each shoemaker.

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The shoemakers gather together at one long working table. They each occupy a three-fourths meter by half meter space. The materials are laid on the long table. Finished shoes are placed on the smaller working table beside each shoemaker.

Two fluorescent lights are shared by the four shoemakers. A third fluorescent light brightens the grinding machine area. The lights, as in the upper preparation area, are lowered a few inches above eye level. They are dangling and heavily loaded with shoe parts.

The area is unpainted. Four gray walls enclose the vicinity creating a dark and gloomy environment, and cluttered, unmade materials present a dirty appearance. However, the orderly arrangement of the finished shoes neutralises the messy working table.

Two wide windows provide a breezy atmosphere in the front area. A small screened half-meter window, poorly ventilates the back area near the grinding machines. The blank gray walls and unpanelled roof inadequately protect the workers from the fluctuations of the temperature. The workers complain of too much heat and generally work bare with no shirts on. A makeshift ceiling made of gathered plywood and clothing materials directly placed above the working area lessens the heat. It must be noted that in the area where the makeshift ceiling is situated, no direct windows ventilate the area. The worker may experience the squeezed atmosphere in the corner especially near the grinding machine.

The grinding machine gives a grating sound and a trembling vibration. Radios tuned to "soap operas" fill the afternoons. Not to be outdone, nevertheless, are the non-stop joking sessions of the boys. The sound, vibration, music and laughter inject life to an otherwise drab and monotonous task.

Workers' perception

The shoemakers considered the work area good enough and convenient with its individual corners. They would, however, accept any move of expansion and renovation.

The place, they said, was at times dirty and at other times clean. They remarked that the disorderliness could not be avoided in the shoe trade. The owner, however, maintains the place.

The place, they agreed, is noisy with the constant pounding of the hammer and the sound of the grinding machines.

The ventilation, they said, is adequate, only the temperature is hot. The unpanelled roof radiates the heat to the work area causing them to take off their shirts.

Company B. The Company is divided into two locations - the upper preparation section in Manila, and the shoe completion section in Marikina.

Upper preparation section

Observers' view. The section occupies a 3 by 8 meters area in the owner's residential lot. It forms part of the garage.

The workers are arranged according to the steps involved in the preparation of the shoe upper.

The patternmaker and the cutter share one working table. They regularly work as a team, with the designer mapping out his ideas and the cutter executing them on the leather materials. They occupy the space near the side windows.

The uppermakers situate themselves in the centre of the room. They each have a stitching machine. The four uppermakers share two working tables.

Shoe shelves and cabinets are placed at the back of the room. The comfort room is too small and not properly ventilated. Double-deck cots are provided near the side entrance. A basketball ring is also provided near the front entrance.

The patternmaker and the cutter share one fluorescent light with cartolina patterns and job orders inserted in them. The uppermakers employ two fluorescent lights. The lights again dangle from the roof. The lights are lowered to concentrate the illumination. The windows and doors are added sources of light but do not provide much, especially during the rainy season.

Plain hollow blocks enclose the area. Unpainted gray, the walls appear unfinished. The place looks dirty and not well maintained. Flies abound. Tables are not painted and are unvarnished. The chairs are not well kept and have holes in them. The place is too small and the arrangement not so smooth. What eases the mess and enlivens the shop are the pin-ups of sexy girls scattered in the working area.

The place is filled with sounds coming from the stitching machine and the pounding of holes into the shoe uppers. Sometimes music from the radio emanates from inside the proprietor's residence.

The temperature is normal. The hollow walls and unpannelled roof create temperature problems for the workers. When the weather is hot, the place is hot. When the rain pours heavily, it is very cold as the walls are just cemented blocks. Ventilation is provided by the four windows and two doors.

Workers' perception. The arrangement is regarded as convenient and highly flexible. The uppermakers are free to transfer their machines to other positions as they wish.

Conflicting opinions were registered concerning the noise. Some considered the place noisy when everybody was doing their tasks. Others regarded the place as quiet.

The ventilation was deemed satisfactory. The temperature was, however, too hot for the boys. They had to frequently move out of the place to lessen the heat.

Shoe completion section,
conception shop

Observers' view. The shoe completion shop covers an 8 by 8 meters work area. It occupies the ground floor of a two-storey apartment. The second floor serves as the sleeping area of the workers.

Basically, the shoemakers are divided into three groups. Each group is composed of three shoemakers sharing one working table. They each have individual tables to lay their finished shoes. A single shoemaker occupies the corner in between the two entrances. Shoemakers filling the space are migrant workers from other companies temporarily contracted by the owner. These migrant workers appear when orders are in bulk. The extra stool situated at one working table is usually occupied by an apprentice trying to learn the trade.

A fluorescent light brightens each of the working tables. As in the previous shoe shop, the lights hang from the roof and are lowered to the desired height just above the working table for greater concentration of illumination. The windows and doors add brightness to the working area especially during sunny weather.

The walls are painted with light pinkish brown. The pastel colour emphasises the spaciousness of the room. The shop is generally neater than the upper preparation shop in Manila. The shoemakers have orderly and wider individual work areas.

The sounds heard are the hammering of the shoes and the endless laughter of the group.

The temperature is normal and the place airy, situated in a countryside vicinity. The two large windows provide ample air. The workers occupying the back area do not experience much heat due to the spaciousness of the place. The ceiling is pannelled and painted. The glue's smell constantly prevails over the workplace.

Workers' perception. The shoemakers perceive the arrangement as suitable. The layout did not block the effective flow of work. They do consider a wider space desirable for the completion of their tasks.

The lighting and the prevailing noise do not pose any difficulty to the workers. They commented that silence was almost always broken by sporadic laughter.

The doors and windows were taken to be wide enough for the circulation of the air in the work area. The temperature was also regarded as comfortable except during the summer season.

An assessment of the workplace and
the worker: shoe industry

Table 7 summarises the shoeworkers' perception of the physical working conditions prevailing in the two shoe companies.

The workers are generally amenable to the arrangement of their working tables, chairs and machines. More than two-thirds consider the space allotted good enough.

Hazards are minimal to one-half of the shoeworkers. The smell of the shoe glue poses a problem to more than one-third of the respondents. Although only two respondents perceive the danger, the hanging fluorescent lights common in the shoe shops studied are electrically hazardous, especially with the countless materials inserted in them.

Only one respondent in Company D perceives the inadequacy of the lighting. The rest judge the illumination adequate for the performance of the tasks.

The shoeworkers in Company A consider the workplace noisy while the majority in the other company regard their environment as quiet. Company A employs the grinding machine which creates a grating sound. Company B, on the other hand, completes the shoe free from the noise of any machine, other than the human tongue.

More than one-half of the respondents in the two companies feel the heat prevailing in the work area. The other half observe the dependence of the temperature to the weather such that the extremes hit them. When the weather is hot, the workplace steams with heat, and when it is cold the area is uncomfortable. The condition results from the inadequate protection afforded the workers.

Physical working conditions, per se, would not render any meaning unless pitted against the workers' reactions and affectations of their environment. The shoeworkers were asked directly if they were affected by the enumerated physical working conditions. The responses were recorded in table 8.

The results reveal the precedence of temperature and ventilation in affecting the workers. Colour and the clutter of the area are further noted by the workers.

Temperature is really a problem for these small shops. The walls require finishing and panelling. The roofs need an adequate ceiling to protect the workers from the heat of the sun.

The clutter cannot be avoided. The job requires the scattering of the materials on the working table to facilitate the job. The sound as well is an integral part of the machine.

Although lighting is not much of a problem to these workers, logic points to a careful examination of its arrangement. If indeed the fluorescent lights hang to give concentration, certain considerations must be taken into account. The lights must be insulated and given proper shading in the sides. These limit the dispersion of the brightness and the danger attached to dangling electrical wires.

The space provided for some workers, particularly the uppermakers, is small. The stitching machines of Company B stand near each other. This may affect the performance of a nearby co-worker. The working area of the shoemakers is spacious although not fully utilised as in Company A. If the other half of the area is renovated and converted to a working place, the shoemakers will have enough and better room for themselves.

The constraint attached to these innovations, of course, is the financial capability of the shoe firms. If indeed shoeworkers are afforded a better working environment, probably the industry can reach higher levels of development. Perhaps the industry will not remain a homecraft or just another trade.

Food processing industry

The analysis of the physical environment of the food processing firms created some problems. The insufficient time given by top management to observe the workplace and the relatively huge organisation presented the difficulties.

Table 7
Shoe workers' perception
of the physical working conditions

	<u>Company A</u>		<u>Company B</u>	
	N	%	N	%
<u>LAYOUT</u>				
Arrangement:				
Convenient	0	0	2	25.0
Just right	<u>6</u>	<u>100.0</u>	<u>6</u>	<u>75.0</u>
	6	100.0	8	100.0
Floor area:				
Spacious	1	17.0	3	37.5
Just right	<u>5</u>	<u>83.0</u>	<u>5</u>	<u>62.5</u>
	6	100.0	8	100.0
Hazards:				
dangling fluorescent light			2	25.0
shoe glue	2	33.0	3	37.5
minimal	<u>4</u>	<u>67.0</u>	<u>3</u>	<u>37.5</u>
	6	100.0	8	100.0
<u>APPEARANCE</u>				
Cluttered	6	100.0	4	50.0
Just right	<u>0</u>	<u>0</u>	<u>4</u>	<u>50.0</u>
	6	100.0	8	100.0
<u>LIGHTING</u>				
Adequate	5	83.0	5	62.5
Just right	1	17.0	2	25.0
Inadequate	<u>0</u>	<u>0</u>	<u>1</u>	<u>12.5</u>
	6	100.0	8	100.0
<u>SOUNDS</u>				
Quiet	0	0	6	75.0
Noisy	<u>6</u>	<u>100.0</u>	<u>2</u>	<u>25.0</u>
	6	100.0	8	100.0
<u>VENTILATION</u>				
Breezy	0	0	3	37.5
Just right	2	33.0	5	62.5
Depends on the weather	<u>4</u>	<u>67.0</u>	<u>0</u>	<u>0</u>
	6	100.0	8	100.0
<u>TEMPERATURE</u>				
Hot	2	33.0	6	75.0
Just right	0	0	1	12.5
Depends	<u>4</u>	<u>67.0</u>	<u>1</u>	<u>12.5</u>
	6	100.0	8	100.0

Table 8
Reactions of shoeworkers
to the physical working conditions

COMPANY A

<u>Reactions</u>	<u>Physical Environment</u>		<u>N</u>	<u>%</u>
Colour:	<u>Gray</u>			
Affected	5		5	83.0
Unaffected	1		<u>1</u>	<u>17.0</u>
			6	100.0
Sounds:	<u>Noisy</u>			
Affected	1		1	17.0
Unaffected	5		<u>5</u>	<u>83.0</u>
			6	100.0
Music:	<u>Radio</u>	<u>None</u>		
Entertaining	5		5	83.0
No response		1	<u>1</u>	<u>17.0</u>
			6	100.0
Ventilation:	<u>Depends on weather</u>	<u>Just right</u>		
Affected	4	1	5	83.0
Unaffected		1	<u>1</u>	<u>17.0</u>
			6	100.0
Temperature:	<u>Depends on weather</u>	<u>Hot</u>		
Affected	4	2	6	100.0
Unaffected			<u>0</u>	<u>0</u>
			6	100.0

COMPANY B

Colour:	<u>Gray</u>	<u>Brownish Pink</u>		
Affected			0	0
Unaffected	5	3	<u>8</u>	<u>100.0</u>
			8	100.0
Sounds:	<u>Noisy</u>	<u>Quiet</u>		
Affected			7	87.5
Unaffected	3	4	<u>1</u>	<u>12.5</u>
No response		1	8	100.0
Music:	<u>Radio</u>	<u>None</u>		
Entertaining	2		2	25.0
Not bothered		2	2	25.0
Bothered		1	1	12.5
No response		3	<u>2</u>	<u>37.5</u>
			8	100.0
Ventilation:	<u>Poor</u>	<u>Just right</u>		
Affected	1	2	3	37.5
Unaffected		5	<u>5</u>	<u>62.5</u>
			8	100.0
Temperature:	<u>Depends on weather</u>	<u>Just right</u>	<u>Hot</u>	
Affected	1	1	5	87.5
Unaffected			<u>1</u>	<u>12.5</u>
			8	100.0

Company C

Company facilities

Observers' view. Three distinguishable facilities are provided by the Company: medical clinic, canteen and comfort rooms.

The medical clinic is located on the second floor of Canning 2. It appears small, approximately 3 by 3 meters. There is an adjacent dental clinic about one-half the size of the medical clinic.

The canteen can accommodate about 100 people at any one time. It is relatively clean at the eating area. In spite of its roomy area, the place is hot. Ventilation is provided by the screened window. Electric fans are also present. The heat probably is caused by the overcrowding of the personnel during break or lunch periods. As it is, the canteen is still inadequate for 1,500 employees.

The comfort room is clean and has mirrors and washing/lavatory.

Workers' perception. The workers consider the medical clinic small. It is not complete with medicine. Tablets and capsules are provided, barely curing their ills, and emergency kits are also present. These are usually used by the workers in the slaughter area.

The canteen is regarded as spacious but hot. The prices are too high. One complains of the plastic glasses inadequately washed.

The comfort rooms are taken as too small. Some employees have a hard time reaching the comfort room due to its far location from the working area.

The drinking facilities are insufficient, the flow of water being inadequate and the flavour unnatural.

Abattoir

Observers' view. The abattoir has two sections: the Hot Side and the Cold Side. The temperature in the Hot Side ranges from 60°F to 75°F while the Cold Side ranges from 30°F to 50°F. The Hot Side is ventilated by windows while the Cold Side has the airconditioning units.

The lighting has a level of brightness of 10 feet. The fluorescent lights are brightened to the maximum.

The constant sounds of the machines fill the place. The machines are the hog splitter, hog spotting saw, skinner, dehairing machine, hog stunner and hoist.

The work area has white tiles. It is generally clean. Some electrical hazards are present in the environment.

The workers are provided with gloves and aprons. They have fire extinguishers and fire exits. There are two comfort rooms.

Workers' perception. The butchers note the spaciousness of the work area. One butcher approximates the distance of the workers from each other as 5 feet.

The equipment - knives, saws, splitters - existing in the workplace are common causes of accidents.

The lighting is adequately perceived by the respondents. The environment is noisy, brought about by the splitting machine. Music is considered a disturbance to the job.

The air-cooled temperature is regarded as comfortable in the Cold Side. The same observation is made on the ventilation.

The neatness of the work area is visibly seen. Fumigators are applied to the meat. The place is screened.

Cold storage

Observers' view. What is distinct of the physical environment is its extreme coldness. It is definitely confining and suffocating.

The blast freezers have a temperature of -40°F. The temperature of the holding compartments is -20°F.

The workers are not well protected from the extreme coldness. They have only their sweaters, bonnets and boots to cover them. The clothing materials are inadequate causing the majority of them to get sick. Some workers have X-ray lung spots indicating tuberculosis.

Workers' perception. The space is inadequate, especially when everyone is occupying the area. The anteroom is too narrow and the workers more often stay here dispatching and putting in the raw materials in the holding room.

The arrangement is hazardous. The stock rack is too high, 18 feet. Meat in bulk is in danger of falling down. Forklifts and jacklifts are only operated manually, causing difficulty in the workplace. More often this equipment blocks the smooth flow of work.

The lighting is satisfactory. The work area is noisy due to the blower. The workers feel confined. The extreme coldness obliges them to go out of the area every 15 minutes. Their hands and feet feel numb and painful. They think their clothing protection is inadequate. Many of them get sick.

Meat plant

Observers' views. The workplace appears insufficient to accommodate all the personnel. More often the workers gather together to complete the task as a team.

The level of brightness is ten feet. The fluorescent lights adequately brighten the work area.

The noise has a relatively high frequency. It is due to the machines employed in production. Among them are the grinder, cutter, stuffer, Frank-o-matic, linkers bacon-slicer and pussing machine, and a slicer.

The temperature ranges from 35°F to -40°F. The area is fully airconditioned. The place has white tiles.

Workers' perception. The arrangement is perceived as spacious. It contributes to the smooth flow of work. The slicers and other sharp equipment are perceived to be dangerous components of the layout.

Lighting is considered adequate. The place is noisy due to the existing machinery. The temperature is considered too cold. The workers find their boots, gown, sewn bonnets inadequate protection.

Canning

Observers' view. Upon entering the canning area, one experiences the extreme heat. The ventilation is poor. It is quite suffocating, especially with the accumulated smoke in the retort vicinity.

The lights appear adequate. The production area is white-tiled.

Workers' perception. The layout is just right for the workers. The electrical hazards and the atmospheric pollution, however, bother them.

The lighting is regarded as adequate. It is very noisy in the work area. The colour is light, enhancing the place.

The workers consider the environment too hot. The heat dries their bodies and tuberculosis is common.

Company D. The production area is situated in the meat processing plant. The personnel building houses the medical clinic, guidance and counselling clinic. The employees building has the canteen and the individual lockers and shower rooms of the workers.

Company facilities

Observers' views. The canteen is spacious and has screened doors and windows. Electric fans are provided. The temperature is comfortable.

The medical clinic is clean. It appears to be equipped with efficient personnel and sufficient medicine. Guidance and counselling is provided by the personnel officer and the company doctor.

The comfort rooms and shower compartment of the employees are clean. They appear adequate to accommodate the number of employees.

Workers' perception. The size of the canteen is amenable to the workers. They complain, however, of the high prices of food items. The utensils are dirty and scanty.

The medical clinic is commended. They are efficient. For serious cases, the company contracts the nearby provincial hospital.

The comfort rooms are regarded by some as clean and spacious. The locker rooms are adequate.

Abattoir

Observer's view. Upon entering the abattoir, one notices the hogs and cattle all penned in ready for killing. The killed animals hang on rails which appear heavily loaded. The blood drips and is washed by a continuing flow of floor water. The floor is slippery,

Entering the cut floor, one experiences the change in temperature. The room is cooler and the men are situated according to the line of product.

Workers' perception. Butchers in the Hot Side view their work area as spacious. Everything is in its proper place except the machines which are not used. The idle machines obstruct the flow of work.

The lighting is sufficient but ventilation is considered inadequate. The temperature is quite hot.

On the Cold Side the lights are adequate. The blower creates so much noise but the music emanating from the office soothes their tiredness. The blower circulates the air. The temperature in the area is comfortable. The hot temperature prevailing from the adjacent workplace, however, affects them.

The respondents in the Cold Side see the steel rails transporting the animals from one section to another as hazardous. The workers are afraid the rails might break and cause damage or injury.

Processed meat

Observers' view. The processed meat department covers the emulsion section, filling and linking, kitchen and smokehouse.

The emulsion section is filled with the whirring sounds of the grinding and the blending machines. The room is relatively spacious and adequately houses the few employees.

The filling and linking section is slightly smaller than the emulsion section, but still roomy in size. The steady sound of the ham stuffer fills the work area. The curing machines are located at the sides of the room. They have an automatic and a manual curing machine.

As one enters the kitchen/smokehouse area one is engulfed by the smoke. It is hot and burning. The workers are stripped to thin clothing. The workplace appears hazardous.

Workers' observation. The absence of chairs and tables widens the space of the working area. The layout of the machines complement the flow of work.

The lighting is adequate. It is relatively quiet in the curing section. The smokehouse area is noisy and the workers cannot hear each other.

The workers in the emulsion and filling and linking sections find the workplace comfortable. The workers in the smokehouse, on the other hand, find the place burning with heat; they are suffocated and feel confined.

The workers in the kitchen and smokehouse also perceive the hazards in the workplace. They consider the atmospheric pollution and electrical wires dangerous.

Canning

Observers' view. The place is spacious and the arrangement definitely smoothenes the flow of work. The cans are sealed on the sides and the retort is situated at the end of the line. The labelling is placed at the farthest end of the room.

The lights are adequate. The sounds of seaming machines and the cooking cans fill the area. The temperature is hot near the area, and also near the cooking section. The windows ventilate the workplace.

Workers' perception. The respondents find the arrangement suitable. The work area is taken as roomy and airy.

The noise of the cooking pans and the other machines are heard. They find the temperature quite hot.

Packaging

Observers' view. The workers are positioned according to their product lines. The workers in this department are all girls. The girls performing the initial stages of the task are situated in the front lines. The rest, in the finishing phase, are stationed at the back.

The place is cool. Airconditioning units ventilate the workplace. The lights are adequate. The work area is noisy.

Workers' perception. The layout is amenable to the respondents. The space is sufficient for the job. Some noted the electrical hazards.

The lights are regarded as adequate. The colour is acceptable, enhancing their work performance. The temperature is taken as comfortable.

Organisational temporal conditions

The analysis integrates the observers' view and the workers' perception of the temporal and organisational conditions of work in the companies. The job and the worker are given special emphasis.

Organisational conditions: the job and the worker

Company A. The survey done on how the job itself affects the worker shows the following results:

- (a) 33.33 per cent of the employees from Company A found their job satisfying;
- (b) 100 per cent of the subjects disclosed that their job motivates them;
- (c) 83 per cent of the subjects have high morale; and
- (d) all of them felt one with their job.

The fact that Company A is a small company, with a total number of employees not more than ten, is in a way responsible to the above positive view of the employees. The workers also found that their workplace is just sufficient for their tasks with enough room for them to move around.

The apportionment of work of the uppermakers and the shoemakers brings ease also to the employees. Having the knowledge of what one is going to perform boosts up the employee. Another positive factor is the fact that if one can produce more of what he is supposed to do he can augment his income. (A unique feature of the piece-rate system.) The workers also have a general experience that they hold control over their jobs. For instance, they do not have fixed working hours. If they are in the mood to work, they work continuously. At times they observe rest pauses. They also indicated their strong preference for this type of working hour/schedule (flexible working hours). The confidence in one's capacities to perform the job, i.e. brought up in the job, grows old with the job, encourages the workers.

Another important factor which one should consider, too, is that the workers and the owner of Company A are related to one another. Hence there is the sense of belongingness, since it is a family business.

Company B. The following indicates how the workers in Company B are affected by their jobs:

- (a) 75 per cent of the workers feel very satisfied, while the remainder (25 per cent) denote either indifference or dissatisfaction;
- (b) with reference to workers' motivation, the workers seem to feel less motivated (50 per cent indicated low motivation, 25 per cent expressed indifference and 25 per cent implied that their job motivates them);
- (c) the morale of the workers, however, is high, 100 per cent expressed this;
- (d) in terms of their perception on their relationship with their jobs, 88 per cent of the workers said that they are not alienated from their jobs.

Like Company A, workers at Company B have flexible working hours and are paid on a piece-rate basis. Aside from any specific instructions/specifications from the supervisor, the workers are all left on their own. Most of them feel free to take a rest and pause from their work any time they feel like doing so. Another contributing factor is the Company's system where the shoemakers are made to do the whole process of completing the shoes, which is quite different from Company A. Apparently there is less team effort in this system. This is emphasised by the fact that the two groups of workers are working on different work sites. There is no physical contact during working hours between both groups which causes the "I couldn't care less" attitude of each worker towards the other's job. As an outcome of this, too, the workers do not give extra effort nor initiate anything unless told to do so by the supervisor or unless required by the circumstances of time when there is a heavy workload.

Workers' interpersonal relationship is good since they all come from Pampanga - being recruited by the owner. Most of them feel close to their supervisor and they also realise the importance of each other in the performance of their job and for the growth of the company.

Company C. The following are survey results on how the workers are affected by their jobs:

- (a) 81 per cent of the workers feel satisfied by their job while the remaining 19 per cent expressed indifference;
- (b) 45 per cent of the workers expressed that they are motivated in performing their job while the remaining 55 per cent conveyed otherwise;
- (c) as for workers' morale, 66 per cent indicated high morale compared to 33 per cent who either feel indifferent or feel low;
- (d) sense of alienation was felt by only 33 per cent of the workers while the remaining 66 per cent felt that they can cope or belong to their job.

A general feeling that exists among production workers of Company C is that they have no other choice but to stay with the company because they need their jobs in order to live. Being less educated, they feel that they cannot get another job which is better than the one they have at present. Consequently, they try to perform their duties well. They expressed through the interviews that if they will not give their maximum effort, the company will suffer and when such a thing happens,

the consequences will boomerang back on them. The job is thus seen as a means to their own ends, as an instrument. This attitude is carried out when employees are asked to do overtime, they do not feel like doing it but they have no choice. In the process, however, they rationalise it as an added income. The workers reacted to the flexibility of the working schedule. They believe that there should be definite working hours and that rest pauses should be longer. Another factor which seems to contribute to the lack of motivation and indifference of the workers to their jobs is low pay. Most old employees still receive the same salary. Moreover, their collective bargaining agreement, which could have provided for a yearly general increase, has not been renewed. Respondents also indicated that employers in this company do not appraise their performance as they should. Their feeling is that one gets promoted based on how he is backed up.

Machines are used generally to facilitate the work of the employers, but they do not make the workers feel that they are more important than they. On the contrary, they claimed that they still have control over the machines and the quality/quantity of their output still depends on them in spite of the presence of the machines. Operators, however, feel otherwise - they are dependent on the machine so if there is trouble with it their performance is greatly affected.

Company D. Findings on how Company D workers are being affected by their jobs show that:

- (a) 100 per cent of the workers expressed satisfaction in the performance of their job;
- (b) in relation to job motivation, 62 per cent felt that they are motivated while 48 per cent felt less motivated;
- (c) morale is high among 78 per cent of the total employees, 22 per cent expressed their indifference;
- (d) 100 per cent of the subject employees indicated a feeling of oneness with their jobs.

As almost one-half of the respondents feel less motivated by their job, interviewers investigated what causes these feelings. Two causes came up and these were salary received and the workshift. This implies that even if the workers at Company D live in the province, they crave for higher salaries and are motivated by this. With regard to workshift, however, the most prevalent reason given is that it disrupts their sleep schedules and the time devoted to family activities.

Workers at Company D exhibited a rather ambivalent attitude towards having to work overtime. Most, in fact, welcome the opportunity to work overtime for the extra income it gives them.

Albeit the show of general satisfaction over both job and working conditions, company personnel records show that absences are prevalent during some months, i.e. December, April, May and June. Interviews with clinic personnel, some employees and with the Personnel Manager of the company, unearthed the following reasons: (1) December and January are the peak months when employees had to work long hours thereby lowering their bodily resistance and making them prone to accidents; (2) Summertime and rainy seasons, on the other hand, expose them to ailments such as colds, urinary tract infection and loose bowel movements.

Temporal conditions

Work hours

Company A. Here workers work on an average of 12 hours a day or 72 hours a week. One worker indicated, however, that his work hours are flexible and that the length of his working week depends on work orders.

Workers still do overtime work despite the rather long working hours when there are orders to finish.

When asked how they are reacting to their working hours, two-thirds stated that they like their work schedules or that it is "okay lang" (just okay). With regard to overtime, the reaction is positive for it is welcomed as an addition to the family income.

Company B. Responses of workers here are varied. Hours were said to be flexible by 37.5 per cent, while 25 per cent indicated that they work 8 hours and another 25 per cent, 10 hours a day (see table 13). Only one worker (12.5 per cent) actually could not say how long he works in a day as it all depends on the orders. With regard to the working week, it was indicated that 87.5 per cent work 5 days a week, while only 16.6 per cent work 6 days per week. As in Company A, workers in Company B go on overtime work depending on the orders.

The majority of the workers (62.5 per cent) find their work schedule just right and they like it that way. However, one respondent finds it quite long, while another indicated the he is now used to it. As to doing overtime, however, Company B respondents also welcome this (like their counterparts in Company A) as it brings extra income.

Company C. One hundred per cent of Company C respondents stated that they work eight hours per day. With the exception of one respondent who worked seven days per week, everybody worked just six days in a week.

Company C workers, like the other respondents, work overtime as the exigencies dictate; 18.1 per cent indicated that this depended on production level or expected output, while the rest indicated that they do overtime once a week (18.1 per cent), twice a week (9.0 per cent) and almost daily (46 per cent).

Reactions of the workers are as follows: workers on an 8-hour 6-day week work schedule like this arrangement. Workers on a day-shift find their schedule "better than night work", while those on night-shift like night work. Two workers who indicated an 8-hour 6-day week schedule, however, protested that their schedules are not always followed so they stated that they do not like it at all.

Workers here are more or less required to work overtime during emergencies (e.g. Christmas time). When this is done, almost every day workers complain that overtime leaves them no time to rest and recover from the previous day's fatigue.¹ However, they tolerate it because of the additional money it brings.

Company D. Our respondents here work on an 8-hour, 6-day week basis. They do overtime depending on production levels or output expected, as indicated by 26.7 per cent of the workers. Some 13.3 per cent declared that they work overtime twice a week; 20 per cent thrice a week, another 20 per cent almost every day, and 13.3 per cent everyday. Only one worker (6.7 per cent) stated that he goes on overtime indefinitely.

When asked how they are taking their work schedule, the majority (66.7 per cent) of Company D workers who work 8 hours per day 6 days per week expressed that this is satisfactory (most of these, however, are rotating shift workers). Thirty-three per cent indicated that they like it (see table 13).

With regard to overtime, most of them take this in their stride ("OK lang" - 40 per cent) or welcome it as an augmentor of family income (33.3 per cent). The rest take it on as a responsibility (20 per cent) while one complains that it is hard for him to go on overtime.

Rest pauses

Rest pauses for the shoe establishments are flexible. At the food companies, however, meal periods vary from 30 minutes (18.1 per cent) to one hour (72.9 per cent) for Company C respondents, while all Company D workers go on a one hour meal pause. The majority of Company C workers (82 per cent) get a 10-minute coffee break with just one (9 per cent) stating that his snack period is not the same all the time. Those at company D, however, all go on a 30-minute coffee break.

More than half of Company D and Company C workers find the rest pauses, especially meal periods, not sufficient since their "shortness" does not allow them sufficient time to rest or catch their breath.

¹ Especially in cold storage as the section is undermanned and casuals do not stay long.

Table 13

Workers' reaction to the temporal work conditions

	COMPANY A		COMPANY B	
	N	%	N	%
Work schedule				
likes it	4	66.6	5	62.5
long			1	12.5
used to it			1	12.5
no response	2	33.3	1	12.5
TOTAL	6	99.9	8	100.0
Work schedule				
likes it	5	45.5	5	33.3
just right	4	36.3	10	66.7
do not like it	2	18.1		
TOTAL	11	99.9	15	100.0
Rest pauses				
sufficient	4	36.0	7	46.6
not sufficient	6	55.0	8	53.3
no breaktime	1	9.0		
TOTAL	11	100.0	15	99.9

Summary

A. Organisational conditions

In the section on "The job and the worker", the major findings are:

- (1) among the workers of the three companies, all those working at Food Company D exhibited general satisfaction with their jobs, although three-fourths or more of the other workers indicated feelings of satisfaction over their jobs;
- (2) as to motivation emanating from job characteristics, only Shoe Company A disclosed that they are all motivated by their work. One-fourth of Company B's workers expressed this kind of motivation, as 50 per cent indicated a low motivation profile. Company C workers likewise exhibited such a low profile (55 per cent). The majority of those in Company D, on the other hand (62 per cent) felt any kind of motivation with regard to their job.
- (3) Morale is high among 100 per cent of Company B workers and this could also be said to be true of more than three-fourths of Companies A and D, and about two-thirds of Company C respondents.
- (4) In terms of worker perception of oneness with their jobs, 100 per cent of the respondents in Companies A and D expressed this feeling. Those who feel alienated are few - only one-third of Company C workers and a handful of Company B workers (12 per cent).

B. Temporal work conditions

Table 13 presents a picture of the temporal working conditions of our respondent workers. Shoeworkers work relatively longer time per day, food workers normally only 8 hours per day. Nevertheless, with regard to length of work-week, Companies A, C and D respondents indicated that they work 6 days a week, except for one worker at Company A who stated that his work week depends on work orders.

Overtime work for all types of workers is dependent on work orders and expected output, but responses for food workers are more varied than shoeworkers. Overtime for the latter type of workers range from once a week to every day.

Rest pauses are flexible for shoeworkers, while food respondents, especially those in Company C, are varied. Meal breaks are either 30 minutes or one hour and coffee breaks are generally on a 30-minute period basis (15 minutes for the morning, 15 minutes for the afternoon).

Reactions to work conditions are as a whole positive, particularly with regard to their work schedule. Only a few of Company C workers express dislike for their schedule which is not always followed. Overtime is generally welcome for the extra income it gives. However, workers admit that it could be taxing to their health and to their minds, especially if it is long.

Rest pauses are flexible for shoeworkers and, therefore, they like it. Food workers, on the other hand, are divided. Some find it sufficient, others find it not sufficient. Those who find it not sufficient say so because they find that it takes a long time to go to the canteen which is quite a distance from their place of work, and also because they have to fall in line to buy their food.

CHAPTER IV

Summary and recommendations

The considerable diversity and complexity of the kind of technology and work conditions existing in different industries have been demonstrated throughout this study. If it is one's fate to work in, say, the shoe industry, one is somewhat predestined to bear the processes, the machines and the work conditions therein. This is so because each kind of industry presents a rather peculiar type of technology and hence the work conditions that emanate from this technology are therefore also unique.

Shoe industries therefore use basically handicraft techniques with minimal resort to machines belonging to a low order type of mechanisation. Tools used are likewise manually operated and therefore they are exposed to the same kind of accidents. Workers are subjected to the somewhat similar work conditions. Physically, they occupy small, cramped, rather dirty places of work which they sometimes take for granted as "part of the trade". They smell the same kind of smell, emanating from the materials they use, i.e. glues, leather, wood and plastic. Working hours are flexible, but rather long, and overtime is done depending on projected outputs.

Food-processing concerns, especially those producing the same product like meat in our study, likewise exhibit the same characteristics. They use massive machines to turn out more output, hence they are classified as machine tending. Although they might use different ingredients in their products, tools and other equipments used, as well as the processes, are similar, thereby subjecting their workers to more or less the same work environment. In this study, foodworkers are situated in colourless surroundings, moist or slippery in some areas, and are dominated by the machines and tools they use. Overtime is required most often as the exigencies so dictate.

From these, one might conclude that the same technology and its concomitant work conditions the workers are being subjected to exist in the same industries. While it is true that the kind of technology used by certain industries exposes the workers to similar work situations, other variables come into the picture that might offset the occurrence of similar effects on the workers. In this study, we refer to them as intervening variables which are identified as those that interfere with the effects or influence of the independent variable on the dependent variable. Intervening variables in this case come in the form of conditions of work: physical, temporal and organisational.

The physical environment prevailing in the two industries studied are distinct and far apart. While the shoeworkers have meagre workplaces enclosed in the owner's residence, the workers in the food-processing industry have corporate buildings cemented and fully painted. The contrasting situations create varied responses.

The shoeworkers are generally affected by the temperature and ventilation in the workplace. Having no ceiling, the heat directly penetrates through the roof. The hollow blocked walls add to the discomfort. Windows are not properly positioned in some work areas. The other factors such as lighting, sounds, space, do not affect the workers. They claim that they can work even in such conditions.

The food-processing workers are definitely affected by the temperature. The workers are exposed in the extremes affecting their general well-being. The sounds of the machines create unwanted disturbances which the workers are used to. The arrangement of some of these equipments and machines blocks the effective flow of the process flow.

The physical environments prevailing in the two industries are distinct and far apart. While the shoeworkers have generally meagre workplaces integrated in the owner's residence, the workers in the food industry have a different work situation.

The most salient features in this survey with reference to organisational conditions are that foodworkers in the relatively new establishment are more satisfied than their counterparts in the same industry as well as in the other. Earlier, possible reasons for this have been discussed, e.g. newness of the machines do not give them any headaches; a very much involved personnel manager.

Three-fifths of the same workers exhibit any kind of motivation at all. This picture is even lower for the food company which has been in existence for a decade now. Shoeworkers on the other hand, especially those belonging to the family-owned firm, disclosed that they are motivated by their jobs.

Generally, morale is high among the respondents, more so with Company B workers who expressed that they have freedom of control over their workpace and their work content. Workers also exhibited a strong sense of belonging to their companies, most possibly because they identify with their organisations as the source of manna from heaven and therefore if they do not work well for them, the repercussions will fall back on them.

Few workers have negative reactions towards their temporal conditions. In fact, most of them - even those with long work hours - like their schedules. This is particularly true for workers with flexible hours of work. While some welcome overtime as an added source of income, others react very strongly against it as unhealthy.

Recommendations

The meagre physical environment of the shoeworkers needs to be expanded. The roofs require adequate ceilings to protect the workers from the vagaries of the weather. To remedy the ventilation problem, the work area must be fully utilised in shops with abundant space. The lighting has to be properly insulated and reinforced to minimise electrical hazards.

The workers in the food industry need adequate and suitable protection from the extremes of hot and cold temperature. Sharp instruments must have guards or barriers. Chains and conveyor belts must be covered. Exhaust and ventilation equipment must be installed in areas emitting atmospheric pollution.

At this point, there can be no recommendation with regard to organiational factors, although we can recommend shorter work hours for shoeworkers and shorter overtime periods for foodworkers, as these have been proving rather hazardous to their health.

If, as a whole, this study unearthed more positive than negative effects when it comes to workers' reaction against the organisational conditions of work, this could be attributed to several limitations of the study. For instance, being only a case study, one cannot thus generalise some conditions as common to all establishments in the industries under study. This thus points to an expansion of the study to include greater coverage and greater in-depth analysis. Then and only then can we safely say that the conditions in some selected firms of an industry prevail in the same kind of industry.

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Shift Work in Developing Economies

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1.0 INTRODUCTION

It has been a well established rule of occupational health and ergonomics to prefer daytime work to night and shift work, intolerance to shift work often resulting in work deterioration, ill-health, absenteeism, and liability to accidents.^{1, 4, 6, 21} Industrialization, however, which is now being extended to more industrial sectors and to the developing economies, is bringing to these areas a rapidly growing practice of shift working.^{4, 12, 14, 17}

Adoption of multiple shifting connected with the introduction of new technology and new production procedures in the developing economies has been regarded, on the one hand, as a means for efficient utilization of capital resources and for increase of employment.^{2, 3, 7, 12, 22} The problems of shift organization, on the other hand, are giving rise to a growing concern over its impacts on local economy as well as on health and social life of the workers, in particular where it is extensively applied to industries in which continuous operation for technical reasons is not necessarily needed.^{8, 15}

These problems may require much broader views as to the extent to which shift work should be employed and the guidelines for limiting the consequences of spreading shift work. An attempt is made in the present paper to outline the existing situations and to indicate the necessary prerequisites by which the detrimental effects on workers should be minimized.

2.0 TREND OF SHIFT WORKING PRACTICES

Recent surveys of manufacturing undertakings in some Asian countries demonstrate that an increasing number of the large and medium-sized undertakings work two or more shifts, the rotation

system being in common use.

2.1 Spread of shift work

Statistical data are not usually available as to the number of shift workers, but it is obvious that more and more shift work is being done in the developing countries. In the textile industry, for instance, which is characteristically developing in most countries of Asia, almost all of the modern plants employ shift work.^{8, 15, 24} The most usual practices of shifting are two-shift systems with weekly holidays and three-shift systems with or without weekend work. The types of rotating shifts and problems arising from them, however, vary considerably with the needs of particular industries as well as with the requirement imposed by national legislation and custom.

Factors leading to the use of shift work are really diverse, but as far as the manufacturing sectors are concerned, economic requirements are likely to play a major role, especially in the manufacture of textiles, machinery, and other consumer products. In many countries such as India shift working has long been in practice,^{11, 16, 24} but in certain other countries, as the studies about Indonesia and Thailand show, shift work has come to be applied on an industrial level only after the introduction of modernized technology, specifically during the past two decades or so.^{8, 15} This would imply that the full impact of night and shift work is not completely known to workers in these developing situations, and that elements of dissatisfaction are ^{often} dealt with merely from personnel management viewpoints.

The problems of shift work in developing countries are thus relatively new and have not been studied in depth until the recent decade.¹² Reports about the social problems it involves are still very limited in number, and there is a need

for more first-hand information on human and managerial problems that shift work creates in developing countries.

2.2 Legal provisions

In general, hours of work, rest periods, and prohibition of night work for minors and women are governed by the labour laws, but little is laid down specifically about shift work. In this context, the situations in developing countries seem to be similar to those in industrialized countries.^{4, 13} As a result, rotation types and other features of shift work are arranged by mutual agreement between the management and workers, though in certain countries, mostly those other than in Asia, legislation stipulates that shifts shall be rotated on a weekly or fortnightly basis.

The concerns of labour legislation on shift work are usually limited to imposing premium rates for night work and prohibiting night work of minors and of women exempting those in health and other services of public needs. It should be noted that these provisions on working time and women's work, shown in Table 1, have exceptions, and that in many countries shifts longer than a normal workday and night work of women in the manufacturing plants are not uncommon. Further, no provision is made for any special spells of work, except for overtime pays. Short breaks taken for meals within a shift may or may not be counted as working time. In many of the countries listed, night work is not precluded for women due to provisions exempting its ban, as for example, for those being rotated in shifts (in Thailand), for work requiring the manual skills and dexterity of female workers (in the Philippines), and others. This has resulted in a large number of women including minors working at night, as it is the

case in the textile industry, mainly in the three-shift system. 8, 15, 24, 25

2.3 Diversity of shift work organization

The information obtained in selected industrial enterprises in Asian countries suggest that forms of shift work are quite different between countries as well as between enterprises.^{5, 7, 8, 11, 12, 15, 20, 25} In effect, main systems of shift work in these countries reflect both past and present practices of shift working in industrialized areas. 13, 17, 23

Inspection of some basic rotation patterns in the manufacturing plants listed in Table 2 reveals that major systems consist of either two day shifts or three shifts, the times of shift changes being mostly between 0600-0700, 1400-1500, and 2200-2300. But the choice of systems seems to depend largely on factors peculiar to the country concerned. To quote the textile industry as an example, the two ^(-shift) systems have been general in Japan except for synthetic plants, whereas the three-shift system is the commonplace in other countries such as India, Philippines, Sri Lanka, Thailand, etc., including spinning, weaving, and dyeing.^{8, 15, 25} There are also intermediate systems whereby the third or night shift is worked by a smaller number of workers in addition to a two-shift system.

Another marked difference is found in the length of the period of rotation, or number of consecutive shifts. Even in the case of semi-continuous two- and three-shift systems, where most countries tend to adopt weekly rotation, the shift change in the Philippines as well as in some other countries outside Asia takes place at much longer intervals of two weeks, one month, or longer. In contrast, in the case of continuous operations in Indonesia, and possibly in some other countries, there is a tendency to operate the three-shift system in four teams, by which the number

of consecutive shifts can be reduced to lower than 5 or 6. Although the new system is adopted only in part, this is consistent with the recent practices in European countries, the United States, and Japan.^{1, 13, 17, 18, 21}

On the other hand, there are found many original forms of rotating shifts for semi-continuous as well as for continuous operations, as shown in Table 3. Frequent modifications concern the number of shifts worked per week, cycle period of rotation, times of shift changes as well as combination of different types. Sometimes assignment of workers into shifts is done on the individual basis, so that each worker gets assigned weekly holidays while the operation runs continuously.⁸ A special type not uncommon in textile mills of Bangladesh divides daily working time of a crew into two periods separated by a break of two or more hours.²⁵ There are two-shift systems in which the second shift is extended to midnight hours.^{7, 20}

It is significant that ^{(of these/} many modifications are brought about as a result of efforts to alleviate the dissatisfaction of workers, inconveniences in production, or labour disputes. This is also true for the above-mentioned transfer to the four-team three-shift systems. It seems noteworthy that not a few enterprises have tried to change the rotation features on the experimental basis, in a search for a type acceptable for both production requirements and workers by means of varying shift-changing times or reducing the number of consecutive shifts.^{5, 8} In this respect, the advantages of the four-team three-shift system that it provides each team with less night work and more restful days together with reasonable swift rotations are gradually being recognized in industries where continuous operation is needed.

3.0 MAJOR IMPACTS OF SHIFT WORKING

The foregoing examples may indicate not only the diversity of shift practices but also a variety of impacts being brought by them. While the problems arising from shift work in the developing economies may be by and large similar to those experienced by industrialized countries, they differ considerably according to the particular circumstances of such economies and the climatic and social conditions in which the new practice is introduced.

3.1 Effects on local economy and labour

It is suggested that the new practice of multiple shifting has brought forward better utilization of industrial capacity, thus creating the opportunity of expanding employment. However, the rapid increase of shift schedules has caused significant changes in the local economy and job organization which are not always desirable. The merits of shift work are often lowered not only by shortage of materials and skilled manpower but by lack of demand or low quality of products for which the intended strategy of shifting may be responsible.^{2, 8, 12, 15} Moreover, the labour-intensive industries such as the textile and food products industries tend to pull in a large number of young and minor female workers into night work.^{8, 15} Also important are the effects of shift working in larger enterprises on local structure of labourforce as well as on operation of smaller enterprises, which may be compelled to lower the working conditions as a result of losing competitive ability.¹⁵ These new situations are triggering many social problems.

3.2 Effects on health and medical protection

The health problems of shift work relate, on the one hand, to unnatural phase shift of diurnal rhythm characteristics by shift

work itself and, on the other, to difficulty in protection of workers vulnerable to such distortion of biological rhythm. Because complete adaptation to day-night inversion or phase shift of the internal biological rhythm does not take place in industrial conditions, special disturbances in health derive from shift work, in particular from night work.^{1, 4, 6, 21} Although available data are still very limited, these data indicate that such effects on health are significant for shift workers of developing countries. This is evidenced by high rate of sleep disturbances in quality and in quantity, which are also related to heat, noise, and insects, high rates of poor health experiences and poor digestion, mental health problems as well as by data linking absenteeism and accident rates with night work.^{7, 8, 9, 20} It is worth noting that some survey results show that night work leads to higher absenteeism especially towards the end of the night shift period ^{8, 20}, and that such disturbances as poor quality and quantity of sleep are prevalent in the three-shift system but far less in the double-day shift systems.⁷

Mention should also be made of the difficulty of implementing labour inspection in shift working plants of developing countries and of the generally poor occupational health services for shift workers there.^{8, 15} Health services are quite often limited to rather ceremonious periodic health check-ups and lack in around-the-clock and around-the-year measures necessary to secure healthiness of shift workers and early treatment. Likewise, the relations between workload due to inadequate ergonomic considerations and workers' intolerance to shift work are also noted.^{4, 8, 14}

3.3 Effects on private, family, and social life

Effects of shift work on individual and social life are associated with all the factors mentioned above.^{4, 10} Although

information as to such effects in developing countries is even more restricted, seriousness of the problems is suggested by the reports on difficulties met in shift work both on the side of management and on the side of workers. These problems are associated with lack of sufficient resting and welfare facilities, lack of crèches and nurseries, poor water and food supply as well as public transport for commuting, dormitory and housing conditions, allocation of holidays, and conflicts arising from religious and cultural customs.^{7, 8, 15} Female participation in shift work is reported to cause social problems which are far beyond maternity protection problems. Thus an attempt is being made in Thailand to set up adult schools for female shift workers to acquaint them with labour laws and their rights as well as adult education.¹⁵

3.4 Attitude of workers towards shift work

The review of research findings in India and Indonesia shows that the majority of shift workers expressed a negative attitude towards shift work,^{8, 9} which is no more inconspicuous compared with the results in industrialized countries.^{12, 18} Similarly negative attitude of shift workers is reported in a study in Pakistan, which also suggests that the double-day two-shift system was considered as the least demanding shift schedule.⁷ It is significant that a minority seemed to prefer shift working.^{8, 9, 12} It must be taken into account that the vast majority of workers have accepted shift work purely because there is no alternative and that some workers want to use it for the second job.⁸ The dislike for shift work is clearly relevant to strain of night work, incidence of ailments, inconveniences in social life as well as to unconcerned supervisors and other social-psychological factors.^{4, 8, 12, 18}

4.0 AN INTEGRATED APPROACH TO SHIFT WORK

Existing studies on effects of shift work in the developing economies clearly show that a review of the whole problems is necessary to elaborate an integrated approach based ^{on/} broad viewpoints.

This approach should take into account the biological,

(social and health needs of the workers, and must be)

taken on the basis of reliable information, aiming explicitly

at improving conditions of work and life of shift workers. A

basic principle should be to avoid shift work, and in particular

night work, where possible, because night- and shiftwork, while

meeting certain social needs, is medically harmful and raises

difficulties in the social life of the workers subjected to it.⁴

This is especially the case for minor workers rotated in shifts.

One should note that the disturbances will be aggravated in the

case of women night workers, not by lesser biological and

psychological aptitude for night work, but by the social usages

which require from them both industrial and family roles.

In view of the growing questioning of night work, multiple

shifting, if ever worth planning, should be limited as far as

possible, and should be first of all restricted to utilization

of the second shift or other flexible work schedules, on the

premises that the earlier shift does not deviate from a normal

daily schedule of the community and the second shift does not

extend to late evening hours. At any case, elaboration of

acceptable schemes should take account of indirect costs borne

by the shift workers themselves, their families, and the local

community as a whole.

The following points of discussion would appear important

at this stage to be incorporated into the integrated approach, both

on the international and national levels. Regional cooperation seems very important, since the experiences gained in such fields of industrialized countries cannot be merely 'extrapolated' to another area of a developing economy.¹⁹ This approach can be closely connected with the effective launching of the International Programme for Working Conditions and Environment (PIACT) and other regional-level efforts, especially in such regions as Asia.

- A. What kinds of action-oriented research should be undertaken in order to provide for reliable information on shift work in developing countries?
- What priority should be given to such studies?
 - To what extent the information on application and selection of shift systems is needed?
 - Can a joint research be promoted to collect data on medical and social effects of shift working?
- B. What specific provisions should be stipulated in the labour laws for improving shift working conditions in industries?
- In respect of limiting night work for both men and women?
 - For regulation^{of} length, interval, and frequency of shifts?
 - Regarding protection of minor workers and maternity?
- C. How and on which level should the guidelines for shift system arrangement be set up?
- What distinction is necessary between the continuous process industries and those where interruption is technically possible?
 - What are the standards for reasonable and restful rotation?
 - How can a socially acceptable two-shift practice be guided?
- D. What technical approaches can be jointly taken to assist the enterprise-level improvement of social conditions of shift work?
- What technical recommendations can be drawn for resting and welfare facilities, for housing, for transport, and others?
 - What approaches are required for supporting occupational health services for shift workers, including first aid, medical surveillance, and assignment?
 - What are the relations of these technical approaches to the future action in the framework of the PIACT and other regional-level projects?

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Table 1. Labour law provisions concerning working hours
and night work in Asian countries.

Country	Hours of work		Rest period	Ban of night work	
	per day	per week		Minors	Adult*
Australia	8	40	twice 10min office: a meal period shift work: 20min+ a meal period per 6h	under 16yr	women
India	9	48	30min per 5h	under 15yr (less than 4.5h)	women (19-6)
Indonesia	7	40	30min after 4h	under 18yr	-
Japan	8 (commerce, health: 54, transport:60)	48	45min for 6h 60min for 8h	under 18yr (22-5)	women (22-5)
Korea	8 (overtime:12/week)	48	30min for 4h 60min for 8h	under 18yr (22-6)	women (22-6)
Malaysia	8 (overtime:32/week)	48	once per 6h	16yr or less	women (22-6)
Philippines	8	-	60min for a regular meal	under 15yr	women (22-6)
Singapore	8 (overtime:46/m)	44	once for 6h or more 45min for 8h	(23-6)	women except in offices (23-6)
Thailand	Mining and industry Transport 8 Dangerous work 7 Commerce and others	48 42 54	60min before 5h	under 15yr (22-6)	women (24-6)

* Usually there are exceptions for night work prohibition of women.

Table 2. Examples of some basic types of shift rotation
in developing industries.

Workplace	Total no. of workers	No. of shifts	No. of teams	Week- end work	No. of straight shifts	Shift time		
						I	II	III
<u>Indonesia</u> ⁸								
1. Textile mill	500	2	2	-	6	6-14	14-22	
		3	3	-	6	6-14	14-22	22-6
2. Wheatflour mill	340	3	3	-	6	7-15	15-23	23-7
3. Paper mill	800	3	3	-	6	7-14	14-22	22-7
4. Textile mill	950	3	4	+	5	6-14	14-22	22-6
5. Textile mill	1300	3	4	+	3	6-14	14-22	22-6
6. Synthetic textile mill	1400	3	4	+	2	6-14	14-22	22-6
<u>Philippines</u> *								
7. Automobile plant	1320	2	2	-	1 month	6-14	14-22	
8. Metal mine	4600	2	2	-	2 weeks	7-16	17- 1.30	
9. Food products plant	700	2	2	- (5 day week)	1 month	8-17	17-24	
10. Rubber plant	465	3	3	-	4 weeks	6-14	14-22	22-6
<u>Thailand</u> ¹⁵								
11. Textile mill	4800	3	3	+	7	7-15	15-23	23-7
<u>Pakistan</u> ⁷								
12. Industrial plants	-	2	2	-	6	5-13	13-21	
		3	3	?	6-7	7-15	15-23	23-7
		2	2	-	6	7-19	19-7	

* Results of interview by the author.

Table 3. Examples of some original types of shift rotation in developing industries.

Workplace	No. of shifts	No. of teams	Week-end work	No. of straight shifts	Shift time		
					I	II	III
<u>Indonesia</u> ⁸							
1. Paper and plastics plant	2	2	- (Sat.4h)	5	8-16 (8-12)	16-24 (12-16)	
	3	3	- (Sat.4h)	5	8-16 (8-12)	16-24 (12-16)	24-8 (16-20)
2. Synthetic textile mill	3	3	-	6	7-15	15-23	23-7
	3	multiple	+	5 (a day off after 5 days)	7-15	15-23	23-7
3. Tobacco factory	1, 2 or 3 (2 or 3 only in rush period)	1, 2 or 3	-	5	7-15.30	15.30-24	23-7
<u>Philippines</u> *							
4. Wire and cable factory	3	3	-	2 or 3 months	6-14	14-22	22-6
5. Textile mill	3	3	+	2 weeks	6-14	14-22	22-6
<u>Thailand</u> *							
6. Iron works	2 (women only)	2	-	6	7-15	15-23	
	3 (men only)	3	-	6	7-15	15-23	23-7
<u>India</u> ²⁰							
7. Manufacturing plant	2	2	-	6	8-17.30	17.30-3	
<u>Sri Lanka</u> ⁵							
8. Tyre factory	3	4	+	1 or 4	6-14	14-22	22-6
<u>Bangladesh</u> ²⁵							
9. Jute factory	2	2	-	6	6-11.30 (14-16.30)	11.30-14 (16.30-22)	
10. Cotton mill	3	3	+	1	6-10 (14-18)	10-14 (18-22)	22-6

* Results of interviews.

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Technologies for Improved Working
Conditions and Environment in
Philippine Forestry

by

Iftikhar Ahmed

Technology and Employment Branch
Employment and Development Department
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TECHNOLOGIES FOR IMPROVED WORKING
CONDITIONS AND ENVIRONMENT IN
PHILIPPINE FORESTRY*

by .. .

Iftikhar Ahmed**

The creation of productive rural jobs has been emphasised as a key condition for the successful over-all development in the Philippines during the years ahead.¹ When considering employment possibilities in rural areas, the focus is almost invariably on agriculture. Yet this may completely overlook forestry, a sector which in the Philippines figures prominently in the national economy, and which could figure much more prominently in the absorption of rural labour through the development and application of appropriate technology in logging and re-forestation.²

From ergonomic and health considerations and physical strain of work, forestry would rank as one of the most difficult of all activities. On a world-wide basis logging and forestry belongs to one of the most hazardous of all occupations.³

Therefore technologies considered appropriate for Philippine forestry would have to be able to improve working conditions, enhance the safety of work and protect the ecology in addition to generating productive employment. Indeed, the programme of action under the basic needs strategy adopted by the ILO World Employment Conference recommended that "such technologies should contribute to greater productive employment", "arrive at a reasonable balance between labour-intensive and capital-intensive techniques, with a view to achieving the fundamental aim of maximising growth and employment and satisfying basic needs", "in the selection of new technologies appropriate to their (developing countries') needs, they should take due account of the need to protect their ecology" and "there is also a need to pay due attention to social aspects, working conditions and the safety of workers when introducing new technologies".⁴

* Views expressed in this paper are those of the author in his personal capacity and do not necessarily represent those of the ILO. The paper is based on a recently completed ILO project entitled "Appropriate Technology in Philippine Forestry", ILO, Geneva, November 1977 (mimeo).

** Technology and Employment Branch, Employment and Development Department, ILO, Geneva.

¹ Sharing in Development : a programme of employment, equity and growth for the Philippines, ILO, Geneva, 1974, p. 55.

² Forestry exports account for about a quarter of the nation's foreign exchange earnings and nearly 60% of the 30 million hectares of the entire Philippines land area is covered by forests.

³ The accident frequency, severity and fatality rates in forestry has always been high compared to the other sectors in a wide range of countries. (Conditions of Work and Life in the Timber Industry, ILO, Geneva, 1973.)

⁴ ILO, Meeting Basic Needs : Strategies for Eradicating Mass Poverty and Unemployment : Conclusions of the World Employment Conference, Geneva, 1976.

Furthermore, a major programme theme of the ILO for the coming years is the improvement of working conditions and the working environment and this implies that the ILO needs to be quite as concerned with the quality of employment as with the growth in the number of productive jobs.¹

Purpose of the Paper

To seek and identify technologies which would incorporate all the four socially desirable properties of providing higher productive employment, improved working conditions, greater safety of work and more protective of the environment at the same time would be extremely difficult if not impossible. However, the purpose of this paper is to review the set of technological options available for the various forestry operations in the Philippines and to draw conclusions about those which come closest to combining the above characteristics. Subsequently, costs (at prevailing market prices) of the use of the alternative technologies are compared and this is very important in view of the fact that technologies considered appropriate would receive serious consideration by the Philippine forestry sector which is exclusively in private hands only when they are also economical. Finally, the paper examines and analyses the safety of forestry work in the Philippines and provides some assessment of cost-benefit arising from the provision of some items of safety equipment to forestry workers belonging to some private logging companies.

Logging and Reforestation

In reviewing the technological options available in Philippine forestry, the paper essentially deals with activities relating to logging and reforestation.

Stump-site activity

The stump-site activity comprises the first step in the logging sequence and the technologies used are reviewed first in respect of dipterocarp species of trees having large diameters and log sizes and subsequently for fast growing plantations and other small trees.²

Virgin dipterocarps : Three alternative technologies were examined and compared in the falling and cross-cutting of large diameter trees. They were the large, heavy-weight power chain saw of 9-13 h.p.; smaller, lighter power-chain saw (fig. 1). The small chain-saw was more labour-using than the large chain-saw, but less than the traditional two-man cross-cut saw. The productivity levels (cubic meter per man-hour) under the small chain-saw technique was three times that of the two-man cross-cut saw.

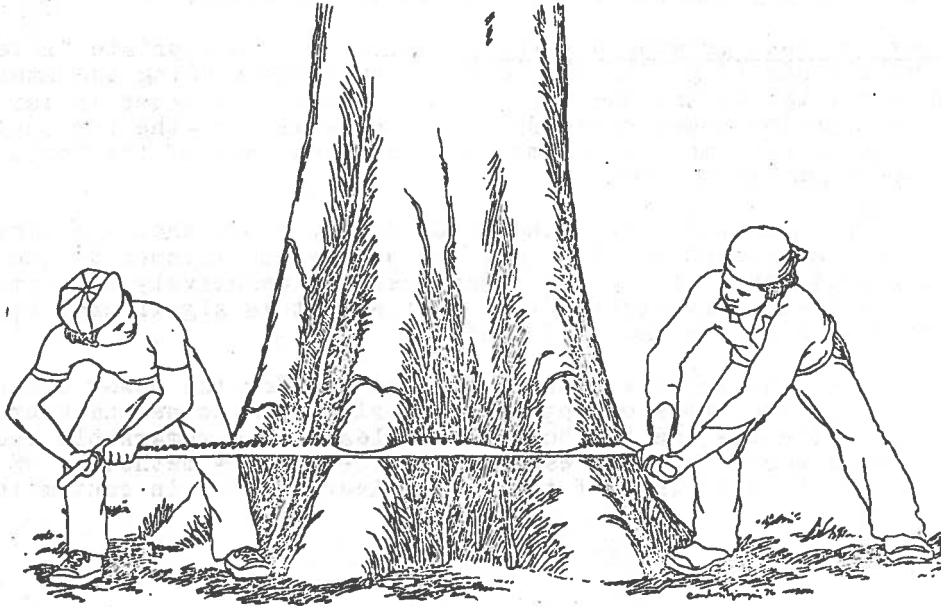
The lowest cost of US\$19 per 100 cubic meters was achieved by the small chain-saw technique as compared to costs of US\$23 to US\$26 for the large chain saw and US\$22 for the traditional two-man cross-cut saw. Moreover, under the

/of about 3-5 h.p. and the traditional two-man crosscut saw

¹ ILO, Director-General's Programme and Budget 1978-79, Geneva, December 1976, p. 2.

² Normally, the stump-site activity includes the falling of the tree from standing position to the ground; debranching the utilisable bole preparatory to log-cutting; and cross-cutting the bole into appropriate log lengths.

Figure 1. Falling Large Trees with Two-Man Crosscut Saw
and with Power Chain Saw.



(a) Two-Man Crosscut Saw



(b) Power Chain Saw

small chain-saw technique, the machine cost was one half of that of the large chain saw. Therefore, the small chain saw could be considered as the "intermediate" technique and it could be used for trees upto 120 centimeters in diameter or larger by using the technique of cutting "around" rather than "through" the tree.¹

In the use of large power-chain saws there were hidden ergonomic costs borne by the workers. In contrast, the small chain saw is less likely to impair the workers' hearing ability, has lower weight, causes less vibration and also has a good machine balance.² On the other hand reliance on two-man cross-cut saws could lead to the exclusion of very large trees as there would be a tendency to cut only medium-sized trees. Furthermore, manual falling and cross-cutting of large tropical hardwoods is overly strenuous from the viewpoint of work physiology, especially if the dietary regimen is not completely adequate.

Small trees and fast growing plantations : A very appropriate "intermediate" technique is the bow saw (fig. 3). The other alternatives being the small power-chain saw, the axe (fig. 4) and the bolo.³ The bow-saw technique is far more labour-intensive than the power chain saw. At the same time the bow saw's cutting speed (square centimeters per minute) exceeded that of the "bolo" technique and axe by a factor of five.

Unit costs for thinning⁴ were found to be US\$35.27 per thousand stems thinned by small chain saw as against US\$34.50 per thousand stems thinned by the bow saw. Although the per unit costs of the two techniques are relatively uniform, the bow saw has a very low hourly machine/tool cost and it is significant because labour would receive a higher share of costs.

On the one hand, the substitution of the bow saw for the power chain saw completely eliminates the risks of injuries arising from noise and vibration. The substitution of the bow saw for bolo or axe leads to a remarkable reduction in the level of wood waste (cutting waste under the bow-saw method is 9% of that of the bolo and 15 % of that of the axe). Average kerf in centimeters was

¹ When using the small saw, the undercut - or felling sink - is made as usual. The next step is to make the center cut with the help of the roller-nose bar. Leaving hinges at the sides of the undercut, the final step is to walk around the tree and complete the falling cut. (Fig. 2.)

² Cross country evidence points to the grave hearing injuries arising from the use (frequency and duration) of power saws. International evidence has also established the occurrence of injuries caused by vibration of power saws and this consists of circulatory disorders in the fingers and hand, following constriction of fine blood vessels (Conditions of Work and Life in the Timber Industry, op. cit., pp. 91-93).

³ It is some sort of a machete or jungle knife commonly fashioned from discarded leaf springs of motor vehicles, old saw blades, and other pieces of hard steel that happen to be available and is used as a general-purpose tool for a great number of tasks (fig. 5).

⁴ Selection and removal of smaller, poorer trees and badly leaning trees.

Figure 2. Cutting "Around" a Large Tree with a Small Chain Saw and Short Guide Bar.

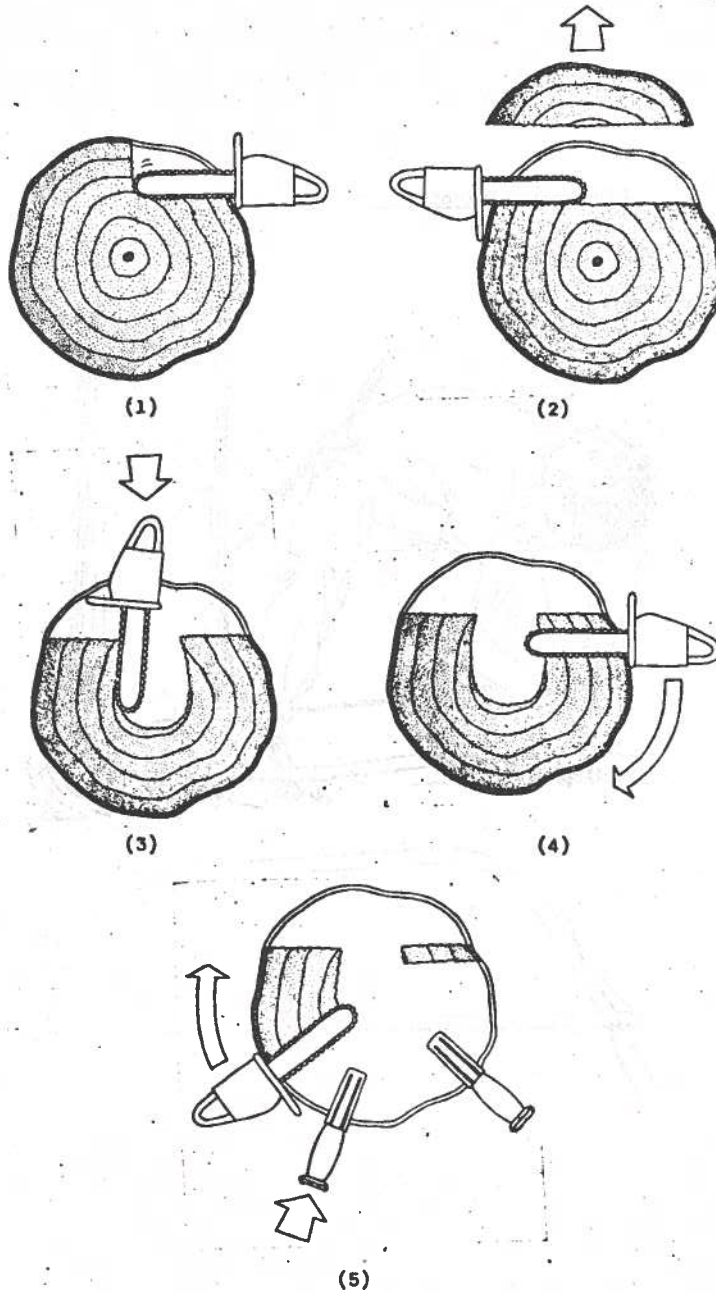
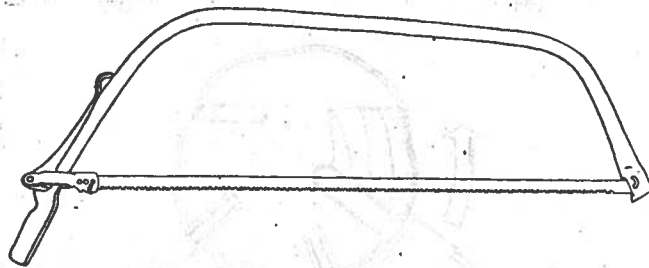


Figure 3. Thinning with Bow Saw.



Scale 1:10

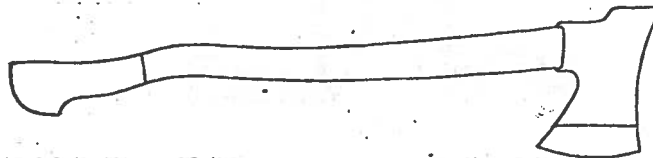
Figure 4. Thinning with Small Power Chain Saw and with Axe.



(a) Thinning with Small Power Chain Saw

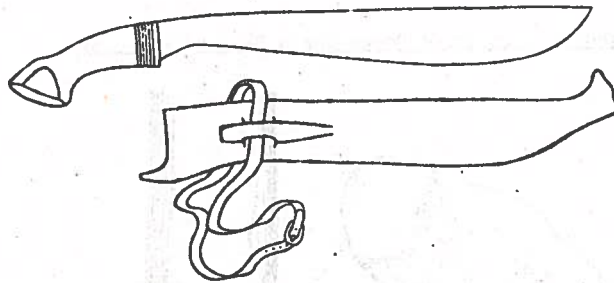


(b) Thinning with Axe



Scale 1:5

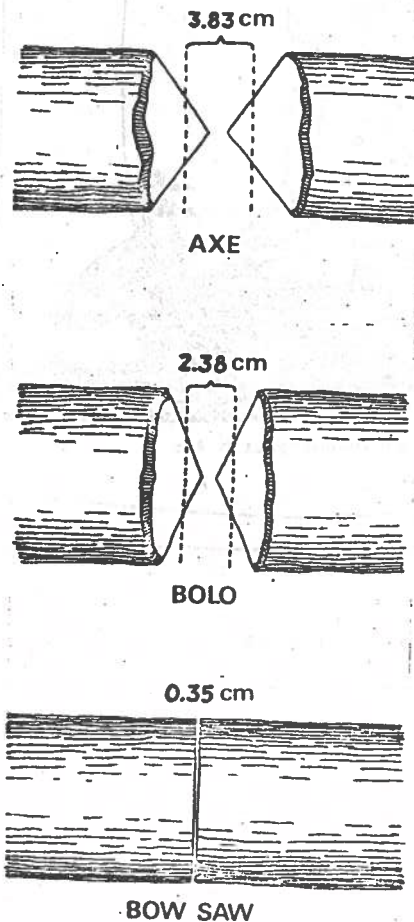
Figure 5. Bolo with Sheath.



Scale 1:5

3.83 for the axe, 2.38 for the bolo, but only 0.35 for the bow saw (Figure 6). At prevailing stumpage prices the substitution of the bow saw for the more primitive axe and bolo could pay for itself on the basis of reduced wood waste alone in the cutting of only 225 trees.

Figure 6. Comparative Kerfs for Small Logs Crosscut by Bolo, Axe and Bow Saw.

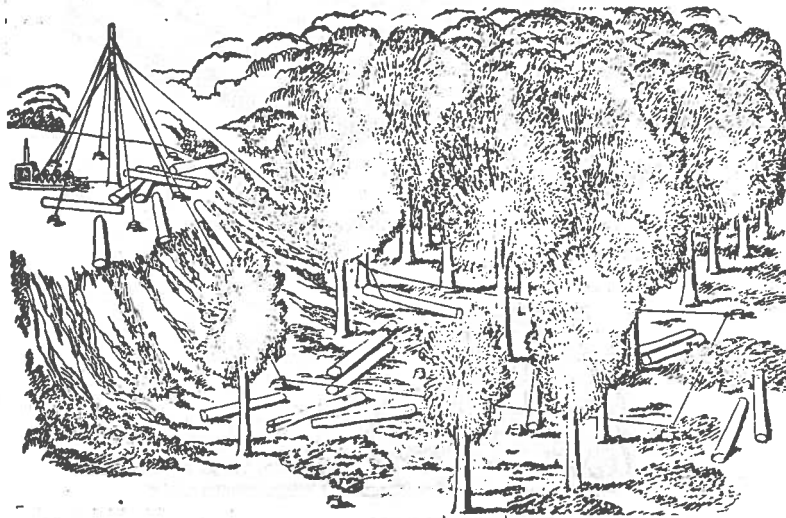


This "intermediate" technique would be particularly valuable for timber stand improvement (TSI) which includes liberation cutting, cleaning, girdling, thinning and other cultural practices. The economically optimal diameter-range for the bow-saw in falcata (*Albizia falcataria*) pulpwood trees is approximately 15-35 cm.

Short distance log transport

Seventy per cent of the timber concessionaires use capital-intensive (with high fixed investment) cable systems (highlead, skyline, highlead-skyline combination, or tractor-skyline combination) in some or all of their short-distance log transport because of steep slopes supporting a heavy density of large trees (Figure 7). Of the residual short distance log transport techniques, comparison was made between crawler tractor, four-wheel skidders, farm tractor, carabao and manual¹ carrying techniques (Figure 8).

Figure 7. Highlead Cable Yarding.



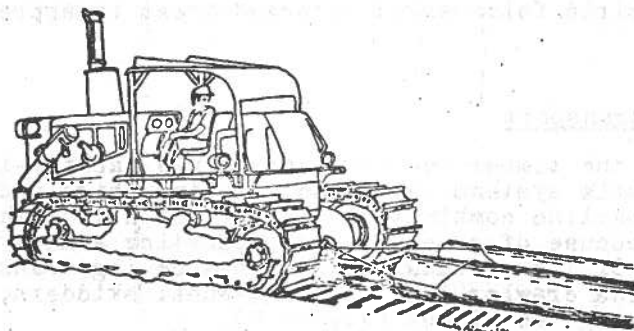
Manual carrying generated more than twice the labour-input of carabao skidding but load size transported normally averaged only 0.08 cubic meters. This compared with 0.17 cubic meters by the carabao, 0.25 cubic meters by farm tractor without the winch and with the winch it increased to 1.0 cubic meters.

In terms of costs, the carabao technique was found to be the most economical for round-trip distances under 440 meters and the four-wheel skidder turned out to be the most economical for distances greater than 440 meters. When the farm tractor is equipped with a winch, productivity (size of load) increased by 200% as compared to an increase in cost of only 9%. Within limitations on load size, terrain, and distance, the carabao and farm tractor are highly practical ground skidding methods intermediate to purely manual transport on the one hand, and the capital-intensive crawler tractor and four-wheel skidder on the other. Furthermore, both the carabao and farm tractor could be used to skid logs during the idle periods resulting from agricultural off-seasons.

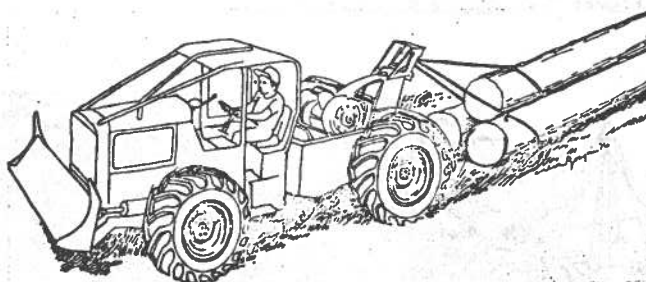
Use of the manual methods has undesirable risks of injury and body strain. For example in a plantation of falcata trees, for the men working singly the observed average load size of 50-60 kilograms balanced on their shoulders was

¹Limited to falcata tree farmers in Mindanao and the pine region of Luzon.

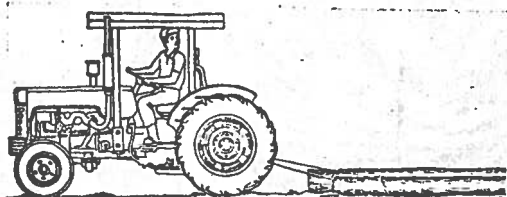
Figure 8. Log Skidding with Crawler Tractor, Four-wheel Skidder, Farm Tractor, and Carabao.



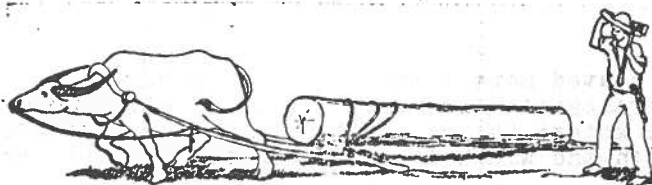
(a) Crawler Tractor



(b) Four-wheel Skidder



(c) Farm Tractor



(d) Carabao (with Sledge)

equal to or greater than their own body weights, surpassing the recommended limit set for safe handling and avoidance of muscle strain.¹

Taking into account the difference in travel speed and load size, the integrated approach would mesh some combination of manual carrying, carabaos, and farm tractors equipped with winches to transport the logs the short distance from stump site to main trail, from where four-wheel skidders would transport the

¹For males, safe limits are 40% of body weight for continuous work, or 50% of body weight for intermittent work. (Guides to Safety and Health in Forestry Work, ILO, Geneva, 1968).

bunched logs the longer distance to the roadside. Within constraints on minimum scale of operation and suitability of the terrain, this kind of integrated system could produce considerable employment in harvesting the industrial plantations and the tree farms.

Finally, from ecological considerations, log extraction by means of carabaos, light tractors and Bataan trucks causes less damage to residual trees than does extraction by means of the heavy tractors or cable system.

Debarking¹

In the removal of barks, three alternative techniques were examined. They were the 'bolo', debarking spud and mechanical debarking techniques. The appropriately designed debarking spud was the improved labour-using technique having labour absorption and productivity intermediate to the bolo in one extreme and the mechanical debarker on the other. The mechanical debarking technique is not widely employed in the Philippines due to the unsatisfactory performance in taking off the thick, tough bark of the dipterocarps and other tropical hardwoods. Bark removal is virtually undertaken by manual techniques particularly the bolo at low productivity levels. The use of the debarking spud instead of the primitive bolo increased productivity (cubic meter solid volume per man-hour) by 129% for gubas, 62% for Benguet pine and 33% for falcata and at the same time retained considerably more labour compared to the mechanical debarker.

From ergonomic considerations the use of the debarking spud allows the workers to maintain a semi-upright stance rather than a stooped position (Figure 9). Secondly, from considerations of safety the use of the spud reduces the risk that the worker will lacerate himself (as in the use of bolo). Furthermore, when used to debark pine, the spud helps reduce bodily contact with the resinuous wood.

Log loading

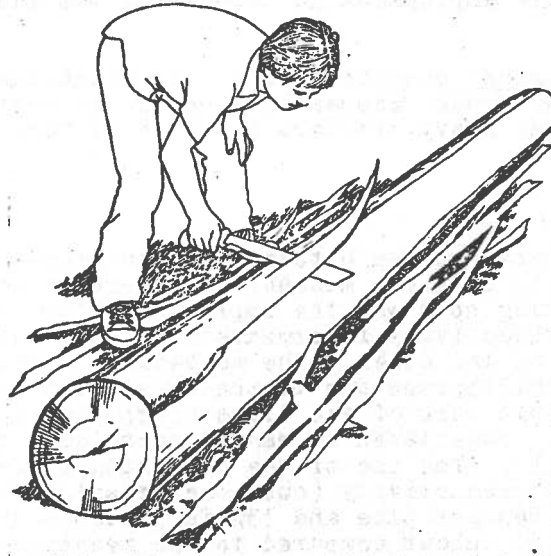
A number of log loading techniques are in use in the Philippines and the alternatives range from strictly manual techniques to one requiring only one piece of equipment and a single operator. As in so many other logging operations, log size plays the key role in determining the technical and economic feasibility of the alternatives. Labour-intensive log loading is more feasible for industrial plantations, tree farms and miscellaneous small-diameter timber than for virgin dipterocarps.

The introduction of loading hand tools such as tongs, stacking claws, pulpwood picks and lifting hooks into the manual methods trebled productivity, but nevertheless retained approximately ten times the labour input of the mechanical alternative (in this instance a rubber-tired front-end wheeled loader) (Figure 10).

The manual technique which uses the above loading hand tools permits the loading of logs on trucks more rapidly and more safely as these tools are very useful in lifting, pivoting, and dragging heavy and slippery logs. These tools are to be used in place of bare hands and sheer muscle and will help reduce the strain of work (Figure 11).

¹By debarking of logs before they are loaded, transport savings can be realised due to decreased air space and higher loads. The cost of debarking and savings on transporting one metric ton of logs gives a simple benefit/cost ratio of 8.

Figure 9. Debarking with Bolo and with Debarking Spud.



(a) Bolo



(b) Spud



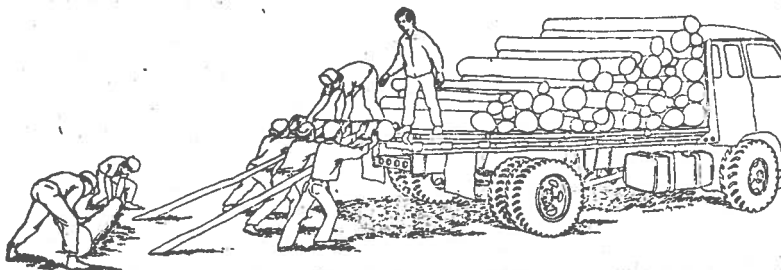
Scale 1:9

Underbrush clearing¹

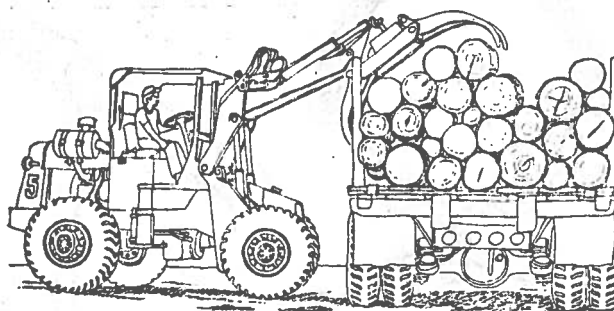
Technologies for controlled removal of vegetation range from mechanical severance by means of crawler tractors equipped with dozer blades on the one hand, to very labour-intensive clearing with bolos on the other. Technologies between

¹Many applications, both on a small scale and on a large scale, call for the removal of underbrush, vines, and herbaceous vegetation. This is necessary in order to (a) make clearings to prepare for tree planting in industrial plantations and reforestation projects; (b) tend and weed in tree plantations during the infant stage; (c) carry out liberation cutting, and; (d) clear scattered patches for timber stand improvement.

Figure 10 Pulpwood Loading Manually and Mechanically.



(a) Manual



(b) Mechanical with Front-End Loader

and in combination with these two extremes avail of chain saws, motorized clearing saws, hand saws, and axes. The brush hook was compared with the motorized clearing saw as an equipment intensive alternative, and with the bolo as a more primitive hand tool alternative (Figure 12 and 13).

The use of the brush hook as an "intermediate" method in underbrush clearing is much more labour-intensive compared to a motorized clearing saw and at the same time, its productivity was double of that of the 'bolo'.

The introduction of the brush hook for underbrush clearing also contributed to reducing the strain of the work. It is heavier and stronger than the bolo, and it is used with two hands rather than one. Swinging from an overhead position, a worker using a brush hook can completely sever a sapling of 7 to 8 centimeters in diameter with a single blow. Use of the bolo requires many more strokes.

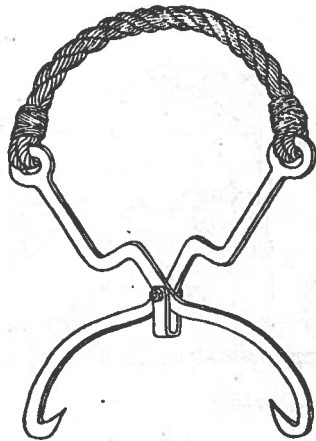
While the cost per hectare was US\$23.24 for the brush hook technique, it was US\$47.57 under the bolo technique and US\$51.35 under the motorized clearing saw technique.

Tree planting

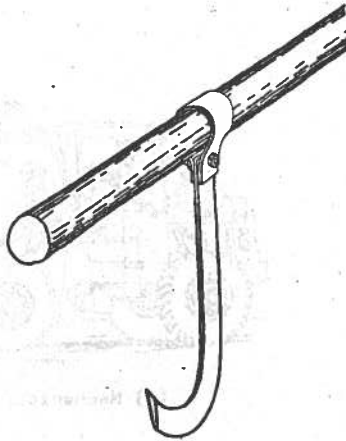
The introduction of the oval blade planting hoe¹ as an intermediate method increased productivity over manual techniques using traditional planting tools

¹The oval-blade hoe penetrates the soil more easily than a blade with a straight edge. Unlike the wooden dibble, it does not leave an air pocket under the seedling, or compact the soil on all sides of the planting hole. Finally, the oval-blade hoe's cutting edge curves around the sides of the blade to facilitate patch clearing in dense grassland.

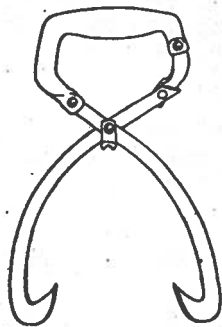
Figure 11. Hooks, Picks, and Tongs for Handling Small Logs.



Scale 1:6



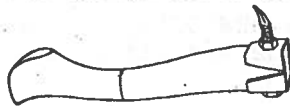
Scale 1:5



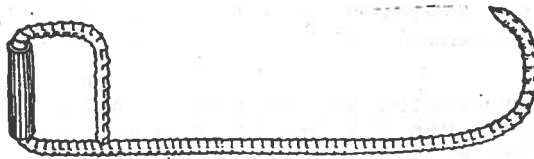
Scale 1:5



Scale 1:3

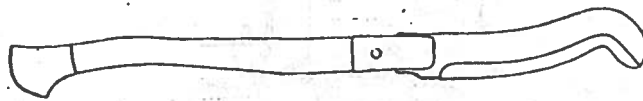


Scale 1:6



Scale 1:6

Figure 12 Underbrush Clearing with Brush Hook.



Scale 1:7

Figure 13 Underbrush Clearing with Motorized Clearing Saw and with Bolo.



(a) Motorized Clearing Saw



(b) Bolo

(productivity was 22% above that of the military-type spade, 35% above that of the narrow blade planting hoe and 33% above that of the wooden dibble) and it nevertheless retained seven times the labour input of the machine alternative (Mechanical planters mounted on either a crawler tractor or a farm tractor) (Figures 14, 15 and 16).

Pruning

The objective of pruning industrial tree plantations is to minimize the number and size of knots in the lower boles of trees grown for veneer and sawlog purposes. Sometimes it is used to remove persistent lower branches that hinder access and movement in close-spaced stands. It can be applied in regions frequented by forest fires to eliminate lower limbs and foliage which could

Figure 14 Tree Planting with Wooden Dibble.



Figure 15 Tree Planting with Oval-Blade Planting Hoe.

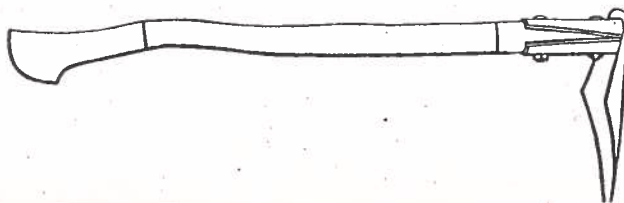
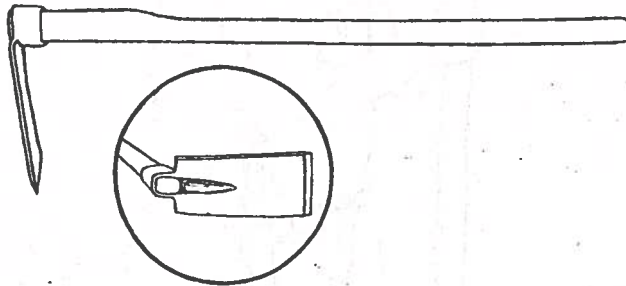


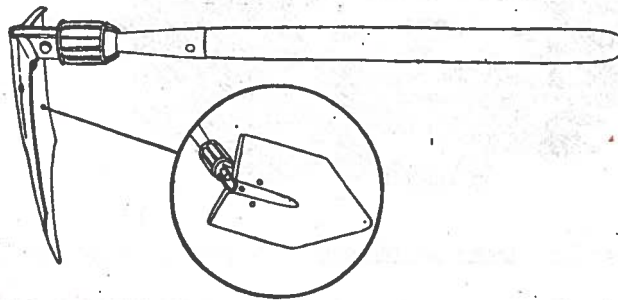
Figure 16 Military Spade and Narrow-Blade Planting Hoe.

(a) Narrow-Blade Hoe



Scale 1:10

(b) Military-Type Spade with Folding Blade



Scale 1:5

Note: Insets show that neither of these two tools is adapted for patch clearing, i.e., scraping the ground to remove grass and debris.

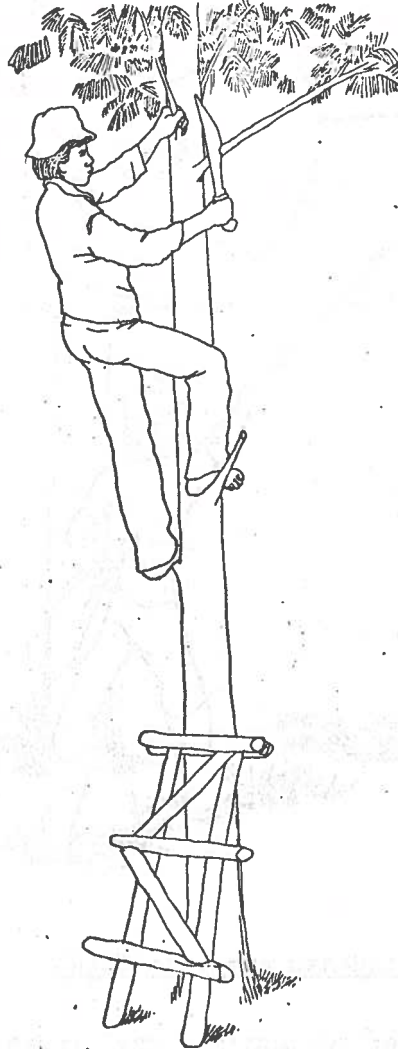
transmit ground fires upward to the crowns. Pruning may also satisfy purely cosmetic objectives in improving the appearance of stands exposed to public view.

In the Philippines pruning is not yet widely practiced. One large timber concessionaire has initiated pruning in its industrial plantations. The promulgation of suitable tools and working techniques should help establish the feasibility of the practice and contribute a modest employment increment.

The existing bolo technique of pruning was compared to that of a pruning saw (Figures 17 and 18). Productivity of the pruning saw technique was almost the same as that of the bolo technique for falcata trees and a little lower in the case of Benguet pine.

Yet the productivity difference within an hourly time frame is not the same as within the framework of weeks or months that includes work-related absences and injuries. In the long run the pruning saw's ergonomic advantages outweigh its slight loss of speed.

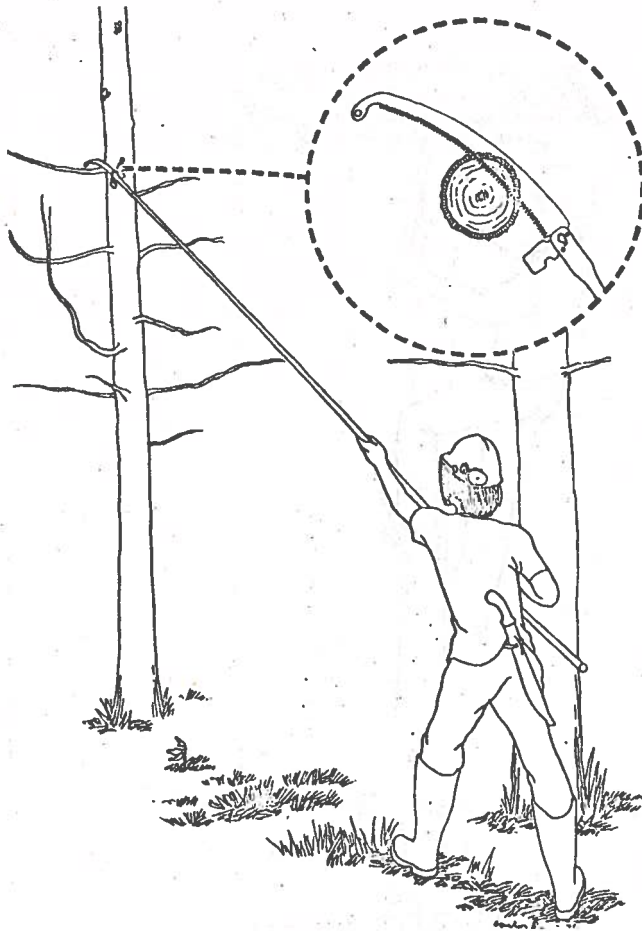
Figure 17 Pruning with Bolo.



The introduction of the pruning saw improved the workers' safety and personal security. With the traditional bolo method workers would have to climb the tree where attacks by bees and tree-inhabiting ants are common. Risks of accidental falls from trees always exist. In contrast, under the pruning saw method, the pruner stands on the ground and he reaches the upper branches not by climbing, but rather by the use of the long handle, or pole, attached to the saw.

Furthermore, the use of the bolo is more physically exhausting than the use of the pruning saw. This is so because under the bolo method, the pruner needs to climb up and down the ladder and the tree; he needs to reach out and cut off branches with his arms fully extended; he spends large amounts of energy in the hard chopping motion; and he has to carry the heavy ladder from tree to tree. In comparison, the cutting action of the pruning saw is smooth and rhythmic. The pruner rocks his body at the waist, bending slightly at the knees. The work is done by the thighs and there is minimal strain on the arms. The hands and arms are used to direct the saw, not to exert the cutting force.

Figure 18. Pruning with Pruning Saw.



Accidents and Fatalities

A study of just three major concessionaires¹ revealed rates of 1.5 to 4.3 fatalities per thousand man-years of employment and these are considerably higher than corresponding rates of 1.05 for Canada (1969) and 0.5 for Central Europe.²

With respect to accidents, rates in the Philippines of 48-189 lost-time accidents per thousand man-years appear to compare favourably with rates of 106 disabling injuries per thousand man-years in logging in the USA (1962), and 252 accidents per thousand man-years in forestry in the Federal Republic of Germany (1959).³ However, accidents reported in the industrialised countries often include very minor injuries, sometimes even when the work is not interrupted,

¹These three understate the real situation with respect to the majority of the other operators as they constitute well-organised virtual "show case" companies.

²Conditions of Work and Life in the Timber Industry, op. cit., p. 89.

³Ibid., p. 87.

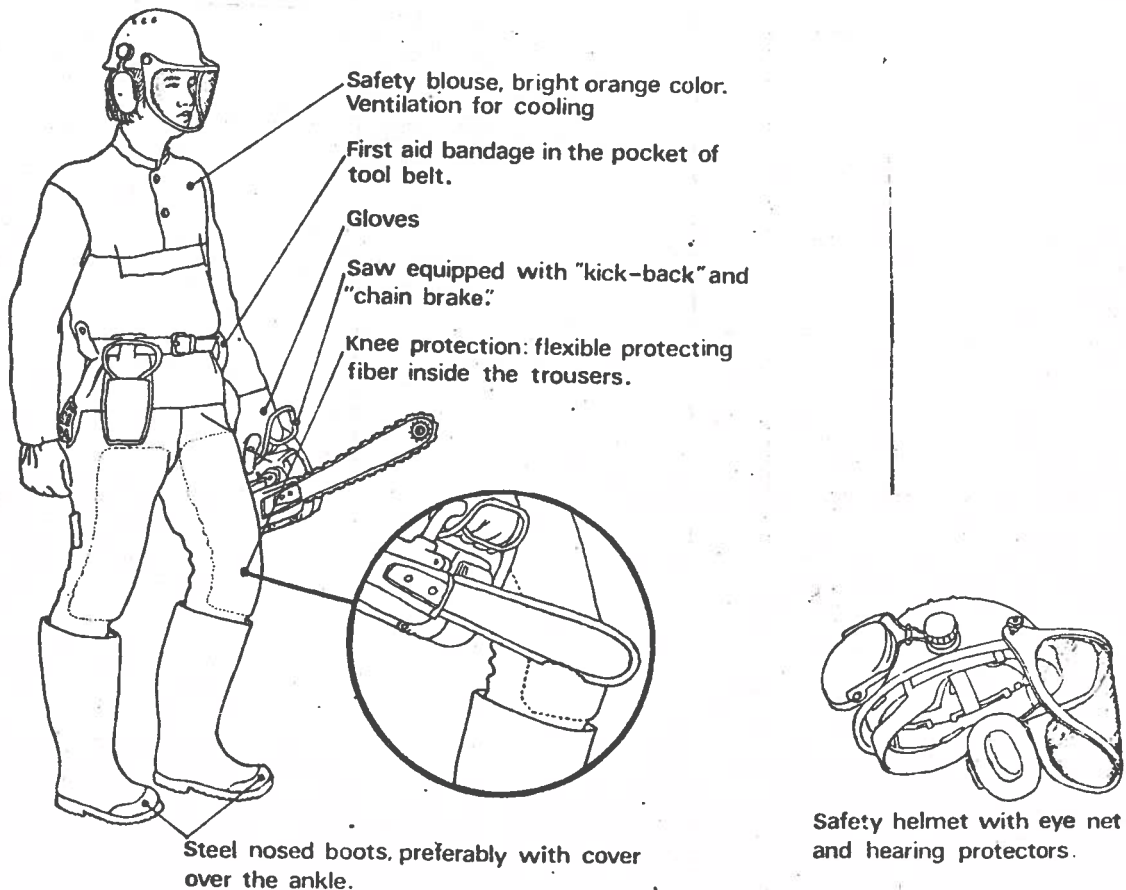
which are certainly not recorded by the Philippine timber concessionaires. Because of these dissimilar criteria of accident reporting, the between-country figures are not directly comparable. It must be concluded that the accident problem in Philippine logging and forestry is far more serious than indicated by the statistics.

On the basis of medical records examined for two leading logging companies alone, the following conclusions are drawn, ex post for accident prevention. (a) 30% of the 144 cases of injuries to the fingers, hands and arms could have been prevented through the use of a combination of long sleeves and gloves; (b) 52% of the injuries to the toes, feet and lower part of the leg could have been prevented through the use of steel-toed safety boots; and (c) 80% of the 25 injuries to the eyes and upper part of the face could have been prevented through the use of a wire-mesh visor.

Accident prevention requires a comprehensive approach encompassing several elements. These include adjustment of working hours and rest breaks to the physical capacity of worker, provision of adequate nutrition, use of personal protective equipment and safe working tools, and knowledge of correct working techniques and methods.

It has been estimated that the provision of gloves and long sleeves, safety boots and wire-mesh visors (Figure 19) would have saved the two companies studied some US\$ 12000 - 19000 per year in terms of employees compensations, medical expense and lost time. The cost of equipping the work force with these items of protective equipment would have cost the two companies about US\$17000 per year. Even without a complete accounting of indirect costs to include reduced employee morale, incapacitation of key personnel, and lost time of employees dependent on the injured persons, the cost/benefit ratio turns out to be favourable from the private logging company's viewpoint.

Figure 19 Protective Apparel for a Model Chain Saw Operator.



Concluding Remarks

This paper has shown that "intermediate" or "improved" labour-intensive techniques in Philippine forestry exist and are noteworthy in two respects. (a) Their use leads to increased productivity when compared to the primitive techniques and (b) they are less labour-using than the most primitive manual techniques, but certainly less labour-displacing than capital-intensive machine methods. These "intermediate" technologies in addition to generating productive employment combine the properties of improving working conditions, enhancing worker safety and more protective of the environment. Moreover, their optimal use, both in economic and technical terms, requires that capital-intensive techniques also be used in combination with them in a balanced manner.

These "intermediate" technologies are quite often the least cost (at prevailing market prices) alternatives and this is a very important point for them to receive serious consideration and acceptance by the forestry sector which is virtually left exclusively in private hands.

The problem of accidents and fatalities in Philippine logging and forestry was found to be serious. Although accident prevention requires a comprehensive approach encompassing several elements, a rough quantitative estimate of costs and benefits of the use of certain pieces of personal protective equipment was found to be favourable even from the viewpoint of the private logging companies. A review of some accident records revealed that a great many injuries could have been saved by the provision of just a few items of protective equipment.

INTERNATIONAL LABOUR ORGANISATION

INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT (PIACT)

Philippine National Tripartite Conference on Improving
Working Conditions and Environment

(Manila, 12 to 14 December 1977)

Working Document No. 10

Extracts from
Transfer of Technology in Indonesia

by

S. Sediono

Geneva
International Labour Office
1977

As part of the ILO's research into the social effects of technological choice, three case studies were commissioned concerning the tyre, fertiliser and cement industries in Indonesia. This paper contains extracts from the three cases, which were too long to be reproduced in their entirety.

CEMENT INDUSTRY

Historical Background of the Plants

The two cements plants observed in the case study are PT Semen Gresik (Cement Gresik) and PT Semen Cibinong (Cement Cibinong). Cement Gresik is a state-owned enterprise that is located near Gresik, a small town close to Surabaya, the capital city of the Province of East Java; the plant has been constructed in April 1955, completed in July 1957 and was opened officially on 7 August 1957. The process used is based on the wet-process.

PT Semen Cibinong (Cement Cibinong) is a joint venture, essentially between two cement enterprises: PT Semen Gresik and Kaiser Cement from USA; banks and financial institutions have joined the enterprises: International Finance Corporation (IFC), an affiliate of the Worldbank; Private Investment Company for Asia (PICA); SA and Bamerical International Finance Corporation. The plant started production in August 1975: most of the equipment came from Japan and it has an installed capacity of 500,000 ton cement per year using the dry-process. The plant is located near Cibinong, a small town between Jakarta and Bogor.

Specific Characteristics of the Industry

The cement industry, seen from a technological and economical point of view has some characteristics:

- resource-oriented; the plant is located at the source of raw materials to economize transportation cost;
- fuel-oriented or energy-oriented because 40 per cent of present production cost is cost fuel for burning the kiln;
- the economic size of the units of production is ever increasing;
- capital-intensive in operations, although at some stages labour is still intensively used, and besides this industry is highly technology-intensive, although cement can still be produced with old or obsolete equipment, technological progress has constantly challenged existing cement technology;

- market-oriented;
- import-substitute industry and foreign-exchange saving;
- producer of homogeneous product. Furthermore, the process is also a continuous process and the plant is operating around the clock, since the kiln operation cannot be shut-off anytime without losing time and production substantially.

Methodology Applied

This study will illustrate the various aspects of this industry, seen from a technological point of view and its impact upon the human resources, its social and environmental effects. The scope of the study is limited to transfer of technology aspects, but it will illustrate more fully the social integration aspect.

Stating the Problem

Cement technology is an advanced technology and certain equipment and instruments are highly sophisticated.

This case study will observe the progress made in the transfer process in the cement industry in Indonesia, its impact upon the recipient parties, particularly those directly connected with the construction and operations of a cement factory. It will further illustrate and record progress made in solving problems which were created by the presence of a modern plant, related to the social environment, cultural values and changes in ways of life of the immediate society, and efforts made to achieve a complete social integration with the environment.

Technological Aspects

Choice of Technology

Essentially there are only two kinds of cement processes: the dry and the wet process. The choice is between the two or a combination of dry and wet as in the case of Cement Gresik.

Besides fuel consumption, the choice of technology should now take into consideration pollution control devices. Pollution is caused primarily by dust of the raw materials as well as of the cement as end-product; in the old factories, cement dust can constitute 10 per cent of production and without recycling the waste cement, it would be great loss. Both factories, Gresik and Cibinong, in designing the equipment have taken such pollution prevention devices into full consideration at a cost.

A third consideration in the choice of technology, is the size of the unit or economies of scale of the entire plant operation.

A fourth consideration in the choice of technology is efficiency, especially efficiency in production related to reducing the cost of production.

Using the wet or dry process, energy-intensive operations, economies of scale and efficiency are important considerations to determine the choice of technology.

Transfer Process

This process can consist of hardware and software. With regard to hardware, the equipment and machineries, including spareparts are 100 per cent foreign and this aspects of technology is still mainly imported technology.

Concerning the software aspects of technology, much could be achieved one way of transferring technology is through the human resources, through transferring skills and knowledge by training, upgrading and exchange of experiences. One interesting aspect in the transfer-process is the continuing process after the foreign-local transfer has been achieved; the transfer process is going beyond that point and goes on within the country itself and between local entities; for instance, one Cement Gresik has received the transfer of technology from abroad, it is now transferring its know-how and experience in Cement technology to other units within the country.

Social Implications

Working Conditions as determined by Technology

The technological requirements of an industrial plant determine the working conditions.

Pollution

Dust and Waste

In a cement plant, pollution is caused primarily by dust that comes from the raw materials. The installation of dust collectors and improving the dust handling equipment is a constant concern of management; especially in the dry-process, handling the dust and waste gases is an important problem to be faced, despite the use of modern rotary dryers and other raw material input devices and processes. So far Cement Cibinong is doing well in curbing the impact of pollution a minimum; Cement Gresik is installing pollution preventive equipment and devices. The best available technology is used in the design of the plant to cope with pollution. From the output point of view, the handling of cement as the end-product, with modern devices of the bagging section and the mechanized and automatic handling of putting cement in the bags, the pollution problem has been minimized.

Temperature and Heat, Ventilation, Climate

Working conditions in a cement plant are substantially influenced by temperature, heat, the climatical conditions and ventilation, and the negative side-effects should be reduced to a minimum. The kiln is operated at a temperature of 1,500° C and heat is created around the kiln; in the case of Cement Gresik the operating devices are located at the end of the kiln at a distance and the operator should only have a look now and then at the burner and the kiln, where he will suffer from the heat. In the case of Cement Cibinong, all the operating devices are automatic and centralised in the control room.

Since the kiln, the pre-heaters, the rotary dryers are all automatically controlled and operated in one single control room, the heat has actually little effect upon the operators. In general the equipment and machines of a cement plant are located in an open building; air is easily accessible and there are almost no serious problems of ventilation which badly could effect the health of the worker. The temperature at both locations Gresik and Cibinong is bearable, around 30° C in the afternoon, the hottest part of the day; the workers are not suffering under such climatic conditions.

Noise, Vibration

Noise and vibration occur only in the power house and that is well below the required conditions.

Lighting, Space, Building and Lay-out

The conditions of lighting are good, making use of daylight as well as electricity. The buildings adjacent to the plant in Gresik are of better material and construction such as the Cement Research Centre the offices and the laboratories. The lay-out of both plants is adjusted to the specific conditions within the country, taking also into consideration the maintenance of the equipment and machineries that need sufficient space.

Changing Cultural, Social and Religious Values

Gresik is known as a religious city where in past history, Islam has established itself firmly in the society and the city became the religious centre for the whole region.

The society has lived for ages in a cultural, social and religious pattern with its own traditional values; the presence of cement Gresik has gradually changed the existing values. Industrial production has its own rhythm; the plant is operating around the clock and all activities related to the plant are geared towards this pattern. The workers are changing their habits, their customs accordingly; the people engaged in distributing cement, the truck-drivers, the warehouse personnel are also busy day and night; they in turn change the social pattern by demanding services from the society in terms of providing food and drinks, of dwellings, of entertainment, and other business and social services.

Social Infrastructure, Health Facilities,
Housing Conditions, Recreational Facilities,
Transportation and Communication

The facilities at Cement Gresik include a complete hospital with several doctors and medical staff; housing facilities for the staff members and 700 workers, besides houses for expatriates working for the construction of the expansion unit; recreational facilities including theatres, a sport-stadium, halls, fields and swimming pools, schools from kindergarten, primary schools to junior and senior high schools, technical high schools and other vocational schools; transportation facilities for the staff members and buses, pick-ups, motorcycles and bicycles for the workers. Compared to this, Cement Cibinong is very modest: a bank, a post-office, a small clinic, limited housing facilities for expatriates and Indonesian staff members, a limited number of automobiles, buses and motorcycles for office and plant use. Overhead facilities are kept at a minimum and if any, they are housed in temporarily buildings, originated still from the construction period. Cement Gresik has provided for the social infrastructure, not only for its staff members and employees, but also for the use of the community of Gresik in general; children from outside the cement community can enter the schools, the theatres are opened for the public, this is also the case with the medical facilities, the sport-halls and the like. These social infrastructure facilities have contributed substantially to the improvement of Gresik's society, in qualitative as well as in quantitative terms enabling it to absorb a large number of people to make use of such places.

Technological Aspect: Choice of
Technology and Selection of Equipment
and Machineries

Hazards and Safety:
Height Problems, Heavy
Equipment and Tools

Hazards so far are rare at Cement Gresik, as compared with so many accidents during the first construction of the plant, with fatal consequences for both foreign personnel and Indonesian workers. The record of accidents is very good so far for MKI; if any casualty occurs, it is usually caused

by height since the structural works, including welding activities are done at heights of tens of meters; the use of heavy equipment and tools, are also causing mishaps. Safety measures have been taken by management to prevent risks.

Special Skills

For operating heavy equipment and tools, for the cranes and transportation equipment, special skills are required.

The human aspects related to construction are numerous and complicated; the introduction of hardware which should be installed in the plant, is posing many problems to the people involved; they require special skills to operate the various heavy equipment and tools, special skills to install the equipment and machineries. Indonesian personnel has responded favourably to the technical requirements of modern technology; nevertheless the presence of foreign personnel is for the time being still indispensable. This phase of the industrial project cycle is the weakest link looking from the transfer process of technology; both the supply of hardware and the arrangements of the software are still dominated by foreign resources and personnel, the participation of local companies is very limited, the contribution of local industry to the required hardware is still negligible. Much has still to be done to catch up in this phase of construction and more opportunity should be given to local companies and local expertise to participate actively in this phase of the project in order to gain experience and ultimately to be able to do the job themselves.

Safety Measures and Industrial Hygiene

Safety measures are introduced in both plants to prevent fire as well as other hazards that can occur during the production process; with the trend of using modern equipment with automatic devices, all the operations of the plant are centralised in one control room; the operators are physically not close anymore to the equipment they operate; less hazards can therefore occur in their work. Industrial hygiene is also introduced in both plants and training of personnel in this discipline is usually carried out in corporation with the Department of Manpower or Department of Health.

Training and Updating Programs

In the beginning of the cement industry, the training of Indonesian personnel was conducted abroad. With their very limited educational and technological background of cement technology, the Indonesian personnel received training at cement plants, in cement laboratories and at plants of the manufacturers of equipment. Actually not much could be achieved, since as trainees they were only observing, rather than operating the equipment or machines. The actual training was done at Gresik itself, on-the-job by working as apprentices with the foreign personnel, at that time still operating the entire plant. In less than one year on-the-job training, many operators were already able to be tuned in to the job, and after 18 months of production managed by expatriates, the full management and operation of the plant was entrusted to Indonesia personnel. Cement Gresik and Cement Cibinong have training programs, also up-grading of existing personnel, and re-schooling for new assignments in the factory. The new recruited personnel, and representing the younger generation, usually have a technical high school diploma, are eager to learn and are better trainable than their predecessors with lower educational background and selected from construction workers. The engineers are graduates from universities and colleges, majoring in civil, mechanical, electrical engineering; the geologist and mining engineers are also university graduates. Training in Cement Cibinong is highly intensive and communication with the expatriates is good; most of them are open and eager to teach everything they know, discuss the problems together and are willing to get feed-back from the operators.

Absorptive capacities of the operators are good, although they are still in-experienced. When recruiting experienced personnel, they still have to be re-schooled to do a particular job that is needed in cement production and maintenance. Since cement technology is an advanced technology heavily influenced by progress in science and technology, personnel in cement plants have to keep their knowledge up-to-date; those engaged in planning and development, should upgrade themselves continuously to keep abreast with the latest developments in the cement technology, in the newly designed equipment and machines, and of new products that could be produced. The cement production is highly technology-intensive.

Transfer of Technology within the Country

The transfer of technology within the country has been already feasible in Cement Cibinong, the Baturaja cement project, Cement Tonassa in South Sulawesi and many other projects that are now under serious consideration for implementation. The pattern of social integration through social management has been adopted by the directors of Cement Padang to be implemented in a region with different cultural and social patterns. Transfer of technology does not stop by transferring technology from foreign domestic institutions and personnel, but the process is going on to other recipient parties within the national boundaries itself.

FERTILIZER INDUSTRY

Scope of the Fertilizer Industry

Indonesia is concentrating on the production of two types of fertilizers:

- (a) Urea;
- (b) Triple Super Phosphate (TSP).

Both types of fertilizers are primarily needed for food production, especially rice. The period of consideration of this study covers the first and second development plans (Pelita I and II), starting from 1969 and ending in 1978; it should be further extended to the third development plan (Pelita III) which will start in 1979 and end in 1984.

(a) Urea Production:

The production of urea is concentrated around Pusri in Palembang; Pusri I started operation in 1963 producing 100.000 tons of urea annually;

this factory has been extended with Pusri II which went in operation in 1974 with a production annually of 380.000 tons, followed by Pusri III in operation at the end of 1976 producing 570.000 tons of urea annually; Pusri IV is still under construction and will start operation at the end of this year with the same production capacity as Pusri III and using the same Kellogg process from the United States for the Ammonia plant and the Mitsui Toatsu Recycle process for the urea plant. Besides Pusri, another urea plant will be established in West Java, PT Pupuk Kujang located in Cikampek with a design capacity of 570.000 tons of urea and using the same process as Pusri III and IV;

(b) Phosphate Fertilizer Production:

The production of phosphate fertilizer will be concentrated around PT Petro Kimia Gresik in East Java; the plant is at present producing both urea and ZA of 150.000 ammonia sulfate.

Methodology Applied

This case-study will cover three plants:

1. Pusri in Palembang ("Pusri").
2. Petrokimia Gresik in East Java and ("Petrokimia").
3. Pupuk Kujang Cikampek in West Java ("Kujang").

The study will use the "Research Design" of ILO as guide line and will cover as many aspects as possible as mentioned in the "Outline" of this study. The observation of the three plants took place in the months of June, July and August of 1977; desk-research took place at the same period, also interviews with the three Board of Directors.

The study is dealing primarily with the various aspects of transfer of technology and is leaving out such activities related to finance, sales, aspects of production construction, administration, personnel and organisation have been the main objects of this study. The techno-social aspects of the

fertilizer industry received our fullest attention. This study is trying to be as comprehensive as possible and covers interface relations as well; a study in depth is recommendable in view of the complicated problems facing this industry in its development process.

Stating the Problem

The fertilizer industry in Indonesia is developing very fast, especially the urea production; the technology used is highly sophisticated but based on already proven processes; the introduction of this kind of technology pose many problems related to the transfer process. This process starts from the survey, construction of the plant, operation to the development of new projects; every phase of development is encountering its own specific problems: problems related to construction are entirely different to those confronting the operation of the plant. In all cases and at every phase, the human aspect is playing an important role, both of foreign personnel and local talents and expertise. This study is trying to unpack the package as presented by the foreign partners in the form of a "turnkey-project" or based on a "cost-plus-fee" arrangement; it also is trying to compare the foreign input as compared with the degree or the involvement of local content; it will also present the positive and the negative side of the technological impact upon the workers, the operators, but also its impact upon the social environment in which the technology is introduced.

Modern technology which is looked upon as a "miracle" in the beginning is gradually losing its image and its attractiveness, once every aspect of this technology is discussed every secret uncovered, its merits critically studied and every element is broken down to its bare existence and its direct function; the various invisible that once covered the package presented at such a high cost, are considered now to be extremely expensive and many services which usually have been rendered by foreigners, can now easily be done by local personnel and expertise. In view of the progress achieved in absorbing the imported technology, one must still admit that much of the hardware for the time being will still be imported from abroad since the industrial capacities to build fertilizer plants are very limited; although some of the software is fully transferred,

there will remain still alien an uncovered part, especially related to research and development activities, considerable progress has been made to absorb foreign technology; still much has to be done to make the transfer fully operative. This case study on the fertilizer industry in Indonesia will reveal many aspects of this technology transfer, especially related to human aspects and social impact; it will contribute to the findings already documented extensively by many other researchers in this field.

Choice of Technology

In the transfer process of technology, the choice of technology is very important, this includes the choice of processes, of production techniques and of equipment and machineries. Pusri I was "a turnkey project", the choice of technology was done by foreign consultants. This was also the case with Petrokimia Gresik on a "cost-plus-fee" basis. In both cases the role of the project-owner is very limited, because of lack of experience and expertise. Gaining some experience with Pusri I and Petrokimia, facing Pusri II was already a different matter, although basically the process is the same, the size becomes threefold and the ammonia process was changed by selecting the Kellogg process, USA patent. The choice of technology was still influenced by the role of a foreign consultant, John van der Valk, who did the survey and gave the necessary advice to the Indonesian authorities. Furthermore the choice might also be influenced by the sources of finance: the IDA, the USAID, the ADB and the OECF (Overseas Economic Cooperation Fund from Japan) ammonia process was "Kellogg" from the USA and the urea plant was "Mitsui Toatsu Recycle C improved" process from Japan, most of the equipment and machineries came from both countries: the USA and Japan. The construction of the plant was also done by the Kellogg Overseas Company, an American firm in close co-operation with Tokyo Engineering Corporation from Japan. Again the process as well as the construction of the plant was monopolised by consultants and manufacturers from both countries mentioned above. Nevertheless, the role of the project-owner is still decisive, since they have to make the ultimate choice and approve all purchase: in coming to the decision, many comparative studies have been made before, investigations on the spot at the suppliers countries have been undertaken, in order to get the best out of the deal.

The project-owner takes all responsibility for the choice of technology, discuss the matter with the consultants, the contractors, the designers, the manufacturers and suppliers; his role has become active, participating in the entire process of transfer, supervising the proper implementation of the contract, sanctioning the procurements of the equipment, machineries and parts, and he is ultimately responsible for the choice of technology. For this purpose, teams of Indonesian personnel were sent to the States and Japan to carry out their tasks and make on the spot decisions. From such assignments, they gained valuable experience in dealing with foreign equipment and machineries which is important for the future maintenance of the plant.

Transfer Process and Limiting Factors

What are the limiting factors in the transfer process?

First of all, sources of finance determine the origin of technology; much of the loan agreements are tied loans: Petrokimia Gresik was financed through Italian loans and therefore the choice of technology was limited to Italy and other European countries where certain established links already exist between Italian consultants and constructors with the manufacturers of the equipment and machineries. This is also the case when loans are highly influenced by government policy as in the case of the United States and Japan.

Secondly, the absorptive capacity of the human resources which receive the imported technology. In the beginning, there was no experienced Indonesian personnel to receive the foreign technology; gradually the picture has changed; more and more Indonesian expertise has been engaged in the transfer process. Nevertheless, this absorptive capacity is still a limiting factor because not all the elements of technology can be mastered fully by Indonesians, for instance in engineering design. This human factor is very crucial and is the most vital part in the entire transfer process. Through training and experience, this absorptive capacity has been improved but it is still a limiting factor to absorb wholly the various aspects of technology.

Thirdly, the production capability of the domestic industries. In the case of the fertilizer industry, one can say that almost all equipment and machineries are manufactured abroad. The domestic industries are unable to supply the necessary technical equipment of the plant. Some small adjustments were made locally, for instance in the piping system where various parts are made at the site of the plant. This converting of the pipes to assembled parts as required for the plant is carried out entirely by Indonesian personnel with the supervision of an expatriate, in the case of the construction of the Kujang project.

Fourthly, the limited absorptive capacities of the local consultants and local contractors to erect a fertilizer plant. Except for some civil engineering works, much of the fitting and installation of the equipment and machineries are carried out by foreign contractors and suppliers and the participation of local firms is very limited. Even if the responsibility rests in hands of the foreign partners, Indonesian personnel have gained experience from past performances when working for foreign companies; they are well paid and perform a satisfactory task.

Foreign Content

In the fertilizer industry one must admit that despite the enormous progress made in the last decade to engage Indonesians in the transfer process, much is still of foreign content. The process, the equipment, machineries and the spare parts, all the software related to the supply of the hardware, such as design engineering, are still foreign. There is indeed a gradual shift from foreign to local content, but Indonesia has still to rely on foreign sources for the time to come, until its human resources and its industrial capacities can cope entirely with all elements which are required for setting up a complete fertilizer industry.

Local Content

The local content and participation in the fertilizer industry is the highest during operation, the lowest during the period of construction: the local participation in pre-investment activities is gradually increasing, while the foreign content is diminishing at a rapid rate. The last

feasibility study for the Asian fertilizer project was entirely done by local consultants and experts. Whereas in the beginning of this industry, 50 to 60 people were sent abroad for training, much of the training now is done at the Pusri premises in Palembang; only for some new skills or new operations, Indonesian personnel is sent abroad to acquire the necessary know-how. Existing local consultants and construction companies are pushing hard to get orders and to be actively engaged in fertilizer projects. Because most of the hardware has to come from abroad, their participation is still limited; if in the future, local industrial capacities are able to supply the hardware, their participation will definitely increase. The area not yet captured by local content is construction, including the supply of the equipment and machineries. Interesting in this transfer process of technology, is the local transfer. When Pusri I was under construction and operation, local personnel has gained experience; this experience has been transferred when the second fertilizer plant was planned and executed, the Petrokimia project in Gresik; local transfer took also place when Pusri expanded with Pusri II and were using operating personnel from Pusri I; this process went further with Pusri III and IV. Local personnel from Pusri I is at present engaged in the Kujang Project, personnel from Petrokimia in the Kaltim Project. This transfer process locally is an encouraging sign, since the facilities for training and gaining experience are already available within the country. Local training programs, including inplant training, on the job training and using simulation methods, are extensively conducted within the country itself.

Social Implications

Introducing a modern and sophisticated fertilizer plant in an environment which is non-industrial, is a process which has completely upset the whole social environment. When Palembang was chosen to site the first fertilizer plant, Pusri, despite the presence of neighbouring oil refineries in Plaju (Shell) and Sungai-Gerong (Stanvac), it brought social shocks during site clearing, during construction and once in operation; this was also the case of Petrokimia located near the Gresik Cement Plant; more shocking was the new location of the Kujang Project in the midst of a purely agricultural area.

The first impact came when land was acquired from the population at market price which created new additional income to those who owned the land and became rich overnight. The second shock came when bulldozers, scrapers and other heavy equipment were engaged in site clearing, when the necessary infrastructure such as roads, pipelines, electrical power stations or transmission lines were built, besides harbour facilities and housing complexes for the personnel, foreign as well as local. The third shock was caused by the engagement of workers, especially construction personnel, usually flocking from outside the region because of their experience, skills and knowhow not available locally. They caused shortages of local facilities, such as housing, restaurants and shops but also created disturbances among the local girls. The fourth shock to be endured was when construction personnel were dismissed because the plant had been erected and their services were no longer needed. New personnel was coming in, those directly engaged in operation with longer stay and more lasting interest for the region because of permanent jobs. This introduced new habits, new cultural values, a new rhythm of industrial life, a new consumption pattern.

Working Conditions (Pollution, noise, lighting, dust, temperature, climate, vibration and other physical factors)

In general, housekeeping has been quite good at Petrokimia, despite the effects of cracking the oil and the black environment. Less so at PUSRI I, where the floorspace is rather dirty and dangerous to walk on. PUSRI II and III are relatively well kept, because these plants are still new. Pollution is feasible at the urea-unit of Pusri I, some leaks of ammonia are unavoidable, but on the whole technical devices to cope with pollution are installed in the new units to keep its effects to a bare minimum. Noise is not disturbing, except in the powerhouse. Lighting is good in the control rooms and since the ammonia-unit and the urea-unit are uncovered, lighting poses no problem. This is also the case in the workshops for repair and maintenance activities, in the inventory rooms, in the warehouses and in the administration offices. Dust is only disturbing in the storage where bulk fertilizer is stored, ready for shipment. Some dust is likely in the urea-unit, because urea is spilled over and recovered later by the personnel. Because of good packaging, no dust of urea is visible in the packaging unit, in the storage or at the point of distribution. Temperature is well under control and there are no areas where it is overheated and dangerous for the environment. The tropical

climate has little influence on the working conditions; indeed a chemical plant always suffers from corrosion and this can cause explosions and leaks in the pipin system. Therefore inspection is highly necessary to avoid such hazards. Vibration is only felt in the urea-tower unit, but it is not disturbing the operators since most of the operations are automatically controlled by panels. The storage of feedstock, such as oil in storage tanks, sulfur at the backyard, water in purification units, natural gas through well controlled devices, are not disturbing the operators. In the whole history of the fertilizer industry, only one explosion has been recorded at Petrokimia without affecting any of the operators.

Social Effects

The availability of a labour force is of the utmost importance. Manpower requirements for construction are different from manpower qualifications for running a factory. In the beginning of the development of the fertilizer industry, this distinction was not clear. Those people who worked for the construction of the plant were later automatically absorbed to be engaged in the operation of the industry. As a consequence of this policy, the level of basic education of the labourers is, in general, low; a primary education is sufficient to qualify a worker to be engaged in construction. With the progress of technology and the introduction of more sophisticated technological devices, a higher level of basic education is required for the operators.

Manpower required for construction is of a different nature, their job qualification differs widely one from another. There are special people required for this job: welders are one important category since a fertilizer plant requires welders for its pipes; operators of heavy equipment such as bulldozers and scrapers for site-clearing; the operators of cranes need special skills, also the fitters, the riggers with highly specialized skills are required. Such practiced labourers are scarce in the country and must be recruited from elsewhere. Local labour is usually not available for such jobs and many of the labourers locally recruited are usually unskilled workers which are needed also for construction; for instance, for civil engineering works. In the case of Pusri, many of the skilled workers are recruited from outside Palembang. In the case of Petrokimia Gresik, they are recruited from the Surabaya area and other parts of the country. For the construction of the

Kujang project, Jakarta and Bandung are sources of supply for such personnel. Local authorities usually regret such recruitment procedures since the local participation of the available manpower is therefore minimized to the use of unskilled workers. There is however a crucial problem that can be created by skilled workers: their job is usually temporary and not permanent, their services are required for only a certain period of time, depending on the job to be done, then mostly they are dismissed. They usually sign a short-term contract or are recruited on a daily basis. The main contractors and the sub-contractors have to face this difficult problem of dismissal with their personnel. To construct a fertilizer plant approximately 3 years is required; their employment cannot last beyond that period. Since they are still a scarce factor, usually their wages are relatively high as compared to the wages of the unskilled worker. They live periodically in barracks or are housed with families living around the plant-site. Usually their relatives are not joining them and these temporary workers are only secured of their earnings so long as their services are required.

The age-groups of these workers are between 20 and 40; the more experienced people are older than 30 and some of them are well qualified foremen. The problem of recruiting university graduates is quite serious. The existing local universities are not able yet to provide the plant with the necessary graduate engineers from other technical institutions of higher learning. To be stationed in Palembang is however considered a hardship unless enough compensated in terms of attractive salaries and housing, transportation and other emoluments. Despite such attractive proposals, many graduate engineers prefer to work in big cities, such as Jakarta, Bandung and Surabaya rather than make their career in a small provincial town such as Palembang. Turnover among the university graduates is relatively high as compared to that of the technical high school.

Personnel operating the plant is usually divided into four groups to man the three shifts, in their daily routine. They work under a shift-supervisor, usually a graduate engineer and the operators are working under a foreman, usually taken from one of them because of seniority and experience. Working in night shifts is not posing any problem and is accepted as a routine matter. Rotation of the groups and shifts is also introduced without any difficulty and without disturbing the overall productivity of the plants. The hours

of work are at the normal prevailing rate of 8 hours per day and overwork of two hours is allowed according to the rules and regulations as stipulated by the Department of Manpower. The teamwork is excellent at the shifts, in the plants, in the maintenance shops, at the various auxiliary operations and so far there have been no serious complaints from the staff personnel about lack of team work and team spirit, even if the team is composed of personnel from different ethnic groups. Communication among the groups themselves, vertically as well as horizontally is posing no problems at all. Communication between the workforce and staff personnel is good and in some cases even excellent. The staff personnel are serious and devoted people and since they live at the plant site, they really are "married" to the factory and their job.

Training and upgrading have been exercised in both plants. Petrokimia has its training programs geared to fill the immediate needs. Pusri has a special training centre and conducts training rather extensively. Pusri training facilities includes classrooms, simulators and a new training centre. The various curriculae cater to the needs of the different divisions and sections of the plant, especially in view of its expanded operation. Usually training is given on a 3-month basis, then the trainees should be trained on-the-job and follow an in-plant training program. Most of the training activities are given to plant personnel of Pusri itself, but it carries also training programs for other plants.

The wages for the labour force belonging to the low and middle groups do not differ much from other enterprises. For the workers, it is more important to receive their take-home wages in cash, because that should take care of all his expenses related to his household, family and his social obligations. For the management, besides paying their workers well, they are more concerned about his feeling of security at the plant, the office or wherever he may stay. Therefore, for the plant management, the various remunerations, such as medical care, housing facilities, education grants, health services and transportation, recreational facilities, are important and Pusri is taking good care of these emoluments. These facilities are located around the plant, still at the Pusri compound.

Social, Cultural and Ecological Effects

The headquarters of the Management are located in the capital city, while in Palembang is located the Plant Management, responsible for production at the plantsite. The philosophy of the management is following the mission and policies outlined by the Government. It considers the fertilizer it produces as a public good that should be dedicated to the welfare of the people at prices within their reach, and achieving the social goals, such as employment and social welfare, should be considered as important as running the enterprise at a profit-base. Both objectives should be achieved in the course of their existence and in order to secure this, the enterprise has remained a State Enterprise (Persero) controlled entirely by the Government through loans and the Bapindo (State Development Bank) together with other State Banks. Prices both for domestic consumption and export prices are fixed by the Government. The marketing activities are government controlled, since fertilizer is a sensitive item in the whole Bimas Program aiming at increasing food production. The same pattern is followed by Petrokimia, Gresik.

Social integration is very important in both operations: Palembang and Gresik - two entirely different towns with different environmental conditions. In both locations, the staff members are provided with housing facilities, since their presence near the factory is conditional. On the other hand, the labour force is not provided with housing facilities and they have to find their own lodgings. The labour forces are fully integrated within the society where they live and the social environment in which they reside. The staff is living rather isolated within their premises, their own recreational, medical and educational facilities, near the plant and forming part of the whole compound of the factory. Nevertheless, they get along fine with the social environment and no social tensions exist between staff members and members of the society where they are located.

The immediate impact has been the presence of foreign personnel working during construction, then the presence of Indonesian personnel coming from other parts of the country, maintaining their own habits and attitudes. The technological requirements are reflected in the actions and the work that has to be done, day and night, without interruption, influencing the immediate environment which is not used to such activities on a round-the-clock basis. The employment impact has gradually

become visible; whereas in the beginning of Pusri, local graduates from technical highschools were not available, now the number of applicants graduated from local schools is tremendous, the ratio of the number of applicants as compared to the jobs available is 10 to 1, a very encouraging sign for the factory since they can now select the best employees. Social mobility is still high; not all the manpower is locally recruited. Many are coming from other parts of the country. They are quite willing to change their domicile for a better job.

Because of pollution, controlled devices have been installed and the impact on environment is therefore limited. There are no serious pollution problems endangering the environment which can harm people physically.

Facilities for education, health and recreation are set-up and are provided by the plant. Some of those facilities are even open for the general public in order to achieve social integration.

The Plant in Operation

Speaking about labour or capital intensive operation, in a fertilizer plant one should carefully study this problem before making any conclusion about intensity. Since the fertilizer industry is highly sophisticated, this will even more increase following the progress of science and technology. As a chemical plant, the process is a continuous one and should operate on a 24-hour basis without any interruption once the factory is starting its operation. The process is automatically controlled through panels; Pusri I and Petrokimia have separate control panels for each unit, whereas Pusri II, III and IV now have one room where all control panels are centralized. Indeed this part of the operation is extremely capital-intensive and needs a very small group of highly skilled people to operate the entire plant.

Operation is closely connected with inspection. The operating team is kept very small and its jobs are well defined. Communication between the panel rooms and the plant is done through a modern communication system using walkie-talkies or microphones. A core of operators belongs to this operating section of the plant and these workers are directly engaged and responsible for running the entire plant.

Their jobs are crucial and the most important part of the whole operation. Each shift consists now of not more than 15 people and since there are 4 groups to operate 3 shifts, the core of operators is now composed of not more than 60 people. This section of the factory including the inspection is indeed capital-intensive and the number of personnel is very limited. Their knowledge and skills are the highest as compared with that of other workers in the plant.

At the end of the production process is the bagging plant. Although the operation is fully mechanized more people are needed to operate this section. This is a labour intensive operation; the operators are handling the machines to put the urea in bags and in the process of bagging, they are assisted by mechanical devices. The work is performed entirely by machines powered electrically though some auxiliary operations are partly manual. The bags are transported to the go downs and loaded to trucks or sent through conveyors to the port for further distribution. Closely connected with the bagging section is the manufacturing of the plastic bags themselves. Pusri has its own bag-factory employing almost 200 people. Although operations in this factory are highly mechanized, work on a 3-shift basis and produce 20 million bags yearly or two-thirds of the required bags of the plant. Here in this factory, operations are divided between mechanized production and automated operations.

Production, Planning and Control is exercised in the plants. This is important, since every section of the whole production process should know how much to produce at a certain time-span and what. PPC is usually under direction of the production manager. Breakdowns are limited, except in the beginning of each operation when the various units have to be tested fully. A chemical plant has its hazards of leaks and the unhealthy effect of some of the gases, such as ammonia which can be dangerous. Industry hygiene is taking care to prevent perilous health effects. Schemes are introduced to that effect. The raw materials posed no particular problem related to technological aspects nor to the human aspect of the operation. Pipelines over 100 kilometers are transporting natural gas to the plant in the case of Pusri; oil is transported by tankers to feed the petrochemical plant in the case of Petrokimia Gresik. Sulfur is imported from abroad, a separate port is taking care of the unloading of the bulk of sulfur, to be stored at the plant site. Clean water is no problem for Pusri since it can get the water from the river Musi, located near the plant, whereas in the case of Petrokimia, water has to be supplied from the Brantas river and transported 20 kilometers before it reaches the plant for purification before it is used in the plant.

TIRE INDUSTRY

Historical Background of the Plants:

The Good Year tire factory as a wholly owned foreign company located at Bogor was built in 1935 with an initial daily capacity of 300 automobile tires and 9000 bicycle tires. It employed 200 workers, and was constructed in a record time of under six months, when most of the machinery and many of the building materials to be shipped to Bogor came from the United States.¹

An overall review of this factory in 1967 revealed that most of the equipment was obsolete and worn out and should be replaced by modern machineries with better devices and higher productivity that could meet new technical requirements. The plant has since been rehabilitated, modernized and expanded.

The Interub Jakarta tire factory has been set up by the Industrial State Bank in 1954, starting construction of the plant in 1956 and actual production in 1958. In 1964, the production of bicycle tires increased with a daily production capacity of bicycle tires and tubes of 5000 (actual production started in 1966). The plant is located in Jakarta on a 15-acre plot of land; there is no opportunity to acquire additional land, since the site is in the midst of a residential section. Water is obtained from deep wells on the site. The equipment came originally from Czechoslovakia and has reached the stage that continuous maintenance is required. The operating equipment is obsolete and badly needs replacement.

The Interub Palembang tire factory was originally constructed in 1956, using German equipment (Indorub). The construction of the plant was mechanically completed in 1969 and was mainly done by Indonesian contractors: Peprida, Litrikum, Indomarine and Pusri. The plant was inaugurated in March 1970. It is situated on a 24.8 acre plot of land, adjacent to the Fertilizer Plant Pusri on the Musi river. The equipment is new and modern, but some of the machines are of already obsolete design; the layout of the factory is sufficiently rational and efficient; in general, the factory is in better condition than Interub Jakarta.

1. "The Indonesian Tire Industry - Past, Present, Future", prepared by The Goodyear Tire and Rubber Company in co-operation with the Government of the Republic of Indonesia, Book II, page 9.

Specific Characteristics of the Industry:

The tire manufacturing industry is highly labour-intensive and skill-intensive; many of the operations are still manual operations, assisted by power tools and other mechanical devices. From this point of view, the input of the human factor is of utmost importance. Since both the raw material content and required skills are very decisive in tire manufacturing, both elements should be well under control. The combination of the raw materials is every time changing because of changing requirements from the end-users, the automobile or truck demanding more speed and safety devices. Therefore, research and development activities should be done on a continuous basis; along with changing technological requirements, technical skills have to be adjusted and existing skills have to be retrained, reschooled or upgraded in order to keep abreast with the technical requirements of the various machines and equipment of the entire manufacturing process.

This case study is a study of company-to-company transfer of technology, especially seen from the transferred process of management and technical skills and know-how; it is an illustration of what could be done and achieved, but it also illustrates the limitations for further growth in the further development of the tire company.

Choice of Technology.

The sources of technology for the three factories differ, also the periods when the factories were acquired: Interub Jakarta purchased the equipment and machineries from Czechoslovakia in the late fifties; Interub Palembang used imported hardware from West Germany in the early sixties; Good Year's source of technology is the United States and it acquired the latest equipment in the early seventies. Basically the manufacturing of tires has not changed; the machines and equipment certainly have been changing very much, from manual operation towards automated processes, and the whole sequence of operations have been closer integrated and rationalized. Despite these changes, the industry is still highly labour-intensive, especially skill-intensive, but is becoming more and more technology-intensive. The industry is also becoming more universal, international in its standards and requirements, and is becoming less and less dependent upon influences that come from the local environment or society.

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There is no compromise with the advancement of technology: the tire industry has to acquire the latest technology which is available in the world today, if it wants to stay competitive in the domestic and export market; the human factor has to adjust itself to the technological requirements of this industry and this could be acquired by intensive training programs which should be an integral part of management development for the entire factory on a continuous basis; adjustments are necessary, deployment of the workforce is inevitable, and further rationalization in the production techniques to achieve higher productivity is a must with all the consequences involved, technologically as well as socially which directly affect the worker.

Good Year has shown and proved itself successful in rehabilitating the factory, then expanding the facilities while at the same time wholly modernizing the plant; both inputs of modern hardware of approximately US\$16 million and modern management have contributed to this success. In the case of Interub, something unique occurred: there has been almost no new hardware introduced, except for minor adjustments and reconditioning of some machineries; the input has been primarily in software terms - management and technical services. The result is almost the same as what Good Year has achieved: a substantial increase in production, well above installed or rated capacity. Interub Jakarta is now working at a production level of 150 percent above installed capacity and Interub Palembang well over 50 percent.

This case study will deal with the transfer process of technology from foreign sources to local elements (a company, a plant, personnel directly or indirectly related to the tire industry, or any other element). It will also illustrate the ways in which this process is taking place and how it affects the human factor. When a transnational corporation is establishing a plant overseas, such as the Goodyear Tire and Rubber Company, under the foreign investment law not on a joint-venture basis, it actually transfers its own technology overseas to its own subsidiary company in a particular country.

Social Implications

Technological Requirements.

The introduction of new technology in the form of new equipment, modern machineries and new tools requires new skills. Goodyear with its equipment installed in the early thirties, has adjusted the workforce to the conditions of the machines and tools on a gradual basis. The rehabilitation program did not have an immediate impact upon the workers that could displace them; they have to work harder and more efficiently, but in terms of new skills, the existing manpower could do the job satisfactorily.

While the factory was producing at full capacity to meet the demand for tires, at the same time a moderation and expansion program took place: new equipment, machines, tools and parts were poured in at a cost of over US\$16 million in a short period of three (3) years. This new input caused some shocks - labour had to be adjusted to the new conditions, to the introduction of new devices, new methods and production techniques that differed from the previous operations. Whereas the old equipment was mainly manually and mechanically operated, the new equipment contained automatic devices. The old equipment had replacement of major components; practically these old equipment and machines were scrapped and replaced by modern equipment of modern design.

The factory equipment of Interub in Jakarta was even worse. The survey report stated the situation as follows:

"As with Goodyear, much of the operating equipment is obsolete and would have to be replaced for the factory to produce at the capacities necessary to satisfy market requirements. In evaluating individual pieces of equipment and comparing them with modern equipment, the study team found several items of major equipment being used that would have no value at all in a modern factory. A number of other major equipment pieces were given such a low percentage of value that they must be considered either valueless or obsolete to the point of requiring replacement."¹

Factory equipment of Interub Palembang, at the time of the survey had not been fully installed yet and was not in operation. The equipment was purchased from West Germany first in 1958 and additional equipment in 1965. Some of the equipment is of obsolete design in comparison with modern equipment, but because this equipment has not been used, the condition of each piece is still good but require checking and overhaul. Once all the equipment and machines are installed, the factory equipment of this plant and the layout of the main factory building, is certainly much better than the tire plant in Jakarta.

Skills requirements

Because of the different operations at various stages of the entire production process, different skills are required - the more mechanized and more automated operations are used, the higher educational requirements are needed from the operators.

1. Op. cit., Book II, page 50.

It is interesting to note that besides the technological requirements that are increasing with improved mechanization and automation, Interub Jakarta and Palembang need better qualified personnel when they have to improve productivity and increase the level of production, although there are no changes in the existing equipment and machines. One may conclude, that the tire industry with the advancement of technology, either in the hardware or the software, has to employ personnel with a sufficient degree of basic or technical education, in order to make them more trainable and easier to adjust with the new skills as required by technological requirements.

Working Conditions (related to pollution, noise, lighting, dust, temperature and climate, vibration, space and buildings, and other physical conditions)

The factory buildings are made of concrete walls with sheet-iron roofs, or in the case of Interub Jakarta, the buildings are constructed mainly with steel columns and roof trusses; the godown storage buildings are located close to the factory. This is also the case for the power house, water filter house and other auxiliaries, Office buildings are usually located on the front side, using more glass windows and concrete walls, except for the Interub Palembang plant, where the office building is still originated from its inception and built of wood and light material, but still functional in use. Lighting is sufficiently derived from day-light and reinforced by fluorescent lighting. Only the main factory building of the Interub Jakarta is not sufficiently making use of the daylight and one gets the impression that inside it is rather dark, despite the use of electric lights. Ventilation is sufficient, the ceilings are relatively high and the factory floor gives sufficient room for the equipment and people moving around. The banbury and other mixing equipment are the most unpleasant part of the factory; the smell of rubber, of oils, the dust of carbon black is very unpleasant and are sources of pollution. Dustcollectors are provided but still insufficient to collect all the dust that exists in that locality. In both plants of Interub, this section is the dirtiest part of the whole factory, especially because the mixing is still done in open mills. Goodyear has installed a modern unit and has considerably reduced all effects of the raw materials on the environment. This part of the Goodyear plant is now clean and little pollution is affecting the workers.

The workers in this section are sufficiently protected against dust; they use a mask, gloves, boots and aprons that protect the body from the ill-effects of the chemicals used in the banbury and mills. Temperature in the factory is well under control, except at places where sufficient heat has accumulated, for instance in the curring process and the power house. The tropical climate has no bad effects on equipment, materials or the human beings. The Jakarta and Palembang plants are located favourably, in a residential area and close to the Musi river. The climate is bearable and even pleasant in the case of the Bogor plant of Goodyear. There are no cases recorded where the workers became victims of climatic or heat conditions.

Vibration occurs very little in the overall production processes, except in the power house. The Jakarta Plant is rather overcrowded; the space is very limited and there is no more land available to improve the factory floor conditions. The Goodyear plant has sufficient land under its control and the plant is spacious. This is also the case for the Palembang plant. The location of the three plants is also very favourable; they are closely situated to the city and the swellings of the workers, easily accessible for trucks to supply the raw materials or to dispose of the tires for further distribution. Water seems also no problem, except for Interub Jakarta which entirely depends on deep wells located near the factory. One may conclude that the working conditions of the three tire plants are good, are meeting the required standards of modern plants and have no direct negative effects on the conditions of the workers. The presence of equipment, machines, tools and instruments where the tire production takes place is also not posing any serious problems which could affect the workers badly. The conditions in the tire manufacturing industry are reasonably good.

Employment effects

There is a new and challenging problem coming up with the development of other industries in the vicinities of the tire factories; such new plants are requiring skilled and experienced workers. Slight differences in wages are sufficient to lure them away from their present job. This means for the plant to keep them on their payroll, higher wages and better emoluments. In turn, the plant management is requiring from them better performances and higher productivity. Because of this fact, labour turnover is relatively still high, even in those sections where special skills are required. The only solution to this problem is to

have a training program on a continuous basis and providing the plant with trained personnel every time it requires people for replacement. The three plants are well aware of this crucial problem and have installed training programs that are integrated with the operation of the plants.

Commuting to the factory is important. Public transportation facilities are usually taking care of this problem. Factory buses are taking the workers from their homes and bringing them back after their work at the factory. In Palembang the owners of motorcycles are increasing with increasing wages and credit facilities given by the plant to their workers. Bicycles are still an important vehicle of transportation for those who are living in the neighbourhood of the plant; some of the workers are even walking to work if they are living within walking distance. For Bogor, commuting is a problem when the rainy season starts, since Bogor has one of the highest rainfalls in the country. The presence of industrial enterprises in the region has opened employment for industrial manpower. These employees in their daily life are closely related with the rhythm of the factory and this influences their behaviour in the society they live in. This in turn brings about changes in social habits and customs.

Changing Cultural Values

Factory workers are paid cash for their services. This cash income is received on a daily, weekly or monthly basis. This cash flow in the hands of the workers at various intervals influences the local markets and the choice of goods they cater to the workforce and their relatives. Because the lowest paid worker is receiving well above the average income in the immediate environment, consumer patterns of the workers reflect their purchasing power. Their cash earnings can be spent on goods and services that reflect their lifestyle and all these activities influence existing cultural values.

Changing Social Structure

Interub in Jakarta employes 669 workers, the plant in Palembang 522 and Goodyear Bogor 1700. Each worker is responsible for an average family of 3 to 4 persons; on the whole, the entire workforce of the three plants and their family constitute a considerable number of people, directly or indirectly connected with the three factories. Since they belong to an income group that is above average, the social structure in Palembang, in Bogor and in the immediate environment of the Jakarta plant is highly influenced.

Working for a state enterprise or a foreign enterprise brings social prestige, especially if this status is reflected in emoluments in terms of housing, health, educational or recreational facilities, in higher wages and safeguard a higher standard of living.

Social Mobility

Career-planning has been observed, especially for managerial personnel. Many of Goodyear personnel working for the company for years have been promoted to top management positions. Interub followed the same pattern and the entire management personnel are Indonesians, following a career within Interub itself or coming from other state-owned enterprises or from the private sector. Seniority is well established and experiences count very much. Pension schemes have been introduced in the plants. Goodyear is introducing a training programme for their employees that are retiring from the company. They receive training in various skills for agricultural employments, such as food production, fishery and farming. The courses are given free of charge for a duration of 6 weeks to 4 months and at present 24 people are engaged in such training programs.

Health Facilities

Every factory has its own infirmary, health or medical centre, located within the factory compound itself. A special building or some rooms are allocated to accommodate a medical doctor and nurses. Sufficient medical facilities are provided for immediate treatment when accidents occur or to give medical treatment to the employees when needed. Besides those facilities, some medical schemes have been introduced to take care of medical bills, hospitalization and medicines.

Educational Facilities

For the education of the children of the workforce, there are no special educational facilities provided by the plants. Their proximity to public schools make it unnecessary to set up such educational facilities.

Recreational Facilities

Both enterprises Interub in Palembang and Goodyear in Bogor make provisions for recreational activities. Again, the proximity of the plants to public recreational facilities make it not necessary to set up its own recreational facilities.

Kinds of Operations

It is interesting to note that in all the three factories, although different technologies are utilized, the production process when divided into functional discrete units, the three main classifications of production of technology are used: manual operations, mechanized production and automated production, besides integrated mechanized production and integrated automated production. The older the equipment, the more manual labour is required; some of the operations are mechanized, but the human factor is still predominant. The production process is divided into several operations, depending on the equipment or machine used. The various stages of the production process have been integrated at a co-ordinated speed which improve productivity and guarantee quality and are usually electronically controlled. The worker here is only watching the operation, while making the necessary adjustments during the production process. Less and less human interference is likely during such a process.

Human Aspects

The key to success in the tire industry is dealing with the human aspects. New technology is introduced continuously and so long as the people engaged in tire manufacturing are able to receive this technology, they can control the tire industry. Even if the tire production process is fully automated, the role of the human being is still very decisive and cannot be neglected. Technological progress does not imply the elimination of the human factor entirely - this is certainly not true in the tire industry. Whatever changes occur in technology, whatever new processes are invented and introduced, new equipment and machines produced, the human element will still be a factor to be dealt with. The existence of the tire industry for more than 40 years in this country has proven that the right combination of technology and human skills and knowledge constitute the success of this branch of industry.

Work Adjustments

Organizing the Work-load Shifts and Rotations

When Goodyear started to expand its factory and replaced the old equipment and machines with new and modern automated devices, the workforce had to adjust to the new circumstances. In some cases, it was still possible to maintain the workers

for a particular job although the equipment differed, by giving them training and upgrading their skills. In other cases, the existing workforce had to be replaced by others that could do the job, making the necessary shifts in jobs. There were also cases where the existing workers could not be used and a totally new workforce had to be recruited and trained in order to do the job related to a new machine for instance in the automated curing machines. It was harder to reschool experienced workers than taking new unexperienced personnel and giving them the necessary training. The limits to training is usually the level of basic education. When it is too low, it is almost impossible to give the necessary training in order to do a job where more brains are necessary than for performing manual operations. Because of this limitation, the new workforce now consists of younger people with a higher educational background. There are jobs which have completely disappeared because they were replaced by new devices where certain operations are not necessary anymore, such as operating the pot heaters. Deployment of certain jobs if modernization takes place is inevitable in the process of industrialization. Deployed personnel should be accommodated by giving them different assignments; usually by expanding operations, more personnel is required and those deployed elsewhere could be put on new jobs. The introduction of new and modern equipment and machineries inevitably requires new skills, new knowledge and this needs adjustment in the existing workforce. This adjustment is a continuing process and to make this possible, it should be closely linked with a continuous training program.

In the case of the factories in Jakarta and Palembang, the problem of adjustment is quite different. There are no new equipment and machines installed to replace the existing ones. The existing jobs have been maintained because these jobs are closely related to operating a piece of equipment. Here, the problem of adjustment is more a problem of doing things differently with the same equipment or machine. Here the problem is job-improvement, of how to better utilize existing equipment, making new and other products than usually are produced, handling the devices differently and improving productivity. Minor adjustments are made in the layout of the equipment, in the sequence of the process, in adding some mechanical devices which could improve productivity as in the case of the Palembang plant with the use of better material handling equipment and better organizing the workload. Here the technology introduced is not hardware, but software technology. Manuals of Goodyear have been introduced by the new management team, although fully adjusted to local conditions. "Getting rid of old habits" means introducing new rules and regulations, work

discipline and complying to higher standards and performance. The factories are working at full capacity, which means that they have to work on 3 shifts. The night shift is working as efficiently as the day shifts and there are no serious problems recorded on the behaviour of the workers at night shifts. Overtime is allowed within the limits of 2 hours as regulated by official labour regulations.

Safety Regulations Industrial Hygiene

Safety measures are imposed and the necessary safety equipment is provided at the factory site. Safety committees are established to look after the implementation of safety rules. Since the equipment, machines and tools are relatively not dangerous to operate, very few cases occur related to accidents during work such as fire or any other incident. Industrial hygiene is also introduced with the co-operation of local authorities of the Health Department and the Department of Manpower. Courses in safety and industrial hygiene have been given to workers and those responsible at the plant site.

Training Programs

Interub Palembang is conducting a continuous training program for the training and upgrading of operators, supervisors and managerial personnel. During the Management Contract, personnel are trained at Goodyear factories in Akron, the Philippines, Malaysia and Luxembourg in production management, engineering, development GEMC, Industrial Engineering, besides finance and personnel. Interub Jakarta is also conducting training programs for their personnel on a continuous basis. Training is becoming part of the entire management development program: managers are trained and upgraded, but also the workers at all levels and in the various disciplines that are required by the plant. Goodyear has an intensive training program, including running of a School for Industrial Technicians (SATI) with a three-year curriculum. The purpose of this school is giving classroom, on-the-job and practical training to trainees in order to acquire the skills and knowledge for maintaining equipment and machines, maintaining electrical equipment and parts, and maintaining the instruments used in the plant. Goodyear is also training operators, including labour trainers and operative instructors.

Supervisory Training is also conducted. A Management Development Program has been introduced for all Indonesian staff members and conducted by Peter Perry, PA Consultant Manager from Australia. Another training program is the Home Study Program co-ordinated by Akron following a system that is developed by the University of Pennsylvania, training of the managers at various management institutions within the country. Training in safety and industrial hygiene is conducted in cooperation with the Department of Manpower, consisting of Fire Fighting Training and training in safety. After receiving training, the adjustment period for the Indonesian worker is not long; in general they are quite skillful, can use their hands well for manual work, but also for operating the machines mechanically or automatically. The young workers are better trainable at present, can easily learn another trade and adjust themselves easily to new jobs or assignments. In terms of transfer of technology through the training of skills, knowledge and dexterity is relatively easy and can be done in short period. This is the cheapest and most practical way of transfer of technology.

INTERNATIONAL LABOUR ORGANISATION
INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT (PIACT)

Philippine National Tripartite Conference on Improving
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Working Conditions and Environment
and the Choice of Technology

by

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Asian Regional Secretary
of the ICFTU

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WORKING CONDITIONS AND ENVIRONMENT AND THE CHOICE OF TECHNOLOGY

Introduction

Working conditions and environment and the wellbeing of workers, which according to the Sixtieth General Conference of the ILO held in 1975 "remains the first and permanent mission of the ILO" is as well of constant concern to the working people and their organisations and for quite obvious reasons: It is they who are obliged actually to suffer these conditions and it is their welfare that is the object of all measures to improve them. This question, however, like the usual "fair deal" to labour is not simple. Indeed, it is quite complex and its dimensions and ramifications seem to be growing. The complexity arises both because of interacting causes which lead to the problem as well as to the integrated and interlinked solutions which alone have any chance of satisfactorily dealing with it.

Causes of deterioration of the working environment are also among the main causes of pollution in the human environment. On the other hand, the human environment and habitat suffer greatly due to inadequacy of development in the developing countries. Poor sanitary conditions and the accompanying communicable diseases according to the World Health Organisation are the greatest causes of morbidity and mortality in these countries where the majority of the world's people live. Absence or inadequate supply of clean drinking water ^{and} poor waste disposal systems only help to produce abundant insect and animal reservoirs and disease agents and if they do not actually result in serious illness, certainly

contribute to the sapping of the energy of their victims, reducing further their ability to work vigorously or in a concentrated manner. The keenness of the developing countries to vie with each other to attract capital poses the whole question of development versus environment. Technology most suitable and appropriate for the developing countries and at the same time doing least damage to ecology has to be evolved. And finally there is the question of enforcing standards through either national or international processes.

Apart from the technical knowledge and competence needed there is the question of the machinery that may be required for their effective implementation. Experience dictates that while the Governments and the employers should be obliged to fulfil their responsibilities, an in-built mechanism has to be thought of for the purpose, in which the major role has to be of representative organisations of the working people, namely, trade unions. While concepts, therefore, of economic development, appropriate technology and relations in industry will have inevitably to be developed, as each of them have their crucial contribution in achieving the objectives which we all have in view, two wellknown aspects must be stressed even at the risk of repetition: First, that in all discussions on ecology, economic development and technology, man must be placed in the centre of the picture. And second, that however sound the solutions to the problems may be, their effective implementation can only be with the active participation of the people concerned through their representative, democratically functioning autonomous organisations.

The Environmental Crisis

The phenomenal progress in technology and the very welcome affluence which it has given rise to in the industrially advanced countries has also been accompanied by what is now commonly stated as environmental crisis. Stress on the eco-system are noticed everywhere in the industrial countries. Many negative effects of expanding economic activity are now coming prominently to notice.¹ It is stated that air pollution in Los Angeles has reached such levels that "school children are cautioned against vigorous play because of air pollution".² We are told "Tokyo traffic policemen inhale pure oxygen from oxygen tanks every two hours to avoid carbon monoxide poisoning".³ Lester Lave and Eugene Seskin who undertook studies in several countries "found a strong relationship between the level of air pollution and the incidence of respiratory disease, particularly bronchitis, emphysema and lung cancer. In the United Kingdom, deaths due to bronchitis are twice as frequent in urban areas with heavily polluted air as in rural areas. A study in the United States based on data for forty-six states shows deaths due to lung cancer among lifelong urban residents to be double those of lifelong rural residents."⁴ Lave and Seskin also point to disturbing evidence of the relationship between air pollution and both stomach cancer and coronary disease. This alarming contribution of air pollution to the incidence of disease and death is considered

1. Lester R. Brown: World Without Borders. Affiliated East-West Press, New Delhi, 1973, p.18.

2. Ibid, p.18.

3. Ibid, p.18.

4. Ibid, p.18.

by Lester Brown as a partial explanation as to "why life expectancy among Americans did not increase significantly during the sixties despite impressive advances in medical technology and a vast rise in health service expenditures."¹

In addition to air pollution, "every year the world's oceans are polluted by from 5 to 10 million tons of crude oil. Every day, Europe's most important water network, the river Rhine, conveys 50,000 tons of waste products, both domestic and industrial, to the North Sea. A further 20,000 tons of waste are discharged into the North Sea by the population in the littoral regions. The fish in the Baltic are dying out, because their spawn have no more oxygen at a depth of more than 30 metres."² Some experts have remarked that there are increasing signs that the renewal capacity of the marine ecological system will very soon be exhausted. As a result "in the river Rhine, the bacterial count of 30 to 100 ml. at the source in Switzerland goes to about 2000 ml. at Boden sea (lake constant) and reaches the one million mark in Holland".³

"In Greenland level of lead in ice was 18 ng/Kg. 200 years ago. In 1953, this level was 80 ng/Kg. and in 1965 it reached 200 ng/Kg. The level increased 4 times in 200 years and almost three times in only 10 years."⁴

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1. Lester R. Brown: World Without Borders. Affiliated East-West Press, New Delhi, 1973, p.18.
 2. Frank Haenschke, German aspects of an environment policy and possible consequences for developing countries, One World Only, Industrialisation and environment, an international forum under the auspices of the Friedrich Ebert Stiftung, Tokyo, November 25-Dec 1, 1973, Report No.9, p.23.
 3. J.M.Dave: Pollution Control, Proceedings on the National Seminar on 'Industry, Environment and Man' organised by the Central Labour Institute, Bombay and the Society for Clean Environment, Bombay, 8-9 Feb. 1975, p.122.
 4. Ibid, p.122.

The Report on the World Social Situation for 1974 published by the United Nations refers to the environmental problems created by economic development and the damage caused to human welfare either directly or indirectly. It goes on to state, "Direct damage would include damage to health (from lead poisoning, for example, or lung disease aggravated by air pollution), social disruption (for example, displacement of people by mining operations or hydroelectric projects) and damage to the "quality of life" through congestion, noise, litter, etc. Indirect damage to human welfare occurs through interference with national biological systems. For example, the filling of estuaries and the pollution of coastal waters diminishes ocean productivity, and logging or overgrazing can accelerate erosion".¹

The Report warns, "the most serious threats of all, however, may well prove to be the indirect ones generated by mankind's disruption of the functioning of the natural environment."²

According to one estimate more than 200 million people primarily in Africa, Asia, the Caribbean and the northeast coast of Latin America suffer from an infectious disease which though seldom immediately fatal, dooms its victims to a debilitated existence with a recurrent fever and diarrhea. Schistosomiasis or bilharziasis is a persistent disease which is said to thrive in areas with perennial irrigation systems, riverside slums and shanty towns, with open drains. Most often it is contracted by workers in flooded rice fields or by children playing in fresh water marshes or streams.

1. 1974 Report on the World Social Situation, United Nations, New York, 1975, p.268.

2. Ibid, p.268.

"The aquatic parasite penetrates the human skin on contact after having left its snail host. The Schistosomes, or tiny worms, then migrate through the blood and lodge themselves in the liver, where they reproduce. The eggs are excreted with body wastes, often ending up in irrigation canals, open sewers and drainage ditches, where they hatch and are once again taken up by the snail, completing their life cycle. The disease is thus most prevalent in areas where human excrement is used as fertilizer, such as mainland China, and where there is frequent flooding or where a common lagoon serves as water supply for everything from washing animals to bathing. Because it is a poor man's disease, schistosomiasis has received little of the pharmaceutical industry's research funds."¹ It is estimated that over 90 per cent of the diseases in the countryside are caused by drinking unclean water.

Hazards of Working Environment

As regards the hazards of working environment, the ILO has stated that in industry alone the number of serious accidents which cause absence from work is estimated at 50 million a year or about 160,000 a day.² In the industrialised countries it is recognised that in industry one worker in ten on the average suffers from an accident compelling him to stop work. Though no reliable statistics exist for all developing countries the average must be higher in the case of such countries. In India during the 1960's both the absolute number as well as the frequency rate of industrial accidents gradually rose by 50 per cent.³

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1. Lester R. Brown: World Without Borders, Affiliated East West Press, New Delhi. 1973. p.22.
 2. Making Work More Human: Working conditions and environment. Report of the Director-General to the International Labour Conference 1975, ILO, Geneva, 1976. p.11.
 3. Ibid, p.12.

The report presented by the Director General to the Sixtieth General Conference on "Making Work: More Human" has mentioned both traditional occupational hazards as well as new hazards. The occupational diseases recorded in the various countries according to this Report do not cover all hazards. The Report further asks "How many new products appear on the market each year whose effects on the human being are not really known?" It is mentioned that "cancer of the pleura (mesothelioma) due to crocidolite does not appear until 15 to 20 years after first exposure."¹

The case of vinyl chloride reported by Charles Levinson in his article "The Malevolent Workplace" typifies what may indeed be happening in respect of many other chemicals. According to the author, "Later studies showed that vinyl chloride causes a specific occupational disease known as acroosteolysis in which there is both Raynaud's syndrome plus sclerodermiform lesions. Virtually every case of acroosteolysis was found among workers whose tasks it was to clean out the autoclaves in which vinyl chloride was polymerized."² In regard to vinyl chloride it is stated by an observant industrial physician who carried out an epidemiological survey over 20 years that cancer of the liver was caused by certain forms of work on the substance and that fears earlier aroused have been confirmed by other tests. Accordingly certain countries having initially fixed the maximum concentration at 500 parts per million and then at 200, have now decided to fix it at one part per million.³

1. Making Work More Human: Working conditions and environment. Report & of the Director-General to the International Labour Conference 1975, 3 ILO, Geneva, 1976, p.13.

~~2. Ibid. p.12~~

2. Charles Levinson: 'The Malevolent Workplace', AMBIO - A Journal of the Human Environment, Research and Management, V4, No.1, 1975, p.

A Russian scientist writing in the International Labour Review has stated: "Modern times have witnessed an extraordinarily rapid and widespread development of organic chemistry, petrochemistry, metallurgical chemistry and the chemistry of elementary organic and organo-metallic compounds ... every year several hundred new chemical substances come into use in industry and agriculture, although in many cases their toxicity and danger have not been established in advance."¹

The hazards in agriculture, particularly in tropical countries arise from the sun causing overheating of the organism and of loss of salt due to perspiration resulting in chronic general fatigue. This according to the ILO Report is more pernicious in view of the already low state of health of the worker which has already been undermined by endemic diseases like malaria and various forms of parasitosis. The second type of hazard, it is said, is because of prolonged contact in both the working and living environments with animals, insects and certain plants, a contact that exposes the workers to various zoonoses and allergies some of which are particularly serious.

It is also stated "that there are complicated diseases also due to micro-waves such as radar with its penetrating effects that do not damage the skin, and injuries caused by other types of radiation such as the laser." "These examples show", the ILO Report continues, "that a clear distinction can no longer be made between the working environment and the living environment."²

Another interesting statement made by the specialists is that automation and mechanisation, though require less muscular effort through which work may become less burdensome, yet in this only the nature of the burden is changed. According to the ILO report "Automation and mechanisation have given rise not only to localised muscular stress but also to increased and more continuous nervous stress. Whereas the activities of an industrial physician with young workers were mainly directed 20 years ago towards the prevention of pulmonary, endocrinal and spinal troubles, they are largely directed today towards the detection of increasingly serious neurotic troubles."³

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1. A.V. Roshahin: "Protection of the working environment", International Labour Review, ILO, Geneva, Sep 1974. p.238.
 2. Making Work More Human: Working Conditions and environment. Report of the Director-General to the International Labour Conference 1975, ILO, Geneva, 1976, p.14.
 3. Ibid, p.15.

Environment and Development

The developing countries with their anxiety to develop as fast as they can often feel that the advice with regard to caution in the use of technology through which the western countries have developed may result either in retarding the rate of progress or indeed may condemn them to a lower level of development for ever. At the U.N. Conference on Human environment held in Stockholm in 1972, the then Prime Minister of India, Mrs. Indira Gandhi had stated "On the one hand the rich look askance at our continuing poverty - on the other they warn us against their own methods. We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people." She then asked the question "Are not poverty and need the greatest polluters?"¹

At the Sixtieth General Conference of the ILO, a Minister of Labour from a developing country speaking on the main theme of the conference namely 'Making Work More Human' stated: "The masses of developing countries need work; they have no time to be choosy about the content of the work."² The implications of the above remarks are that in developing countries improvements in working conditions and environments must not be accomplished at the cost of efforts to create employment. Fortunately there were other voices too at the Conference. The Labour Minister of Kenya urged that adequate safety and health infrastructure "must accompany and not follow the industrialisation process".³ The Minister of Labour

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1. Indira Gandhi: Life is one and the ~~whole world~~^{world} is one, Speech delivered at the United Nations Conference on the Environment, Stockholm, 1972, Centre for Economic and Social Information, United Nations European Headquarters, Geneva, p.18.
 2. International Labour Conference, 60th Session, Geneva, 1975, Record of Proceedings, p.278.
 3. International Labour Conference, 59th Session, Geneva, 1974, Record of Proceedings, p.76.

and Social Services of Zambia went further to state that improvement of working conditions should form a necessary integral part of any well-designed development policy. In his own words: "Turning a blind eye to poor conditions of work merely because the country is in an economic strait-jacket is to condone conditions of semi-slavery."¹

The President of the Conference also very aptly remarked:

"Precisely because mass unemployment tends to leave the employer all powerful and the worker defenceless, there must be stronger safeguards against the exploitation of labour".²

In a remarkable address replying to the debate on his report Francis Blanchard, the Director-General of ILO, remarked, "In the more developed countries it is now being realised that an organic link exists between the volume and quality of employment. The creation of more and better jobs could be not only a social proposition, but also an economic aim. I feel convinced that the social will has a dynamic force capable of affecting classical economic analyses. We saw this in the sixties when we launched the World Employment Plan. Contrary to ^{certain} theories, which were prevalent at the time, we suggested that employment development should become a major aim in development policies. The same boldness, born out of a similarly powerful social conviction, leads us to-day to put forward these two working hypotheses which I shall now sum up,

1. International Labour Conference, 60th Session, Geneva, 1975, Record of Proceedings, p.193.

2. Ibid, p.58.

3. Ibid, p.826.

and which are in line with the best traditions of this Organisation. First, it is essential not only from the immediate social point of view, but also from the point of view of subsequent economic progress, which is the foundation of social progress, to invest in the improvement of working conditions, irrespective of the degree of development of the country concerned. Secondly, this improvement - far from hampering the aim of employment development - strengthens it."¹

Robert S. McNamara, the President of the World Bank, in his address at the U.N. Stockholm Conference on Environment spoke on the dilemma facing the world which in his own words is this: "the achievement of a level of life in accord with fundamental human dignity for the world's two and three-quarter billion poor is simply not possible without the continued economic growth of the developing nations, and the developed nations as well. But economic growth on the pattern of the past - and most particularly that in the already highly industrialized wealthy nations - poses an undeniable threat to the environment and to the health of man. There is nothing artificial or contrived about the dilemma. It is very real. Both elements of the dilemma demand the most deliberate attention. The question is not whether there should be continued economic growth. There must be. Nor is the question whether the impact on the environment must be respected. It has to be. Nor - least of all - is it a question of whether these two considerations are interlocked. They are. The solution of the dilemma revolves clearly not about whether, but about how."²

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1. International Labour Conference, 60th Session, Geneva, 1975, Record of Proceedings, p.826.
 2. Robert S. McNamara: The Effective Techniques, Speech delivered at the United Nations Conference on ~~the~~ Environment, Stockholm, 1972, Centre for Economic and Social Information, United Nations European Headquarters, Geneva, p.13.

The World Bank and environmental concern

McNamara went on: "In 1970, we established the post of Environmental Advisor with a strong mandate to review and evaluate every investment project from the standpoint of its potential effects on the environment. Our subsequent experience has been that the most careful review of environmental issues need not handicap our fundamental task to get on with the progress of development. On the contrary, it can enhance and accelerate that progress."¹

The report on Reshaping the International Order prepared under the leadership of Jan Tinbergen and presented to the Club of Rome has the following remarks to make under the caption "The variables of the Harmonization Game:

"In the light of the previous argument, environment appears as an additional and important dimension of development, rather than as a subject per se, a sector, or an alternative to development. It affects development in two ways: as a challenging resource potential that ought to be used for the benefit of mankind in an ecologically sound manner; and as a direct component of the quality of life through the physical and aesthetic values of its natural, man-transformed or man-made components." The RIO Report further continues: "From another viewpoint, environmental awareness means in reality, as already mentioned, the introduction of the long term, of the diachronic solidarity with future generations. Sparing resources, avoiding predatory practices and protecting environment is tantamount to ensuring that our grand-children (and their grandchildren etc.)

1. Ibid, p.13.

will be given a fair opportunity to develop. To the extent to which the protection of environment may entail costs, these should be looked at as an investment in the future, offset as always by a sacrifice in current consumption and in most cases justified on economic grounds by the reduced cost of preventive actions as compared to the costs of remedial ones."¹

It may be mentioned here that even in the case of so-called developed countries the levels of expenditure undertaken in a number of industrial countries, both for research on new pollution control technology and on non-polluting techniques, is reaching astronomical proportions. All industries in the United States taken together are said to have spent \$ 4,000 million on environmental research in 1970-72 and a further \$ 10,000 million on control equipments. Expenditures in other industrial countries are also on similar levels. According to a German expert "cleaning up of the river Rhine alone would cost DM 10 billion, the construction and operation of the necessary sewage treatment plant DM 36 billion during the next five years, while amount of DM 4 billion would be required for air pollution control measures and DM 2 billion for waste disposal."² A study has been made of industrial ventilation in Sweden, and the improvements required in the period 1975-85 to meet modern hygienic demands. They call for the investment of at least 30 thousand million Swedish Kroner. (This equals about US\$ 6,800 million, or £ 4,000 million, for a total

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1. Reshaping International Order, A Report to the Club of Rome, Dutton & Co. New York, 1976, p.288.
 2. Frank Haenschke, German Aspects of an environmental policy and possible consequence for developing countries, One World Only, Industrialisation and Environment, an international forum under the auspices of the Friedrich Ebert Stiftung, Tokyo, November 25-December 1, 1973, Report No.9, p.29.

population of just over 8 million people). The Organisation for Economic Cooperation and Development (OECD) expects the amount of sulphur and nitrogen oxide emissions caused by the combustion of fuel in "stationary sources" only (power plants, oil and refineries, coke ovens, iron, steel, chemical and other industries - domestic or commercial) to double in 12 years from 1968-1980 and estimates operational cost for the entire OECD to be US\$ 400 million per year necessitating US\$ 5,000 million to US\$ 15,000 million in capital input. But this is expected merely to keep pollution to 1968 levels in 1980 and not to cure or eradicate it altogether!

The RIO Report has argued that "development should be self-reliant and endogenous - i.e. based on an autonomous decision-making and future designing capacity - need oriented and environmentally sound".¹ For the above purpose according to it we require:

- "(I) a set of expanded social rationality criteria for resource management and use, based on development ethics;
- (II) an institutional machinery for global resource management; and
- (III) a specific strategy to harmonize social and ecological objectives."²

The two principles of development ethics referred to in the RIO Report already mentioned are: "Solidarity with the poor of our age and solidarity with future generations". The Report further elucidates:

1. Reshaping International Order, A Report to the Club of Rome, Dutton & Co., New York, 1976, p.288.

2. Ibid, p.288.

"All people must be guaranteed the right to have their fundamental needs satisfied not only with respect to food, shelter, health protection, and access to education but also regarding enhancement goods and opportunities for creative work in order to fulfil their personalities; the problem is not one of providing feedlots for passive creatures but to foster human activity. The prevailing maldistribution of resources must be accordingly corrected. The universal right to a decent minimum entails a ceiling on personal material consumption."¹

It goes on further to state:

"Furthermore, to ensure that the interests of generations that will succeed us are really taken care of, it is necessary to broaden considerably the time-horizon within which resource-use decisions are taken and, in some cases, to learn to value the future more than the present. This is clearly in contradiction with prevailing practices with their heavy discount of the future. The consequence of this argument is that resource allocation cannot be left entirely to uncorrected market mechanisms and to the one-tracked, profit-oriented rationality of the enterprise. An appropriate institutional machinery is called for to enforce the criteria of expanded social rationality. The same holds true with respect to space-use: preservation of options for the future and harmonisation of various uses for the same space will not be achieved without public intervention."²

1. Ibid, p.238.

2. Ibid, p.238.

These are very welcome ideas and deserve serious consideration by international community. The solidarity with the poor aspect of the proposals is in a way a support to the conclusions of the World Employment Conference sponsored by the International Labour Organisation which underlined the importance of improving the quality of employment and conditions of work as an important aspect of the basic needs strategy.

TECHNOLOGY

The greater awareness of the state of our environment and the continuing deterioration that is being caused by indiscriminate and reckless use of our too limited and finite energy resources like fossil fuels by our so-called sophisticated technology, the strains and stresses which even developed technology, in spite of its greatly lessening physical labour, causes to the nervous and human resources of the individual, and the high priority that must be given to the imperative need of maximising employment opportunities consistent with decent social standards compel the developing countries to have a fresh look at the whole problem of technology.

Serious questions are arising even in the minds of leaders of so-called successful industrial countries and considerable rethinking is going on with regard to the patterns of economic growth and the type of technology most suitable for the purpose. For a pattern which permits 5.6 per cent of the population of the world to commandeer and use nearly 40 per cent of the natural resources of the world and yet with no claims to have solved even problems, such as those of poverty and employment for all people in the country concerned, cannot make a serious claim as a model to be followed by many others. The need, therefore, is for the search of a technology and pattern of development which in the words of late Dr. E.F. Schumacher is more "compatible with the laws of ecology, gentle in its use of scarce resources, and designed to serve the human person instead of making him the servant of machines"¹ While, therefore, stress will

1 E.F. Schumacher; *Small is Beautiful*, Radhakrishna, New Delhi, 1977, p. 143.

have to be on a more labour intensive technology which would provide high employment opportunities consistent with decent remuneration to assure a desirable and ever increasing standard of living, as well as a steady and desirable economic growth rate consistent with social justice, there will be no attempt to condemn the generations hereafter to a primitive technology or a degrading standard of living and to preserve and stabilize the existing intolerable conditions and to make the peoples of these areas as anachronistic museum pieces in an otherwise technologically developed world. The attempt should not be to foist a technology which has become obsolete in the West but develop or adapt a technology which as Myrdal puts it "engages the latest results of scientific research, adjusted to the highest possible utilization of the labour force".¹ It has been aptly remarked while we have achieved breath-taking success in research and developing new processes of production and machines, our failure has been in using them sufficiently for achieving greater social justice and progress. "Our success is in the construction of these machines; our failure is in their operation."²

It is seldom realised that to use the innovations creatively for achieving specified social objectives requires as much, if not more, intellectual and professional competence as is needed in creating them. Long ago EverttHagen had noted in "On Theory of Social Change" that "it is rarer to find a creative application of an innovation than to find an innovation itself."³ This is the task to which the developing

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1. Gunnar Myrdal: "The transfer of technology" to underdeveloped countries", Scientific American, V. 231, No.3 September 1974, p.178.
 2. Barry Commoner, "Evaluating the Biosphere", Science Journal, October, 1969.
 3. Denis Goulet: "The Paradox of Technology Transfer", The Bulletin of the Atomic Scientists, V.31, No.6, June 1975, p.45.

countries must address themselves if they have to march towards greater economic and social progress using the highest achievements in the field of science and technology. There is another caution which must be exercised. Appropriate technology does not necessarily mean a small size. The size must be determined according to the nature of the industry at a particular level of development in a given social and cultural setting. Some of the considerations which may be kept in view are: (a) greater production for the same investment; (b) greater employment for the same output and (c) an inbuilt mechanism for more equitable distribution in the process of growth.

A word here may be said about the application and use of such a technology. There is no reason to hold back on modern technology. Only we should be careful to see that we do not choose technologies with too high capital intensities. Even this restriction applies only in the aggregate and not to individual activities. For example, we may invest even in some basic or heavy industries in order to help and assist the development of tools, machineries or inputs for the use of appropriate technology for development of agriculture. Dr. Schumacher has warned against the "either or" attitude in this respect and has pleaded for a more constructive and rational approach. He has remarked: "The restoration of balance that I believe is needed in our situation today implies a fight against the prevailing idolatry of gigantism. (If there were an idolatry in the opposite direction, namely that all large organisations were the work of the devil, then one would have to push in the opposite direction".¹

1. E.F. Schumacher: "The new economics", published in *Frontiers of Appropriate Technology*, edited by Amritananda Das, p.3.

The actual experience in the field of agriculture and technologies which due to their impressive achievements in the field of production claimed to have brought about by "Green Revolution" has not been entirely satisfactory. The technology has opened up mainly three possibilities of great significance; it has opened up the possibility of tremendous increase in agricultural production, so sorely needed by the developing countries; it also has the potential, if the technique is used imaginatively and constructively, to open up greater opportunities of employment in the countryside; and thirdly, mainly as a result of the above two, it has the potential to bring about more equitable income distribution. However, it is now an accepted fact that none of the above possibilities and potentialities have been realised to any desirable extent.

The Green Revolution

Green revolution has certainly led to increased agricultural production, but the potential of the technique has not been exhausted. The ESCAP Report 1975 has correctly pointed out that the rural poor have been by-passed. It goes on further to state: "Believing that the benefits of development, as measured by macro-economic indices, would eventually 'trickle down' to the masses, propounders of many past rural development policies have given primary attention to the encouragement of capital-intensive, large-scale farming. The results have proved other than expected and the 'trickle down' theory has been discredited by the fact that its use has served only to widen and reinforce the gap between the rich and the rural poor."¹ The ESCAP has proposed a new approach which seeks to develop programmes which

1. Economic and Social Survey of Asia and the Pacific, 1975
Economic and Social Commission for Asia and the Pacific, p.307-308.

directly reach and benefit the poor, not only because they should on grounds of simple equity, but because it is politically opportune and economically sound. In this regard, particular attention is being given to the small farmer who, it is now clear, is in a position to make a distinctive contribution to his country's economic growth, but can be reached only through specially designed programmes."¹

The ESCAP Report continues "finally, for development to become institutionalised, it is essential that the independent organisation of rural peoples be fostered and that this be effected simultaneously with a devolution of rural administration upon local self-governing bodies. Most of the existing local organisations are either arms of the central government or controlled by local elites, neither of which represent the interests of the rural poor and both of which are viewed with suspicion by peasant farmers and the rural landless. To overcome long-standing attitudes of impotence among the poor, it is important that they not only participate as members of rural organisations; they must be allowed to attain leadership positions, not by appointment but by election of their peers. However, so long as the only organisations to which they can belong are those which necessarily include members of the local elite, who are wealthy, socially powerful and/or politically practised and astute, they will forever be relegated to the role of followers. In a market economy, development requires more than the passive acceptance of one's allotted role; the rural poor must be allowed to develop organisations, which exclusively serve their interests and which they run themselves, for better or for worse".²

1. Economic and Social Survey of Asia and the Pacific, 1975
Economic and Social Commission for Asia and the Pacific, p.307-308.

2. Ibid

The new technology of green revolution which requires the use of improved variety of seeds, fertilisers and other inputs as well as more irrigation, as has been clearly demonstrated in Japan and Taiwan, will only yield highest productivity per unit of land through intensive cultivation. Let us remember that in Japan in 1970, 6,720 kilograms of grain per hectare were produced while the production in Africa was 1,270 kilograms per hectare, in Asia as a whole 1,750 kilograms and Latin America 2,060 kilograms. There is therefore an enormous potential for increasing productivity, for achieving which emphasis has to be on small-scale intensive cultivation rather than on large-scale capitalistic farming. While experts claim that the technology is size neutral, the access to inputs like those mentioned above, as well as credits, are mainly available more easily to the rural rich, who consequently also manage to corner major benefits of this technological innovation.

Our concern, with regard to the green revolution, is due to the fact that it has benefited mainly the rural rich and made the situation of the rural poor still worse, giving rise to a further increase in income disparities. As there has been a tendency, on the part of the rural rich to have bigger and bigger farms and to cultivate them with sophisticated agricultural machinery and implements, the employment opportunities in the countryside have further shrunk. Both these have led to greater income disparities. And what is further causing concern is that the skilful sophistry practised by the rural rich lobby in every country is creating complacency with regard to land reforms, as it is argued that, for increased agricultural production and the effective use of the new technology, the big farms are the precondition.

How fallacious is this argument should be obvious to all discerning people. If the small-scale intensive farming, utilising the latest technological innovations, can lead to maximum productivity per unit of land, greater opportunities for employment and, as a result, lesser disparities in income in the countryside, why has this not been possible? The obvious conclusion is that the economic and socio-political structure in the countryside and the political power structure to which it leads, makes it impossible for such a development to take place.

Rural Industries and Organisation of the Rural Poor (ORP)

With regard to development of rural industries one or two models may suffice. In a country like India the biggest industry next perhaps to agriculture is the handloom textile industry. However, this industry has been in difficulties and the governments - both of the States and the National - have consistently given it encouragement and support. But still it is not out of the woods. The Organisation of the Rural Poor (ORP) - a project promoted by the International Confederation of Free Trade Unions Asian Regional Organisation Ghazipur (India) - is now embarking on a new venture in this field. After surveying the situation in one of the 40 villages which the project now covers, it discovered that though the village Sauram had over 100 weaver families residing in it, actually the number of looms working, even intermittently, was no more than 40. Rest of the weavers were obliged to go out of the village to seek employment elsewhere. The ORP, therefore, got in touch with the Appropriate Technology Development Association of India which has close links with the Intermediate Technology Development Group of the U.K. promoted by late Dr, Schumacher, to help it to solve the problem of its member weavers.

The weavers have mainly two problems: firstly they are not always able to get the yarn when they want. It is available to them only when the mills producing the yarn can spare it. Secondly, for the yarn which they purchase from local dealers of the mills, they are required to pay a price 25 to 30 per cent higher than the price at the mills. The reason is that this yarn has to be packed and transported and passes through several hands before it is sold to the weavers. The ORP has, therefore, persuaded the Appropriate Technology Development Association to institute a scheme to help these weavers in installing simple versions of the spinning frames used in the textile mills. This frame which has been especially devised for them will have from 18 to 24 spindles and would be run with half horse power motor. There will also be provision for running the frame by pedalling as electric energy failures are not uncommon. The ORP will motivate its members as well as assist them in buying the frames by helping them to secure loans from banks. The Appropriate Technology Development Association will ensure that the frames are competently manufactured and that they produce yarn of specified quality which may be in the beginning from 20 to 40 counts - adjustment to be made through the mechanism of a gear fixed in the machines.

The project also has provision for providing pre-spinning facilities, post-spinning facilities, pre-weaving facilities, post-weaving facilities as well as other services like giving new designs and patterns as well as help in the marketing and storing of products. The pre-spinning facilities will include purchase of cotton at wholesale rates, suitably mixing the staples of different lengths, blowing and cleaning of cotton and making of slivers to enable the weavers to take the spindles to their homes and put it on their spinning frames. When the yarn has been spun

new spindles of alivers will be provided and the yarn spun will either be used by the weaver on his own loom or sold in the market. In case the weaver decides to use it himself he will be provided with certain pre-weaving facilities akin to those available in ordinary mills.

Guidance with regard to designs and patterns will be given so as to ensure that the cloth prepared is marketable and fetches a good price.

After the weaving is done the finishing processes as obtain in the mills would be provided centrally through the service established in the project. In addition, wherever necessary, guidance and help in marketing would also be provided. It may be mentioned that for each of the service provided a charge would be made and therefore ultimately the servicing will be no burden on the Organisation of the Rural Poor or the Appropriate Technology Development Association but will be

self-financing. However, these services would help the weaver to stand on his own legs and fight any competition. The calculations made by

the experts have indicated that economically it is ^a sound and viable proposition. The success or failure, however, hinges on the quality

of leadership and the organisation to provide the services to the weavers. Most of the cottage industries have failed, not always

because of inadequacy of technology, but because of lack of sufficient organisational support and servicing. This aspect is often ignored

and passed over both by governments and technologists. But without this support development of rural industries is bound to be difficult

and slow. However sympathetic and keen to assist the poor a government may be, the invariable experience has been that bureaucratic approach

to servicing seldom succeeds in providing the facilities to those for whom really they are meant. The powerful elites more often succeed

in cornering most of the benefits and services.

Technology based on the above principles backed by representative people's organisations giving effective services to the membership alone can help meet the tremendous problem of unemployment and under-employment in the countryside where the overwhelming majority of the people reside. However, these efforts need to be supported and sustained not only by national governments and other official and non-official agencies working for the welfare of the rural poor but also by enlightened international policies for economic cooperation and development. Such developmental assistance, if it is to achieve its aims and purpose, must help strengthen voluntary organisations and ensure that these are actively associated in the implementation of the programmes of international cooperation and assistance.

Technology Transfer

The relationship of technology and economic progress has been stressed by all concerned with economic development. It is even said that those who control technology will control economic progress and development. While a great mass of new scientific and technological discovery is made in the industrialised countries every day, in comparison the existing scientific capacity of the developing countries is very low "including that of enabling them to exploit effectively the existing world store of technical knowledge". It must, however, be emphasised that to modify or adapt the existing technology to the availability of local raw materials, manpower possibilities and social and cultural situation is not easy. It has been stated that "on the average, the technological development stage costs about ten times that of the research on which it is based and requires engineering in addition to scientific skills". According to an estimate, "The United States and Soviet Union

each possess about 18 engineers per thousand of the population, the European countries rather more than half of this while in most of the countries of Asia and Africa, the number ranges from about 1.5 per thousand to practically nothing."¹ The absence of an infrastructure of science and technology in many of the developing countries therefore is a considerable problem in the transference of technology and its effective absorption in the country for promoting economic and social development. Great problem exists in regard to the conditions and cost of transfer of technology which is often imposed by the industrial countries on the developing countries. The following are some of the suggestions which may be considered in this connection:

- (a) Technical knowledge itself, as some one has aptly remarked, is taking the form of "industrial property" owned by individuals, corporations or states. It is bought and sold on the international market like any other valuable commodity. While the purchase of such technological knowledge is costly, it has been pointed out that the life^{of} a patent is often relatively short. There exists, therefore, a vast accumulation of useful technological knowledge which may be freely available. International community should help in the creation of data banks containing such "obsolete" proprietary knowledge and make it available to the developing countries. It must, however, be emphasised that even the successful application of such data and information will depend on the accumulated experience and know-how possessed by the recipient country and in case it does not possess it, consideration will have to be given to borrowing or purchasing it at some cost.

1. RIO: Reshaping the International Order - A Report to the Club of Rome, Dutton & Co., New York, 1976, p 263.

- (b) In respect of technology which is not yet termed "obsolete" there is considerable scope of improvement in the terms of transfer. It has been suggested that the industrialised countries should agree to preferential terms for the sale of various categories of patents and know-how to the third world countries, the difference between such terms and those which prevail between the industrialised countries should be borne by the governments of industrialised countries. For facilitating the developing countries to choose the right technology it will be desirable to prepare catalogues giving "the whole range of available firm specific or system technologies."
- (c) Internationally financed consultancy services should be promoted to give assistance to the developing countries. Broadly the functions of these consultancy services should be (i) to help in the modification and implementation of the borrowed technology in the given local situation conditioned by availability of skilled personnel, raw materials and other industrial infrastructure; and (ii) to help in the establishment of competent research facilities which should be suitably linked with research and expert institutions in industrial countries for development of new innovations and techniques as well as for the modification of already successful techniques.

In a thought-provoking article Dennis Goulet, who is essentially a philosopher, has made some remarks which are very pertinent and appropriate. He states: "My basic conclusion from a cursory exploration of technology transfers is that technology has now become the major source of development. Paradoxically, however, technology is also the cutting edge of the policy

used by the industrially advanced societies to domesticate Third World development. Consequently, technology is perhaps the most vital arena where cultures and sub-cultures will either survive or be crushed. Their absorptive capacity will be tested in this arena."¹

Technology, therefore, assumes bigger and bigger dimensions. Dr. Schumacher has very aptly remarked that to leave technology to experts "means to side with the people of the forward stampede". He goes on, "It is widely accepted that politics is too important a matter to be left to experts. Today, the main content of politics is economics, and the main content of economics is technology. If politics cannot be left to the experts, neither can economics and technology."²

The relationship of technology and sociology is two-fold. Firstly, it is related to the cultural setting, traditional values, aptitudes and attitudes of the people. These condition technological and industrial progress and economic development. On the other hand there are influences, which modern technology and industrial development based on it, have ~~their effects~~ on the attitudes, behaviours and even values of individuals. Sri Aurobindo in his essay on "Civilisation and Barbarism" has very beautifully commented on the situation: "On the one hand, modern science has prepared for us an age of wider and deeper culture, and has thereby rendered impossible the return of the barbarian mentality. But on the other hand, it has encouraged, more or less indirectly, both by its attitude to life and its discoveries,

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1. Denis Goulet: "The Paradox of Technology Transfer", The Bulletin of the Atomic Scientists, V.31, No.6, June 1975, p 46.
 2. E.F. Schumacher: Small is Beautiful, Radhakrishna, New Delhi, 1977, p. 147.

another kind of barbarism - for it can be called by no other name - that of the industrial, the commercial and the economic age." He goes on: "Just as the physical barbarian makes the excellence of the body and the development of physical force, health and prowess his standard and aim, so the economic barbarian makes the satisfaction of wants and desires and the accumulation of possessions his standard and aim. His ideal man is not the cultured or noble or thoughtful or moral or religious, but the successful man. To arrive, to succeed, to produce, to accumulate, to possess is his existence. The accumulation of "wealth and more wealth, the adding of possessions to possessions, opulence, show, pleasure, a cumbrous inartistic luxury, a plethora of conveniences, life devoid of beauty and nobility, religion vulgarized or coldly formalized, politics turned into a trade and profession, enjoyment itself made a business: this is commercialism. To the natural, unredeemed economic man beauty is a thing otiose or a nuisance, art and poetry a frivolity or an ostentation and a means of advertisement. His idea of civilization is comfort, his idea of morals is social respectability, his idea of religion at best a pietistic formalism. The opulent plutocrat and the successful mammoth capitalist, and organiser of industry, are the supermen of the Commercial Age and the true, if often occult, rulers of its society"¹ Mahatma Gandhi has also expressed himself in the same strain. A British writer Edward Thompson is reported to have told him that wild life was fast disappearing, implying perhaps the impact of growing industrialisation. The Mahatma was quick to remark "It is decreasing in the jungles but it is increasing in the towns!"²

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1. Quoted by G.V. Devan Nair in his article "Social Aspects of Technological Change", published in "One World Only - Industrialisation and Technological Change in Asia - Its Implication for the Asian Labour Movement", Friedrich Ebert Stiftung, 1969, Report No.9, p.3-4.
 2. Quoted by Indira Gandhi in her speech "Life is one and the world is one" delivered at the United Nations Conference on Environment, Stockholm, 1972, Centre for Economic and Information, United Nations, European Headquarters, Geneva, 1972, p 18.

Role of Trade Unions

It is obvious that workers have ~~the~~ ^{the} great ^{est} stake in the effective implementation of measures to ensure a cleaner working environment and safer and less hazardous working conditions. Therefore, the trade unions which are the authentic voice of the working people must play a role of critical importance in this respect. As was very correctly pointed out by Professor Irving Selikoff of the Mount Sinai School of Medicine, New York, who headed a group of thirty top scientists participating in the International Metal Workers' Federation World Conference on Health and Safety in the Metal Industry in Oslo, August 16-19, 1976 that "the variety and subtlety of agents now used in the workplace put new tasks on scientists. Not only to know the acute overwhelming toxic effects, but the slower more insidious effects of lower exposures; of the complicated neurological effects of new solvents, and the extraordinary risks of cancer now seen in work places with agents previously accepted as safe."¹ A telling example was given at the Conference concerning experiment on the effects of solvents. When experiments were being made the worker was at rest. Later research found that physical activity increased the absorption rate so that a worker at his job would be more at risk than those in laboratory conditions. Science, the warning so given, cannot screen the 7,000 new chemicals being used each year. Therefore, there was a great responsibility on the trade unions. Prof. Irving Selikoff went ^{on} ~~out~~ to state "occupational disease is preventable disease. The prevention of preventable disease in the 1980's - 1990's and the year 2000 depends on your judgment, your determination and your decisions."²

1&2: IMF News Nos 16/17 - August 1976, p.1.

Herman Rebhan, General Secretary of the IMF declared at the Conference that there ^{were} 160,000 industrial accidents every day. "Every year hundreds of thousands of working people throughout the world lose their lives and another million and a half are permanently disabled as a result of accidents at work or occupational diseases."¹ It was stated at the Conference that a little more than a generation ago working men in heavy industry in the United States could not even qualify for life insurance. The insurance companies considered a worker in a steel mill or in a mine or in a factory too great a risk!²

The trade unions will not only have to help in the identification of hazardous processes in production but will also have to take the responsibility to educate their members into the risks involved and the procedures and machinery set up by governmental agencies for the purpose, as well as, the provisions that may be existing to safeguard the working people. Their vigilance and watch will ensure the effective implementation of the provisions.

Trade unions in the metal industry throughout the world under the leadership of the IMF have already taken commendable initiative in this respect. The chemical workers and their unions and their international organisation ICF have also been pioneers in this field. It is reported that "The West German chemical unions have taken important leadership roles in creating and directing the Berufsgenossenschaft der Chemischen Industrie: a joint labour-management body created to study problems arising in the chemical industry. In the US and Canada, the

1 Ibid, p 1

2 Ibid , p 2

United Rubber Workers and the Oil, Chemical and Atomic Workers' unions were successful in pioneering an important set of collective agreements dealing with industrial safety. These agreements specify that the corporations with whom these agreements were negotiated will each contribute a fixed sum of money per hour per employee into a fund for contracting with a recognized medical research laboratory (Harvard Medical School, Mt Sinai Medical School, and other universities) to conduct ongoing research studies on occupational hazards in the corporation's plants. It was largely through these medical specialists that much of the current research on industrial hazards has seen the light of day. Their research continues and has led other unions to begin negotiations to achieve the same kind of agreements for their industries."¹

Perhaps the most impressive demonstration of the determination of the workers to achieve more human and safer conditions of work as well as greater voice in the working of the undertaking was provided by the famous strike of the German Metal Workers' Union (IG Metall) in Württemberg in 1973. This ended with the conclusion of a new collective agreement on a regional level, which secured for the workers greatly extended co-determination rights on the shop floor as well as numerous improvements in working arrangements and schedules. This has also brought to prominence what should have been obvious all along namely, the importance of greater industrial democracy.

The PIACT² Programme of the ILO, which is claimed to represent

1 Charles Levinson: The Malevolent Workplace, *AMBIO - a Journal of the Human Environment, Research and Management*, V 4, No 1, 1975: p 28.

2 PIACT (International Programme for the Improvement of Working Conditions and Environment) comes from the French initials of the Programme.

"a blend of continuity and innovation" covering "some of the earliest pre-occupations of the ILO together with some of the newest problems and concerns" is most welcome. Its methods of action combine the traditional tools of the ILO with a new group designed to reinforce their effectiveness and practice. Briefly the approach is as follows:

- " - it encourages member States to set definite objectives for the improvement of working conditions and environment;
- it seeks to use in a co-ordinated fashion the different means of action of the ILO to help member States attain these objectives;
- it treats problems of working conditions and environment globally, integrating, for example, the traditionally, separate fields of conditions of work and occupational safety and health;
- it views these problems in the wider context of general economic and social policy.

Under this approach, the scope of working conditions and environment is very broad. It includes:

- safety and health in the work process and at the workplace;
- ergonomics;
- hours of work and other problems of working time;
- specific aspects of remuneration, such as payment by results;
- work organisation and content;

- working conditions and choice of technology;
- the living environment as it relates to work."¹

In order to ensure effective implementation of the programme and to enable the trade unions to make their critical contribution the following broad lines of action are suggested:

1. It is essential that there should be greater cooperation between the experts in the scientific and technological fields as well as the trade unions for the purpose of putting the new chemicals and other substances as well as processes to rigorous testing before they are introduced as well as to undertake jointly research into their effects once they have been put into practice. The earlier discussions overwhelmingly point to such a need. The International Labour Organisation as well as the UN system must help in the realization of such a programme and use their good offices to persuade member governments to give every kind of encouragement - material assistance and facilities - to the two groups namely, technological and scientific experts and the trade unions to undertake this task.

2. A vigorous programme of workers education should be encouraged through trade unions to educate workers into the problems of working and human environments and the necessary precautions and safeguards provided by legislations as well as the machinery for their implementation established by the government.

¹ Examination of Proposals for the Agenda of the Ninth Asian Regional Conference: International Labour Organisation Asian Advisory Committee Seventh Session Manila, 29 November-8 December 1977, p. 34.

This dissemination of information will not only create greater consciousness but ensure greater participation in effective execution of measures to ensure a more humane and safer working and human environment.

3. Greater stress must be laid on industrial democracy and the involvement of trade unions in the determination of conditions in the working environment. The workers through their representative organisations, namely trade unions, must be put in a position to effectively participate in policy decision-making before new processes and products affecting working conditions are introduced.

4. Programmes for the improvement of human settlements must become an important and integral component of environmental policies. In this respect workers housing both in the urban and rural areas must be given a high priority and trade unions be given fullest encouragement and support - both material and technical-in their initiatives in this field.

We may end by referring to the diagnosis of Tagore and Gandhi, who in their numerous writings made it clear that man's reckless destruction of nature and ruthless exploitation of man are at the root of all the problems of environmental degradation and worsening of human settlements.

ILO: INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT
OF WORKING CONDITIONS AND ENVIRONMENT

PHILIPPINES - FEBRUARY 1977

Preparatory Mission

EXTRACTS FROM THE REPORT BY A. WISNER¹

I. ASSESSMENT OF THE MISSION

1. In a preparatory note for the mission, A. Wisner expressed his doubts regarding the possibility of completing the work envisaged during a very brief stay (25 days in the Philippines). It will be seen that the field of agriculture has not been dealt with, and that of small and medium-sized undertakings has not been covered as fully as had been foreseen.

2. The area of agriculture in a developing country is too extensive to be dealt with at secondary level during one mission. There is a deep rift between the socio-economic system to which agriculture belongs and that of the major towns and their industry. The administrative machinery for agriculture is different from that for industry; the same applies to the research and educational system. It therefore appears necessary to devote special missions to agriculture and rural handicrafts, or to include a specialist in this field among the members of PIACT multidisciplinary missions.

3. In the Philippines, as in all countries, small and medium-sized undertakings are the most numerous and employ the largest numbers of workers, but they are little known and little supervised by the labour inspectorate and the medical and health services; furthermore, they are considered as unsatisfactory from the social and economic point of view, an assessment which is not always fair. The government authorities and employers' organisations do not therefore organise visits to these undertakings. Here again, it seems that a deliberate attempt should be made to go into the question more thoroughly by means of a mission, either of an isolated expert or a member of a PIACT multidisciplinary mission specially appointed for the purpose. We were nevertheless able to visit a handicraft undertaking (bamboo furniture and mother-of-pearl articles) and to discuss the health and labour inspection problems of small and medium-sized undertakings.

¹ Professor of Labour Physiology and Ergonomics at the National Conservatory of Arts and Crafts, 41 rue Gay-Lussac, 75005 Paris.

4. Satisfactory results were, however, achieved in the work done with the Government, the labour administration, employers' circles, trade unions and research and educational bodies. Many individual contacts were made and meetings lasting several hours took place with important groups of these four sectors of social life in the Philippines. During each of these meetings A. Wisner gave a talk, after which each of the participants in turn mentioned his activities and expressed his views on PIACT; this was followed by a general discussion. It was thus possible to obtain a certain image of the Philippines and of the viewpoints of the various social sectors on the problems of working conditions in the country.

II. THE PRESENT ECONOMIC, SOCIAL AND CULTURAL SITUATION IN THE PHILIPPINES

5. While the average income is undoubtedly higher than in other countries of South-East Asia, it is very unevenly distributed. The wages of industrial workers or workers in the tertiary sector remain very low, of the order of 8 to 12 pesos, i.e. of the order of 300 to 500 dollars a year if the worker is fully employed, while the cost of living in the towns is high. As Professor Randolph David has shown, many workers can only afford to spend 2 to 3 pesos a day on food, which explains WHO's findings regarding under-nutrition in a country which is able to produce sufficient food crops.

6. The low incomes and the high cost of living in major urban centres explain why workers are willing to do overtime and dangerous work if they are better paid. This is also the reason why trade unions give priority to wages and employment in their claims relating to working conditions.

7. The pay of professionals is also very low and reflects a high level of unemployment among university graduates. For some authors this helps to explain the low work motivation of middle-level and junior supervisors and their low productivity. It also explains the extent of the brain drain, which is most marked among engineers, technicians and members of the health professions, who leave the country to work abroad (United States, Canada, United Kingdom and the Middle East). Since the cost of training for each member of the health professions is 10,000 pesos a year, emigration results in an annual loss of \$200 million.

8. The level of education is very high in the Philippines and is one of the country's major advantages, particularly as it is added to high technical capacity due to the importance of artisanal activities in the rural areas and smaller towns. The Philippine industrial workforce combines technical sense with literacy in English. Training facilities for manual workers and technicians are inadequate, and the ILO-assisted training centre at Taguig-Rizal, in the suburbs of Manila, is accordingly very useful.

9. Another consequence of the high level of education in the Philippines, which has so far been insufficiently emphasised, is the very high level of research and higher education.

10. A. Wisner was able to appreciate in particular the work of many departments of the University of the Philippines, the Institute of Philippine Culture of the Ateneo de Manila University, the Asian Institute of Management and the Center for Research and Communication.

11. Much could be said about the high quality of the wide-ranging work done by the University of the Philippines, of which only a few examples can be quoted here.

12. Research into the effects of heat on man at work, carried out by Professor Jose of the Institute of Public Health. Professor Jose was also concerned with the Occupational Health Certificate, the training course for industrial physicians which began three years ago and is now given four times a year; it is attended by groups of 40 industrial physicians (evening courses for six weeks).

13. The work of the Department of Anthropology, of which a recent and outstanding example, entitled "Work: four community studies", is attached to this report. The book deals with the notion of work in four communities, three in Greater Manila and one in Bulacan, a medium-sized town. The authors adopt a structuralist approach and use the method of linguistic analysis. This approach shows the originality of Philippine culture, since only Tagalog words may be used by the persons questioned to describe their life, and in particular their work. The leader of the group was Professor F.L. Jocano.

14. The Department of Sociology of the University of the Philippines is also of a very high standard. Apart from the extremely interesting work of Professor Rubio, devoted to an analysis of the situation of Philippine technicians in Papua New Guinea, mention should be made of the important work and the outstanding personality of Professor Randolph David. Even if one does not necessarily share the socio-political views of Professor David, one cannot but admire his powerful sociological analysis of the relations between workers and management, in particular the relations between Philippine and foreign managers within multinational enterprises.

15. It will be noted that Professor David also accords much importance to Tagalog and often intersperses his English text with passages in the characteristic Philippine language.

16. Because of the outstanding quality of Philippine scholars and their exceptional powers of analysis one can detect a legitimate impatience in their reactions to what they feel is a paternalist attitude on the part of the ILO and its experts.

17. Relations with Philippine scientific circles must be on a footing of absolute equality. ILO experts must be told that, while the Philippines and its scientists would undoubtedly derive benefit from the communication of certain types of knowledge and methods of work, such knowledge will be assimilated by highly intelligent and cultured people.

18. Philippine scientists suffer first and foremost from lack of material facilities. Their salaries are very low and their research facilities virtually non-existent. They expect material assistance from the ILO.

19. Another difficulty experienced by university staff in the Philippines and elsewhere is the lack of communication between them and the various groups of society. The mission provided an opportunity to organise meetings which had never before taken place, and this leads one to the conclusion that an important aspect of the ILO programme might be to intensify communications.

20. Although the Philippines has been severely affected by the economic crisis, because of the vulnerability inherent in any rapid growth, its economy is nevertheless in full development. The growth of the country is resolutely oriented towards industry, in particular for the export market. Leading personalities are fond of citing not only the case of Japan but also those of the Republic of Korea, Taiwan and Singapore as models of development.

21. Surprise is often expressed at the difference in productivity between Philippine undertakings and those of other countries in South-East Asia which are going through an economic boom. According to Secretary Ople, this is probably due to differences in living and working conditions (wages, housing). This explanation, which is probably the right one, should enable the ILO to obtain considerable success with PIACT among leading circles.

22. Situations differ widely in the industrial sector from one part of the country to another. A. Wisner had the opportunity to make a two-day visit to the most advanced factory from the point of view of conditions of work that he had ever seen, namely that of the Japanese firm Philippine Sinter Corporation; a handicraft undertaking such as might have existed in the Philippines a century ago, but with a better ambient temperature and better work organisation than those to be found in many modern undertakings; and a steel works where the elementary rules of organisation and safety were not observed. Thus in the Philippines, as elsewhere, one should not generalise as regards existing working conditions, but one can be confident that changes can take place, as in fact they are already doing.

to visit
in two days
the most

23. Finally, a brief review should be given of the general characteristics of the Philippines. The country is inhabited by Malay peoples who lived for 400 years under Spanish domination and 80 years in the American system.

24. The deep-rooted identity of the country remains Malay. There is even a renaissance of the Tagalog culture, which is often encouraged by the Government and which is marked among university circles.

25. This Malay identity largely explains the ease of communication with the other countries of the ASEAN pact (Indonesia, Malaysia, Thailand and, to a lesser extent, Singapore), not to mention close economic, social and political analogies. Relations are more difficult with other cultural areas in the region (India, China and Japan). Nevertheless, despite the economic power of Japan, which has had a strong impact in the Philippines, and a sometimes difficult past, communications appear easier with persons of Asian origin than with those of European, American or Australian origin.

26. This implies the need to organise meetings and training facilities among the Eastern Asian countries, but particularly within the ASEAN pact. This fits in neatly with the ILO's organisation in Eastern Asia around the Regional Office in Bangkok, and with meetings such as the Asian Regional Seminar on Occupational Safety and Health in Relation to Productivity, held in Singapore from 24 November to 4 December 1975. Another appropriate meeting, although on a more limited scale, was the 16th Seminar on Health and Industry in South-East Asia, held in Manila from 23 to 27 November 1976 under the aegis of the South-East Asian Ministers of Education Organisation (SEAMEO) and the SEAMEO regional project for tropical medicine and public health (TPOPMED). These organisations comprise five Asian countries: Indonesia, Malaysia, the Philippines, Singapore and Thailand. Cambodia, Laos and Viet Nam formerly participated actively in them and Australia, France and New Zealand were associated with their work.

27. While the Philippines would obviously welcome ILO co-operation in various national activities, regional initiatives would also be welcome.

III. EVALUATION OF THE NEEDS OF THE PHILIPPINES
IN THE FIELD OF CONDITIONS OF WORK

A. A typology of industrially
developing countries

28. A system of classification should be set up for countries undergoing industrial development. The criteria might be financial (national financial resources and debts, trade balance, monetary stability), economic (gross national product (GNP) in relation to population, distribution of the GNP in various sectors of society, among rural and urban populations), social (nutritional and health status, social welfare) and cultural (literacy, importance of higher education and research).

29. As already indicated, the Philippines is in a favourable position because of its dynamic economy and its high level of traditional and modern culture. Nevertheless both these positive features give rise to serious problems which demand appropriate solutions.

B. Positive and negative effects
of industrial development

30. Economic dynamism has resulted in an industrial boom accompanied by intensive development of building and public works. This development, however, poses problems, not only where it is taking place but also where it is lacking.

Effects on industrialised
areas and towns

31. In areas where industrial development is taking place, i.e., mainly in Greater Manila (Metro Manila) and in the major provincial centres (Cebu and North Mindanao), the usual negative phenomena appear: proletarianisation of the rural masses who have immigrated to the towns, are crowded into slum areas and forced into marginal economic activity; bad working conditions and inadequate transport for industrial and service workers; and pollution.

Effects on non-industrialised
zones and the rural areas

32. In areas where industrial development is not taking place, namely over most of the country, which still consists of rural areas and small towns, certain observers have noted

an impoverishment of the population and an increase in the number of landless farmers despite land reform legislation, combined with a reduction in the number and scale of activities of small local undertakings, which are forced out of business by competition from larger industries.

C. The social effects of industrialisation

33. Without making careful studies it is very difficult to gauge the extent and gravity of the negative aspects of industrialisation. Although economists may believe that the industrialisation of a country is the only way of developing its resources to keep pace with the increase in its population (3 per cent per annum in the Philippines), this can hardly take place without serious social and cultural consequences. Furthermore, the favourable effects of industrial development are far from being automatic, and the "trickle-down effect" is not achieved spontaneously. It is therefore necessary to gain a knowledge of the various phenomena before taking action.

34. The works of E.L. Jocano and R.S. David and their collaborators, of the University of the Philippines, provide an interesting social assessment of the results of industrialisation and urbanisation. Much can also be expected of the study entrusted to the Institute of Philippine Culture of the Ateneo de Manila University which has a remarkable research team with whose members the writer had a long and interesting conversation. Another study entitled "Project for the improvement of conditions of landless and other rural workers in the Philippines", has been prepared by Mrs. Ahmad of the ILO, Geneva. A further project, prepared by Miss Dy of the Conditions of Work and Life Branch, ILO, Geneva and entitled "Choice of Technology and of Working Conditions" is important in this field and is to be executed by an outstanding institution of the University of the Philippines, namely the Asian Labor Education Center (ALEC), where the writer took part in a most interesting meeting and where he discussed conditions of work, ergonomics and PIACT.

35. Studies of this type should be developed on a large scale in order to prepare for co-ordinated activity in the future, not only in the Philippines but also in other countries which have reached an advanced stage of industrial development or which are embarking on this process.

D. Improvements in industrial situations

36. Other types of studies do not challenge the need for industrial development, but attempt to seek means of avoiding

the negative effects of such development on the workers who are themselves its instruments. In this field of activity other types of institutions and other authors are to be found. Thus the Center for Research and Communication is not interested in studies on the negative aspects of transfer of technology, but has supplied an interesting document, describing six studies recently completed or still under way in the Philippines, in which attempts are made to examine industrial situations for the purpose of improving them and making them more acceptable to the workers.

37. The same trend is followed by C.R. Gordon and J.B. Harrison on their course on total loss control, the report to WHO prepared by Dr. Rispler following his mission on medical inspection of labour in the Philippines from 15 September to 14 November 1976, and even by Mr. Democrito T. Mendoza, General Secretary, KMP TUCP, in his address to the Tripartite Conference on Occupational Health and Safety (6 December 1976).

38. All these studies fall within the traditional context of the ILO's action to avert the unfavourable consequences of industrial activity, but do not contest the need for its existence. In this connection it is interesting to note the views repeatedly expressed by Mr. Ople, Secretary of Labor of the Philippines, in particular during the Eighth Asian Regional Conference of the ILO, held in Colombo from 30 September to 9 October 1975, on the report of Professor Ranis on the employment strategy to be adopted in the Philippines. With a view to achieving full employment Professor Ranis suggested the opening of the frontiers of the Philippines and unconstrained industrial growth. Speaking of the report Mr. Ople said that "its flaws ... consist of a somewhat hesitant, if not condescending attitude towards protective legislation for workers and the role of tripartite collaboration in development".

39. Similar viewpoints to those expressed by Professor Ranis may also be found in the Philippines in institutions such as the Asian Institute of Management.

40. Finally, there is one school of thought which unites all socio-economic tendencies in the Philippines, namely that of the Institute of Small-Scale Industries and its Low-cost Automation Programme. Among the strong points of Professor Ranis's report are his proposals for mobilising the interior of the country, not only the agricultural and handicraft sector but also the industrial sector. These recommendations are fully approved by Mr. Ople. Furthermore, they are in line with the socio-cultural preoccupations of F.L. Jocano, R.S. David and the Institute of Philippine Culture of the Ateneo de Manila University, and offer a realistic response to the concerns underlying the research which is shortly to take place on landless peasants and the choice of technology.

E. The intellectual resources of the Philippines

41. Another important feature of the Philippines, as of other countries of the same type, is the high level not only of its research workers and professors, but also of its administrators, engineers and doctors. Work must be limited to organisation and training and not to supplementing the efforts of the Filipinos themselves, who must do most of the concrete work. There are, however, two types of obstacles, financial and psychological.

42. As regards the financial obstacles, stress should again be laid on the slender resources of the public budget of the Philippines, a characteristic feature of a country in course of economic development. The social security contribution for occupational accidents and disease is 1 per cent of wages. This means that only limited resources are available for health, labour and the University. Care should therefore be taken not to recommend inspection and control measures which are too elaborate and would require unrealistically large budgets. Wages, travel expenses, and experimental and teaching facilities in the universities are also limited.

43. The situation is further aggravated by the lack of relations between the University on the one hand and the State and industry on the other. This is due to ideological reasons, but also to a lack of contact which it should be possible to remedy within the framework of ILO activities.

44. Another aspect of the difficulties of employing the considerable talents of Philippine intellectuals, whether in the administration, industry or the University, is their insufficient awareness of their own value. Admittedly, the inadequacy of facilities for research and self-expression (few books and reviews are published) does not favour international recognition or, indeed, any kind of recognition at all. This is an aspect which may appear of secondary importance, but which in the view of the writer is essential to the successful creation of an original industrial civilisation.

F. Role of the ILO

45. In the light of the foregoing considerations, the requirements of the Philippines are in the fields of initial and further training of experts, administrators, engineers, etc., and in identifying problems through research such as that described above and through national and specialised regional meetings in the field of conditions of work in various sectors of the economy.

IV. RECOMMENDATIONS

46. Our recommendations may be grouped under three headings, in descending order of importance: Philippines, South-East Asia, PIACT.

A. Recommendations relating to the Philippines

47. Many proposals were made by the various groups of Filipinos we met. Furthermore, the intellectual resources of the Philippines are adequate to enable pilot projects for South-East Asia or PIACT to be entrusted to Philippine teams. The recommendations will be grouped under five headings: meetings, training, research, agriculture and small and medium-sized undertakings. The last two categories have been dealt with in isolation because of the remarks made in Chapter 2 of the present report.

48. Meetings. It was clear that the meetings organised on the occasion of our mission had a positive effect, above all because they brought together Filipinos from different sectors to work in the field of conditions of work. Meetings may be of three types: general meetings within particular groups, general meetings between groups, and specialised meetings.

49. The purpose of general meetings within particular groups is to enable people having similar or convergent activities to get to know each other, to exchange knowledge and experience and to propose action to the authorities. The following examples may be cited:

50. Meetings of inspectors of labour at national or regional level for purposes of training and information. Mr. Nuesa of the Bureau of Labor Standards asked for ILO assistance for meetings of this type. Such meetings might take place at the Tagaytay Centre.

51. Meetings of engineers and technicians in the field of safety and conditions of work similar to that held on Thursday, 10 February at the Department of Labor. The group suggested that it should meet on a permanent basis. A framework can be found either within the Department of Labor or within existing organisations, which are at present oriented more towards large symposia (Safety Organisation of the Philippines (SOPI): World Safety Organisation (WSO)).

52. Meetings of industrial physicians. Mr. Ople attaches much importance to the training of physicians concerning industrial matters. Secretary Gatmaitan shares this concern. Such meetings might take place within the

framework of the Departments of Labor and Health, existing organisations which are also oriented more towards symposia (World Health Foundation of the Philippines (WHF), Industrial Medical Association of the Philippines, Philippine Association of Occupational Health) or the remarkable Institute of Public Health of the University of the Philippines which trains industrial physicians in the country.

53. Meetings of sociologists, anthropologists, economists and engineers. The capacity of Philippine intellectuals is so considerable that the ILO will probably have to make a special effort to encourage meetings to study the relationship between technology and society. This point will be developed further in connection with the project on some indications of the technology transfer in the Philippines.

54. Meetings of industrial engineers, physiologists and psychologists specialising in ergonomics, the adaptation of work to man and the design of machines for Philippine workers.

55. This field is very important for the adaptation of technology to tropical countries, particularly to the Philippines, but it has not given rise to the formation of any group or society. The ILO might make a decisive contribution towards focussing interest on this question.

56. Meetings of trade unionists on the subject of conditions of work could be of considerable interest, in the light of the research done by the Philippine Labor Co-ordinating Center, which preceded the present TUCP, on the effects of unionisation on the improvement of conditions of work, and the opinions expressed by Mr. Democrito Mendoza.

57. Last but not least, there are the employers' meetings organised within the Employers' Confederation of the Philippines (ECOP) similar to that which was held on the occasion of the mission. Suggestions for major studies were made at this meeting. Useful meetings might take place at regional level and in special fields: large undertakings (perhaps within the framework of Philippine Business for Social Progress), small and medium-sized undertakings, agriculture and food industries, merchant navy, hospitals, etc.

58. We have seen that there are many kinds of general meetings of particular groups, but the number of general meetings between groups that might be held is theoretically even higher. We feel, however, that only those which are essential to the preparation and evaluation of activities should be organised, but that the concrete repetitive work can be done only in specialised groups, except in the case of specific activities.

59. The most essential meetings are tripartite meetings and meetings between industry and research bodies.

60. Tripartite meetings are the most important. They are at the heart of the ILO's principles and those of Mr. Ople. It would appear important to organise on a centralised basis (Ministry of Labor and NEDA - Planning Authority) a permanent tripartite group consisting of government, employers' and workers' representatives in the field of conditions of work, health and safety.

61. Meetings between the university and industry are vital in every country, despite the difficulties of all kinds which their organisation involves. Nevertheless, the educational system, and in particular the university, provides knowledge and training to the supervisory staff and employees needed by the economy, and these two important groups must not work in isolation.

62. Two types of meetings might be held on the subject of conditions of work, one type at the level of general organisation between university heads, the National Research Council and the directors of ECOP, the other type at the level of research workers and those engaged in practical work, on the one hand labour inspectors, engineers and technicians dealing with safety and conditions of work, and industrial physicians and, on the other hand, sociology and technology and ergonomics. A meeting of this kind held at the Ministry of Labor on 10 February 1977 proved to be highly successful.

63. General meetings of particular groups and between groups provide exchanges of knowledge on planning and control. As regards direct preparation for action, it is essential to organise specialised meetings and to set up temporary or standing groups to study more limited problems.

64. We have mentioned above a number of fields of activity of interest to employers' groups and to other social sectors: small and medium-sized undertakings, agriculture, merchant navy, hospitals. It might be possible to create specialised working groups for even more limited objectives: artistic handicrafts, hotels and restaurants, public works, sugar refineries, canneries, coconut plantations, rice cultivation, etc.

65. In many cases there already exist institutions in these fields, or organisations which might be the focal point for meetings of labour administrators, employers, trade unionists, engineers, technicians, ergonomists, sociologists, etc., competent in the relevant fields.

66. Training. The need for meetings has been observed in all fields; one might take the same sectors of activity and make a list of the requests for training which have been

expressed. It is often considered that the ILO should play an active role in this area, although training resources in the Philippines are considerable. The Filipinos rightly believe that the ILO and centres in industrially developed countries, as well as experts from such countries, can import methods which have produced tried and tested results, but they also lay stress on the specific social and cultural features of South-East Asia, in particular the Philippines. These social and cultural features must be borne in mind in all projects relating to conditions of work and life, and a reassessment of the very important contributions of industrially developed countries must accordingly be made.

67. Requests for training are numerous in the Philippines and cover labour inspectors, occupational safety engineers and technicians, industrial physicians, trade unionists, middle-level technicians and supervisory staff, and engineers in general. Requests are made for training at four levels: general, specialised, high-level specialised, and long study courses abroad.

68. General training in the field of conditions of work and safety may be given to secondary school pupils, particularly in the technical sector. This might be done experimentally at the ILO Technical Training Centre at Taguig-Rizal.

69. A special aspect of this general training is that relating to engineers. According to recommendations made by OECD and COMECON long ago (20 years), courses on conditions of work and safety should be organised in all engineering schools. Prof. Waldo Perfecto considered such courses essential.

70. Specialised training of persons having a direct role to play in the field of conditions of work and safety may be given in full-time courses lasting 30-100 hours (1-3 weeks). They can be carried out mainly by Philippine specialists, but they would derive great benefit from the assistance of ILO experts.

71. According to Mr. Ople, there has been an urgent need for the training of labour inspectors for a number of years. It is partially the subject of a project proposed by Mr. Nuesa to the ILO over a year ago, entitled "Strengthening the Bureau of Labor Standards through manpower development".

72. The training of safety engineers and technicians is also part of Mr. Nuesa's project for the study of total loss control.

73. The training of industrial physicians is requested by Messrs. Ople and Gatmañtan. Interesting activities have been carried out in this connection under the leadership of Prof. Jose at the Institute of Public Health. Such training might be further developed.

74. The training of trade unionists in the field of conditions of work and occupational safety and health has been specifically and repeatedly requested by Mr. Democrito Mendoza, General Secretary of the Trade Union Congress of the Philippines, and by Mr. Cecilio Seno.

75. The training of technicians and foremen in work organisation, quality control, maintenance, conditions of work and occupational safety and health has been requested by a number of employers, in particular by Mr. Mano Otaka, Technical Director of the Philippine Sinter Corporation, who has specified his requirements in some detail.

76. High-level specialised training is designed to improve the qualifications of those who are to be responsible for the types of training mentioned above, carry out research and act as consultants to the Government, undertakings and trade unions in the field of conditions of work and occupational safety and health.

77. Training seminars might be held for university staff, for senior personnel in undertakings, and for trade union leaders. They might cover new fields, or fields which are being penetrated by new ideas, such as:

- modern safety concepts
- ergonomics
- sociology and technology (technological alternatives)
- toxicology (possibly in co-operation with WHO).

78. The participation of experienced international experts in the discussions would be essential, and Philippine experts could also make a significant contribution.

79. Such courses might also take place at the level of all the countries of Asia, although the Philippine experts would probably be more numerous in proportion to the others, better informed of scientific developments and better prepared to face the problems of a society which has progressed further along the path of industrialisation.

80. One- or two-year courses abroad would seem essential to enable a number of Filipinos to attain the level of international specialists.

81. The fields proposed are the same as those mentioned above for high-level specialised training.

88. The ILO Occupational Safety and Health Branch is discussing with the World Bank the possibility of similar measures, namely the inclusion of occupational safety and health standards in conformity with those of the ILO in specifications for equipment to be used in World Bank projects. A study of this kind might be carried out in large industrial complexes in the Philippines, initially by means of a critical study of the recently built Bataan zone (near Manila) and a preparatory study of the future Mactan zone (Cebu).

89. These projects, which would combine technical studies with knowledge of ergonomics and occupational safety and health, have been requested by the Government and employers of the Philippines and can to a large extent be carried out by national bodies, which the ILO should, however, encourage to collaborate with each other and with a number of experts from industrially developed countries. Thus, the anthropometric data obtained on Philippine workers by the Child and Youth Research Center should be used by engineers designing machinery suitable for the Philippine population.

90. Trade-union-oriented research. As already mentioned, the Philippine Labor Co-ordinating Center which preceded the Trade Union Congress of the Philippines carried out a study in 1975 on the role of trade unions in improving working conditions and safety and health. Such studies should be developed in accordance with the wishes of Mr. Democrito Mendoza and Mr. Cecilio Seno.

91. Use might be made of the original system of the nine full-time trade union doctors working in different parts of the country (Port of Manila 3, Cebu 2, Baguio 1, Davno 2, Maracana 1). It would doubtless be possible to obtain from these doctors important data on work and its pathology, in particular among dockers.

92. Migrant Philippine workers are the common concern of Mr. Oca, President of the Trade Union Congress of the Philippines, a number of directors of undertakings, leading members of the nursing profession, etc. An interesting study has already been carried out in Papua New Guinea by Prof. Rubio (Department of Sociology of the University of the Philippines). This problem is at the core of the ILO's concerns. Philippine migrant workers are generally highly qualified and they migrate to a wide variety of countries (United States, Canada, Middle East, South Pacific).

93. Agriculture. Although the writer did not have the opportunity to make a serious study of agricultural problems during his mission in February 1977, he gives below a few suggestions arising out of his other missions to tropical countries.

94. Among the innumerable problems mentioned by directors of undertakings in the Negros Occidental sugar-producing area, by trade unionists (Mr. Zoilo de la Cruz, President of the National Congress of Unions of the Sugar Industry of the Philippines, and his colleagues, and by Mr. Jeremias Montemayor, President of the Federation of Free Farmers), by national and regional labour authorities and by members of the health profession (Dr. Dy, WHO) are the following.

95. The nutritional and health status (parasites) of the poor farmers. Particular stress is laid on the inadequacy of the medical and health system and the lack of proteins in settlements located far from the sea or a river suitable for fishing. Livestock products are often non-existent, or, if they do exist, are often sold. WHO might prepare a plan of research and action; Dr. Dy is highly favourable to this. A focal point for the action might be the Nutrition Center directed by Dr. Florentino Solon.

96. The foregoing problems are rooted in the problems of poverty in all its aspects. Action is being taken by Mr. Montemayor's federation, and field research is being conducted by the Institute of Philippine Culture of the Ateneo de Manila University, which has been entrusted with the task by the ILO on the basis of a preparatory report by Mrs. Ahmad of the ILO in Geneva. Such studies, for which there is a pressing need, should be developed, and that entrusted to the Ateneo de Manila University will certainly produce fruitful results.

97. Social measures to improve health, nutrition, housing, etc., have been developed by certain planters in Negros Occidental, in collaboration with the Federation of which Mr. de la Cruz is President. An evaluative study of this action would be very interesting.

98. The material means of the unions of poor peasants are very slender and should be supplemented by international assistance in the form of training and information materials.

99. Research into the conditions of work in agriculture might be improved on the basis of existing institutions: the Los Banos Rice Institute, the La Salle College of the University of Negros Occidental, the College of Agriculture of the University of the Philippines, and the Institute of Philippine Culture of the Ateneo de Manila University.

100. The diversification of the agricultural and industrial activities in single-crop areas (sugar cane) is a point of world-wide importance. Encouragement might be given to studies such as that being carried out at Victoria Mills (Negros Occidental) by Prof. Fred Avestuz of the College of Business Administration of the University of the Philippines.

101. Other fields for study might be explored with Prof. José Domingo of the Agrarian Reform Institute of the University of the Philippines and a former ILO expert in Sri Lanka, and with Dr. Juan Flavier, Director of the International Rural Reconstruction Movement of the Philippines (CAVITE).

102. Such activities would fit in well with the action-oriented research project for the improvement of conditions of work and life of rural workers of the ILO.

103. Small and medium-sized undertakings. Like agriculture, this is an immense field and one which has been very little studied even in the rich countries; PIACT missions should be specially oriented to deal with its problems.

104. Labour inspection (Mr. Ople, Mr. Nuesa), occupational medicine (Mr. Gatmaitan, Dr. Dy) and technology are inadequate in small and medium-sized undertakings.

105. There does, however, exist in the Philippines a remarkable institution, namely the Institute of Small-Scale Enterprises of the University of the Philippines with its Low-Cost Automation Center. ILO assistance to this institution should be recommended, as well as assistance to other institutions of a similar nature (Regional Adaptive Technology Center, Mindanao).

106. It should be possible to obtain a contribution from the World Bank on the basis of the Ranis report on employment, which on this point coincides with the position of the Philippine Government (development of the interior).

B. Recommendations relating to Asian countries and to South-East Asia

107. Although the ILO mission was limited to the Philippines, it was undertaken as part of PIACT, and particularly as part of ILO activity in South-East Asia.

108. Furthermore, the writer noted the importance given in Thailand, Indonesia and above all in the Philippines to co-operation among Asian countries (the writer did not visit Malaysia and Singapore), taking the form mainly of conferences of Ministers of Labour, Health and Education (SEAMEO) of these countries. The writer also noted the complementary nature of scientific, industrial and administrative skills in these countries, as well as certain cultural, economic, social and political similarities.

109. Finally, the writer learned that financing bodies such as UNDP and the World Bank preferred projects covering groups of countries to those designed for individual countries.

110. Many of the proposals made might be more advantageously carried out at the Asian level rather than the Philippine level, or extended to Asia if they were successful in the Philippines.

111. In order to save resources and assist regional exchanges, all meetings, training courses and research groups requiring the assistance of foreign experts might be organised at the Asian level. On the one hand, prominence might be given to experts from the Asian countries themselves, and, on the other, better use might be made of the limited credits available to the ILO for missions of experts from industrialised countries.

112. The meetings envisaged on sociology and technology, the relationship between technology and society, ergonomics, adaptation of work to man, and specific sectors might be organised at the Asian level, as might high-level training. PIACT sponsored co-ordination and research meetings might also be held at Asian level.

113. These activities at the Asian level would undoubtedly benefit from the co-operation of Asian countries, in particular India, Sri Lanka, Japan and, perhaps at a later stage, China and Viet Nam.

114. The meetings might be held in Bangkok at the headquarters of the regional office, or in another Asian country.

C. Recommendations concerning PIACT

115. As PIACT gets under way hopes will be raised and difficulties will appear. It is therefore necessary to adjust the original lines of action to take account of reality.

116. As suggested above, a classification should be made of industrially developing countries, since PIACT action must take different forms in the light of the wide diversity of cultural, economic, social and political situations.

117. Exploratory missions. A start should be made with exploratory missions to identify the country according to various criteria and to assess the progress being made in conditions of work and safety and health. This category of missions would include that of the writer to Bombay and South-East Asia in February 1976 and part of the present mission.

118. Once the characteristics and resources of a country are known, either by means of a special mission or by detailed reports of another origin, the ILO may decide, on the request of the country concerned, to send one or two other types of mission, namely programming and evaluation or training and expertise.

119. Programming and evaluation missions. The aim of a programming and evaluation mission is to study with government agencies and employers' and workers' organisations the requirements of the country in the form of specific projects; to evaluate the capacities of bodies responsible for research, studies, education and training and technical and social activities; to carry out these projects; and to assess the financial cost of the operation, the resources to be allotted by the country for carrying them out and the requirements for foreign experts. The basic purpose of the present mission was that of a programming and evaluation mission.

120. Training and expertise missions. A training and expertise mission permits direct action by means of training sessions, research and orientation meetings and field consultancy assignments of limited duration to achieve precise objectives. Any new PIACT multidisciplinary mission to the Philippines would have to be of this type. The mission might be conceived of as similar in shape to a taper. In the initial stages the members of the group, would have been briefed beforehand in Geneva and Bangkok, would spend a week with their Philippine counterparts in order to assess the situation in the Philippines and prepare their individual missions. Each expert would work with one or two Philippine experts who would accompany him during the second stage. During the second stage, which would last for two weeks, each member of the mission would carry out evaluation and consultancy activities in a specific field, such as agriculture, small and medium-sized undertakings, regulation of labour, training of trade unionists, or ergonomics in large undertakings. Finally, during the third stage, which would last a week, a meeting in Manila would enable the members of the mission and their Philippine colleagues to submit their findings to the entire group and to hold a symposium on conditions of work in Manila for all persons concerned in the country.

121. Practical execution. It is obvious that the three types of mission - exploratory, programming and evaluation, training and expertise - cannot and should not be organised for each country which asks for ILO assistance under PIACT. It is also obvious that two types of mission may be merged into one on certain occasions. Finally, it does not seem essential to assign the same number of experts to each type of mission. Although "taper" missions may require the presence of several experts, certain exploratory or training and expertise missions of limited scope may be carried out by a single expert.

Cover and case BIT

Philippine 77

24 Mars 1977

Monsieur Fortin
Directeur du Cabinet
Direction Générale du B.I.T.
CH 1211 GENEVE 22 (Suisse)

Cher ami,

Je vous confirme ma venue au BIT les 29 et 30 Mars; c'est avec beaucoup de plaisir que je déjeunerai avec vous le 29. Je serais naturellement très honoré d'être reçu par le Directeur Général.

J'ai également écrit à Monsieur Jain, que Monsieur Unni Nayar, Directeur du Bureau de Manille, m'a demandé de rencontrer.

Je ne sais comment tout cela pourra se combiner avec le programme prévu par Monsieur Spyropoulos. Je me permets de vous demander de mettre en relation vos secrétariats.

Veillez agréer, cher ami, l'expression de mes sentiments dévoués.

A. Wisner



BUREAU INTERNATIONAL DU TRAVAIL
GENÈVE

CABINET DU DIRECTEUR GÉNÉRAL

Le 16 mars 1977

Cher Ami,

Merci de vos lettres du 1er et du 10 mars. Je me réjouis de vous entendre raconter votre expérience aux Philippines, et je vous propose le principe d'un déjeuner le 29 mars, si vous êtes libre.

Le Directeur général sera juste de retour pour une petite semaine, et j'espère que vous pourrez le voir, sinon à ce déjeuner, du moins lors d'une entrevue que j'essaierai de vous ménager avec lui.

Veillez agréer, cher Ami, l'expression de mes sentiments très cordialement dévoués.

Bernard Fortin

Monsieur A. Wisner
Professeur
Conservatoire national des
Arts et Métiers
Physiologie du travail
41, rue Gay-Lussac
75005 - Paris

10 Mars 1977

Monsieur Fortin
Directeur du Cabinet
Direction Générale du B.I.T.
CH 1211 GENEVE 22
Suisse

Cher Ami,

Je dois venir à Genève pour rendre compte
de ma mission les 29 et 30 Mars.

J'espère avoir la possibilité de vous rencontrer
pour parler de la situation aux Philippines et en parti-
culier de Monsieur Ople vis-à-vis du B.I.T..

Je vous prie d'agréer, Cher Ami, l'expression
de mes sentiments dévoués.

A. Wisner

10 Mars 1977

Monsieur S.K. Jain
Directeur Général Adjoint
B.I.T.
Chargé des Programmes Techniques
CH 1211 GENEVE 22
Suisse

Monsieur le Directeur Général,

Comme vous le savez peut-être, j'ai fait une mission d'un mois aux Philippines dans le cadre du PIACT et à la demande personnelle de Monsieur Blanchard.

Cette mission s'est fort bien passée, grâce en particulier à l'aide d'un de vos compatriotes, Monsieur Uni Nayar, qui a été nommé récemment Directeur du Bureau à Manille pour les Philippines et qui a eu un rôle déterminant pour le succès de ma mission.

Monsieur Uni Nayar m'a conseillé de vous demander audience quand je serai à Genève afin de vous transmettre ses salutations, de vous décrire les résultats de ma mission et de vous demander une aide pour comprendre ce que j'ai vu.

J'ai déjà eu l'occasion de participer à une réunion PIACT que vous présidiez mais j'aurais craint de vous importuner si Monsieur Uni Nayar ne m'avait pas encore encouragé. Je rendrai compte de ma mission au service conditions de travail les 29 et 30 Mars prochains.

Je vous prie d'agréer, Monsieur le Directeur Général, l'expression de mes sentiments dévoués.

A. Wisner

1er Mars 1977

Copie : Mr Fortin

Monsieur Blanchard
Directeur Général du B.I.T.
CH 1211 GENEVE 22 (Suisse)

Monsieur le Directeur Général,

Je suis revenu depuis hier des Philippines où vous avez bien voulu m'envoyer.

J'y ai reçu un accueil tout à fait remarquable, en particulier de la part de Monsieur Oplé qui m'a accordé une première entrevue de deux heures et qui, ensuite, a souhaité participer au dîner d'adieu que j'ai offert et au cours duquel il a, pendant quatre heures, dirigé une véritable séance de travail.

Il est évident que la confiance, et j'oserais dire l'amitié, que Monsieur Oplé vous porte, se reflètent sur l'intérêt qu'il montre pour toutes les initiatives du B.I.T. Il est non moins certain qu'il espère de vous un intérêt tout particulier pour les problèmes des pays du pacte ASEAN, et en particulier ceux des Philippines.

Je suis invité par Messieurs de Givry et Spyropoulos à venir à Genève décrire les résultats de mon voyage, et je dois naturellement rédiger un compte rendu dont la composition ne s'annonce pas facile étant donné la complexité et la dureté de la situation aux Philippines.

Je pense toutefois que la vie économique et culturelle intense de ce pays doit permettre de dégager des propositions acceptables.

Je suis naturellement à votre disposition pour aller à Genève vous rendre compte de ma mission et de mes contacts avec Monsieur Oplé, indépendamment de la réunion prévue par le Service des Conditions de Travail.

Veuillez agréer, Monsieur le Directeur Général, l'expression de mes sentiments dévoués.

A. Wisner

1er Mars 1977

Monsieur Fortin
Directeur du Cabinet
Direction Générale du B.I.T.
CH 1211 GENEVE 22 (Suisse)

Cher ami,

Je vous adresse ci-joint le double de la lettre que j'envoie à Monsieur Blanchard.

Mon séjour a été très intéressant. Sur le plan diplomatique, je pourrais en être satisfait, mais j'ai la faiblesse de m'intéresser aux réalisations; de ce fait, je suis beaucoup plus perplexe tout en ayant confiance dans l'avenir du PIACT dans les pays ASEAN et dans les Philippines.

Je serais fort heureux de réfléchir avec vous sur les actions possibles.

Veillez agréer, cher ami, l'expression de mes sentiments dévoués.

A. Wisner



INTERNATIONAL LABOUR OFFICE
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Réf. BIT/ILO n° PIACT 2

Votre réf. n°

Sir,

I have the honour to send you herewith the text of the Resolution concerning Future Action of the International Labour Organisation in the Field of Working Conditions and Environment which was adopted by the International Labour Conference at its 60th Session (June 1975).

The Governing Body of the International Labour Office, at its 198th Session (November 1975), examined this Resolution and requested me to transmit it to the governments of member States and, through them, to employers' and workers' organisations.

The Governing Body asked me to call your attention in particular to paragraph 2 of the operative part of this Resolution according to which member States are earnestly invited to promote the objectives of an improvement of working conditions and environment with all aspects of their economic, educational and social policy and to set periodically for themselves a number of definite objectives designed to reduce as far as possible certain industrial accidents and occupational diseases or the most unpleasant and tedious of jobs.

Further, the Governing Body has instructed me to submit to it an international programme for the improvement of working conditions and the working environment after consultation with the competent international organisations as well as with the national, regional and international bodies specialised in working conditions and the working environment.

Considering that the Conference resolution specified that this international programme was intended to promote or support activities of member States in the field of working conditions and the working environment, I should be grateful if you would inform me what objectives your Government has in regard to its policy in this field and what are the principal measures by which it intends to implement them. Furthermore, I would be pleased to have your views as to the best means by which the ILO might assist your Government in implementing this policy and, generally, to know what priorities the ILO should give to its action in this area, taking into account the provisions of the Conference resolution concerning the international programme, the preparation of which has been requested.

I would like to call your attention in this regard to the fact that funds have been set aside in the ILO regular technical co-operation programme for setting up, early in 1976, an inter-regional multi-disciplinary team of specialists in working conditions and the working environment who would be available to undertake pilot missions in countries that request their assistance in carrying out tasks such as those indicated in paragraph 4(1)(g) of the operative part of the resolution.

With a view to enabling me to submit to the Governing Body, at its May-June Session in 1976, the international programme requested by the Conference, I should be very grateful if you would inform me by 1 March 1976 of your Government's views on both the objectives and content of its policy in the area of working conditions and the working environment and on the concrete activities which the ILO might undertake within the framework of this programme.

I would likewise appreciate knowing whether your Government would wish your country to be among those which might be considered for a pilot mission by the above-mentioned multi-disciplinary team.

I shall be glad to provide you with such additional information that you might need for the preparation of your reply to this letter.

As for the transmittal of the resolution to employers' and workers' organisations in your country, the Governing Body requested me to send with this letter an acknowledgement form inviting governments to indicate to which organisations the resolution had been sent. I should be grateful if you would kindly return the attached form duly completed.

I would be happy to send you additional copies of the Conference resolution which you might require for transmittal to employers' and workers' organisations.

I have the honour to be,

Sir,

Your obedient Servant,

Francis Blanchard,
Director-General.

**Resolution concerning Future Action of the International Labour Organisation
in the Field of Working Conditions and Environment¹**

The General Conference of the International Labour Organisation,

Considering that the improvement of working conditions and the protection of the physical and mental health of workers constitute an essential and permanent mission of the International Labour Organisation,

Considering the slow and uneven progress realised concerning hours of work and associated problems concerning work safety and health primarily because of the absence of a general strategy relating to an improvement of working conditions and environment,

Noting that the utilisation of scientific research and technology, without taking into account considerations of a social nature, could not only create dangers at the workplace but could also have an adverse effect on the human environment generally,

Considering that changes in techniques, production methods and the importance of transfers of technology and the evolution of human society and of social aspirations place the improvement of working conditions and environment in a new and sometimes different context according to the countries, branches, occupations and categories of workers,

Referring to the resolutions adopted by the International Labour Conference in 1972 and 1974 relating to the working environment,

Having noted the activities anticipated in the ILO's Programme and Budget for 1976-77,

Having received with satisfaction the Report submitted by the Director-General of the International Labour Office to the 60th Session of the International Labour Conference and the determination indicated therein to reinforce and renew ILO action in the field of working conditions and environment,

Considering that ILO action concerning working conditions and environment should, in taking into account aspirations for a better quality of life, be closely joined with other activities relating to the protection of the human environment;

1. Solemnly reaffirms that the improvement of working conditions and environment and the well-being of workers remains the first and permanent mission of the ILO.

2. Earnestly invites member States—

- (1) to promote the objectives of an improvement of working conditions and environment with all aspects of their economic, educational and social policy;
- (2) to set periodically for themselves a number of definite objectives designed to reduce as far as possible certain industrial accidents and occupational diseases or the most unpleasant and tedious of jobs;
- (3) to normalise the application of scientific research so that it is carried out for man, and not against him and against his environment.

3. Supports the world-wide action suggested by the Director-General of the International Labour Office in his Report with a view to reconsidering the current activities of the ILO and to launching an international programme for the improvement of working conditions and environment which is designed to promote or support activities of member States in this field.

4. Invites the Governing Body of the International Labour Office to instruct the Director-General, as soon as resources permit—

- (1) to prepare and submit to it such a programme based on the general discussion of his Report to the 60th Session of the International Labour Conference and after consultation with the competent international organisations as well as with the national, regional and international bodies specialised in working conditions and environment, it being understood that, during the preparation of such a programme, the following should be taken into consideration:

¹ Adopted on 24 June 1975.

- (a) the intention announced by the Director-General during the 59th Session of the International Labour Conference of initiating a general inquiry into work whose purpose is to reinforce the effectiveness of action by the International Labour Organisation at all levels;
 - (b) the increase of ILO resources devoted to working conditions and environment and the improvement of its technical co-operation methods in this field, especially in rural areas and in small undertakings;
 - (c) the continuing examination of international labour standards relating to working conditions and environment with a view to revising existing standards which are no longer up to date and the adoption of basic standards designed to guide national policies concerning work safety and health and the pollution of the human environment caused by industrial and agricultural techniques;
 - (d) the systematic use of meetings of Industrial Committees and analogous bodies to carry out an evaluation of situations concerning working conditions and environment in different countries and industries and the formulation of all appropriate recommendations for their improvement; the full utilisation of the services, in particular through the convening of meetings at regular intervals, of the Panel of Consultants on Safety in Mines;
 - (e) the preparation and publication of guides, statute books and teaching materials in the field of safety and health, hours of work, organisation of work, job content and ergonomics;
 - (f) the preparation of guides which allow the best use of the workers' free time with a view to promoting their self-fulfilment and facilitating their access to culture and vocational training;
 - (g) the placement, in different regions, of multidisciplinary teams made up of specialists in working conditions and environment whose job should be—
 - (i) to assist governments, employers' and workers' organisations and research and training institutions and bodies in the preparation and carrying out of programmes for the improvement of working conditions and environment which correspond to their needs and potential;
 - (ii) to undertake studies on national and regional situations, gather and disseminate information and examine progress made in the application of relevant international labour standards;
 - (iii) to organise and conduct symposia, seminars and other specialised meetings, especially within the framework of industries or particular branches of activity;
 - (iv) to participate in United Nations Development Programme national and regional programming;
 - (h) the in-depth study of—
 - (i) the costs of industrial accidents and problems related to the harmonisation of relevant statistics, and of the definition of criteria and limits for exposure to dangerous substances;
 - (ii) methods for determining the costs and economic and social advantages of various measures referring to the improvement of working conditions;
 - (iii) experiences relating to work organisation and the effects of transfers of technology on working conditions and environment;
- (2) to study the possibility of organising an international tripartite meeting which would treat various aspects of working conditions and environment and whose results would later be submitted to the International Labour Conference in order to allow it to take stock of ILO action and to decide on a future programme of activities;
- (3) to undertake, in collaboration with and with the support of the United Nations Environment Programme, a coherent programme of ILO action concerning the environment which provides especially for educational and training activities in this field, as well as studies on the economic and social consequences of environmental policies.

17 Janvier 1977

Monsieur Karasaki
Deputy Director
ILO REGIONAL OFFICE FOR ASIA
p.o. Box 1759
BANGKOK (Thaïlande)

Copie : Mr Spyropoulos

Dear Mr Karasaki,

I thank you very much for your kind message but I am really sorry not to be able to meet you and my colleague Mr Brown.

I will anyway visit your coworkers at ILO regional office Bangkok Wednesday 2nd February and I hope that you will give them some instructions for my mission.

I would be delighted to meet Mr Brown in Jakarta but I have to reserve my too short time during this second visit to South East Asia for one country and I am afraid that I have to give up the idea of taking a few days even for an interesting and pleasant meeting.

Truly yours,

A. Wisner

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WISNER PROFESSEUR DE PHYSIOLOGIE DU TRAVAIL ET ERGONOMIE AU
CONSERVATOIRE NATIONAL DES ARTS ET METIERS 41 RUE GAY-LUSSAC
75005 PARIS

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Réf. BIT/ILO n° PIACT 4-1

Votre réf. n°

Professeur A. WISNER,
Conservatoire national
des Arts et Métiers,
Département des Sciences
de l'Homme au Travail,
41, rue Gay-Lussac,
75005 PARIS.

(France)

13 JAN. 1977

Cher Monsieur,

J'ai été très sensible aux termes de votre lettre du 7 janvier 1977 et je serai bien sûr des plus heureux de m'entretenir avec vous au retour de votre mission prévue aux Philippines.

En ce qui concerne l'objet de cette mission, j'ai pris connaissance aussi bien du projet, que vous aviez adressé à M. Fortin et à M. Spyropoulos que du mémorandum de ce dernier à notre bureau de Manille, dont vous avez reçu copie et je ne vois rien à y ajouter, si ce n'est de me féliciter de vous voir à nouveau nous prêter votre expérience dans le lancement du PIACT. Le choix des Philippines pour votre mission est particulièrement heureux étant donné l'intérêt très vif du Secrétaire d'Etat au Travail, M. Ople, pour les problèmes qui rentrent dans le cadre de ce programme.

Je vous prie d'agréer, cher Monsieur, l'expression de mon cordial souvenir, auquel je joins mes meilleurs voeux pour 1977 pour vous-même et votre famille.

J. de Givry
Chef du Département
des conditions et du milieu de travail.

7 Janvier 1977

Monsieur de Givry
Chef du Département des conditions
et du milieu de travail
BUREAU INTERNATIONAL DU TRAVAIL
CH 1211 GENEVE 22 (Suisse)

Cher Monsieur,

Je vous remercie de la confiance que vous continuez à me témoigner en me donnant une mission aux Philippines.

Je suis naturellement plus directement en rapport avec Monsieur Spyropoulos avec lequel une excellente collaboration s'est établie, et nous n'avons pas prévu de visite de briefing à Genève avant ce voyage. Toutefois, j'aurais été très heureux s'il vous avait été possible de dicter quelques recommandations à votre secrétaire, afin que je sois plus sûr d'être un bon interprète de vos intentions.

Je dois venir à Genève fin Mars ou début Avril pour la visite de débriefing; j'espère avoir alors l'occasion de m'entretenir avec vous.

Veillez agréer, cher Monsieur, l'expression de mes sentiments dévoués, ainsi que mes meilleurs voeux pour vous-même et les vôtres.

A. Wisner

10 Janvier 1977

Monsieur Spyropoulos
Département des conditions de
travail et de vie - B.I.T.
CH 2211 GENEVE 22 (Suisse)

Cher Monsieur,

J'ai été rassuré par notre communication téléphonique de ce jour, car je m'inquiétais d'avoir déclenché la correspondance relative à mon voyage aux Philippines sur le signal erroné que constituait l'envoi de mon billet d'avion.

Je vous prie de trouver ci-jointe la copie des lettres que j'ai fait parvenir à Monsieur Karasaki et à Monsieur Nayar pour les informer de mon arrivée prochaine et de mon intention de m'inspirer de leurs propres perspectives d'action.

Je vous remercie également de m'avoir éclairé sur les modalités de relation du BIT avec les laboratoires de recherche. Je pense en effet que tout lien stable entre le BIT et un laboratoire est dangereux et qu'il est bien préférable que le Bureau fasse appel à un ou plusieurs experts pour des temps courts et selon l'opportunité.

Veillez agréer, cher Monsieur, l'expression de mes sentiments dévoués.

A. Wisner



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Réf. BIT/ILO n° PIACT 4-1

Votre réf. n°

Professeur A. Wisner,
Conservatoire national
des Arts et Métiers,
Département des Sciences
de l'Homme au Travail,
41, rue Gay-Lussac,
75005 PARIS

(France)

7 JAN. 1977

Cher Monsieur,

La collaboration entre le BIT et le Laboratoire de Recherche Clinique sur le stress à Stockholm est due à l'initiative du Service de sécurité et d'hygiène du travail de notre Département, auquel je transmets votre lettre pour information.

Les recherches effectuées par le Laboratoire de Stockholm, à la demande de ce Service, rentrent dans le cadre d'une étude sur les rapports entre les conditions de travail et la satisfaction au travail, entreprise conjointement par le Service de la sécurité et de l'hygiène du travail et par mon Service. Cette étude comporte plusieurs volets, dont certains ont été confiés au premier de ces deux Services, tandis que mon Service y contribue par deux rapports, l'un concernant la méthodologie des enquêtes sur la satisfaction au travail et l'autre sur les tendances qui se manifestent dans la littérature ainsi que parmi les intéressés (gouvernements, employeurs, travailleurs) quant à la signification et au contenu du terme satisfaction au travail.

Tout en transmettant votre lettre au Service intéressé, je prends, pour ma part, note de l'intérêt de votre Laboratoire à être associé, à l'avenir, à ce genre d'études et ne manquerai pas de vous tenir au courant de l'évolution de ce projet.

Je n'ai malheureusement pas encore reçu la réponse de notre Bureau à Manille concernant votre mission aux Philippines, mais j'espère que cette réponse ne tardera pas à arriver.

Veillez croire, cher Monsieur, à l'expression de mes sentiments cordiaux.



G. Spyropoulos,
Chef du
Service des conditions de travail
et de vie,
Département des conditions et
du milieu de travail.

7 Janvier 1977

Monsieur G. Spyropoulos
Département des conditions de travail
et de vie - B.I.T.
CH 1211 GENEVE 22 (Suisse)

Cher Monsieur,

J'ai reçu un avis d'Air France m'informant que le BIT avait financé mon billet pour Manille. J'en conclus que ma mission est confirmée et que je vais recevoir prochainement mon ordre de mission. Je serais également très heureux de recevoir de vous les instructions et les informations nécessaires.

Les frais liés à un tel déplacement étant importants, je serais heureux de ne pas avoir à les avancer et souhaiterais disposer d'une avance de 1500 à 2000 Dollars.

J'ai fait les réservations d'hôtels nécessaires à Bangkok et à Manille.

J'écris directement à Monsieur Karasaki pour l'informer du fait que je me rendrai au Bureau Régional du BIT à Bangkok le 2 Février de 10h à 17h, ainsi qu'à Monsieur Unni Nayar pour l'informer de mon arrivée à Manille le 3 Février et du fait que je me rendrai le 4 au matin à l'Office du BIT à Manille.

Je vous remercie de la confiance que vous me faites et vous adresse, cher Monsieur, mes meilleurs voeux ainsi que l'expression de mes sentiments dévoués.

A. Wisner

7 Janvier 1977

Monsieur L'ambassadeur
Ambassade des Philippines
26 avenue Georges Mendel
75016 PARIS

Monsieur l'Ambassadeur,

J'ai l'honneur de me rendre aux Philippines pendant le mois de Février 1977 comme expert désigné par Monsieur Blanchard, Directeur Général du Bureau International du Travail, à la demande du Gouvernement des Philippines et plus particulièrement de Monsieur Oplé, Ministre du Travail.

J'ai pu, l'année dernière, prendre connaissance des problèmes du travail au cours d'un séjour d'une semaine aux Philippines, et je suis profondément reconnaissant aux dirigeants de l'administration, des entreprises, et des syndicats, de m'avoir réservé un accueil aussi intéressant et chaleureux.

Cette fois, ma mission est plus difficile puisqu'il s'agit de contribuer à la mise en place de dispositifs d'amélioration des conditions de travail aux Philippines, du point de vue de la recherche, de la formation et de l'action concrète.

J'aurais été extrêmement heureux s'il vous avait été possible de me recevoir d'ici mon départ le 1er Février, afin de m'aider à comprendre dans quelles perspectives mon action doit être située.

Je vous prie d'agréer, Monsieur l'Ambassadeur, l'expression de mes sentiments de haute considération.

meat leung
Regalado *Negros Occidental*
(, Mercury of Cebu)
DACAD

A. Wisner
Professeur de Physiologie du
Travail et Ergonomie au CNAM

WORKSHOP I

Session No. 1

Date: December 12, 1977

Papers: 1) Working Conditions and Choice of Technology
2) Choice of Technology and Working Conditions:
A Social Assessment Framework

Authors: F. J. Dy *Document n°2*
Bruce Koppel *Document n°4*

Discussants: Amelia Alfonso
Randolf David
Carmelo Noriel
Adnjana Manuaba

Summary of Papers:

Paper 1 : Working Conditions and Choice of Technology
Author : F. J. Dy *Working Document n°2*

1. The choice of technology affects the working conditions through decisions made concerning product choice, product design and product facility design.
2. It has been observed that in the past, the choice of technology was made solely on the basis of technical engineering criteria. The man was adapted to the machine instead of the machine being adapted to the man.
3. It was recommended that the socio-technical system approach be used in determining the technology to be employed. This takes into consideration the equipment, the work process, the physical layout, as well as the social relationship among the workers.
4. The choice of technology, which is constrained by the product choice, is a result of political-economic decisions. These decisions reflect the trade-offs between the country's development goals and priorities and the restrictions imposed by factors such as demand for the product, cost of equipment and the lack of available information about technological devices and

their consequences.

5. The planners should take the primary role in making the technical decisions with regards to product choice. By formulating economic policies, they can influence demand for a product. They can also promote the development of a product and build the infrastructure which affects the product choice.
6. To create awareness among decision makers on the influence of technology on working conditions, there is a need to develop an assessment of methodology which evaluates the potential of various technological alternations to improve working conditions.
7. Developing countries need to develop technologies that are adapted to local situations. The appropriate technologies should recognize the fact that workers have different personal needs and goals, expectations, skills, and a peculiar cultural tradition and history.

Paper 2: Choice of Technology and Working Conditions:
A Social Assessment Framework

Author : Bruce Koppel *Working Document n°4*

1. The social assessment framework is based on the view that social implications of technological choices as well as technological implications of social choices should be examined not separately but rather simultaneously as improvement of working conditions recognizes the interdependence of both factors.
2. In general, there are five basic considerations in assessing technological options. These are the following:

- 2.1 Analyze higher order impacts which means unintended consequences or far reaching consequences of a certain technological option.
 - 2.2 Examine the sustainability which implies the anticipation of the capability of such technological option to operate under varying conditions.
 - 2.3 Consider irreversibilities that such technological choice may be courting.
 - 2.4 Identify and evaluate possible alternatives.
 - 2.5 The approach should be holistic. This means that assessment of technological choice should not focus on isolated factors but rather on the interrelationships of factors.
3. In order to facilitate the identification and analysis of possible effects of a technological option to working conditions, the assessment framework is further broken down into several steps as follows:
- 3.1 Identify technological choice.
 - 3.2 Identify the impacts or consequences. This would entail the identification of a host of indicators which covers the whole range of working life (e.g. wages, employment, working hours, human relations at work, etc.) and further repercussions of this to the quality of life in general.
 - 3.3 Consider the existence of technological imperatives, the problems that would be solved by such an imperative vs. the problems that it would bring about.

3.4 Consider social options, that is whether to maximize the realization of a social goal and minimizing technological imperative.

4. Finally, it should be added here that this whole process goes in a cycle as it rests on the view that social implications of a technological choice and vice versa should be evaluated simultaneously.

Summary of Discussions:

1. It was recognized that the choice of technology is a political choice. However, the political decisions should not hamper the improvement of working conditions. Decision makers at the shop level can also do something about the workers' working environment, working time, job content and organization.
2. There is a need to examine the role of the tripartite group in the improvement of working conditions. It was pointed out that if the three stages in decision making were carried out properly and took into consideration the socio-technical aspects, then there is not much need for the intervention of the three parties.
3. Social and technological implications of technology should be viewed simultaneously rather than separately in making a technological choice.
4. The biological aspects of man should be a major consideration in adapting technology. This was not considered a problematic area though, since biological consideration could be part of the socio-technical system, since this

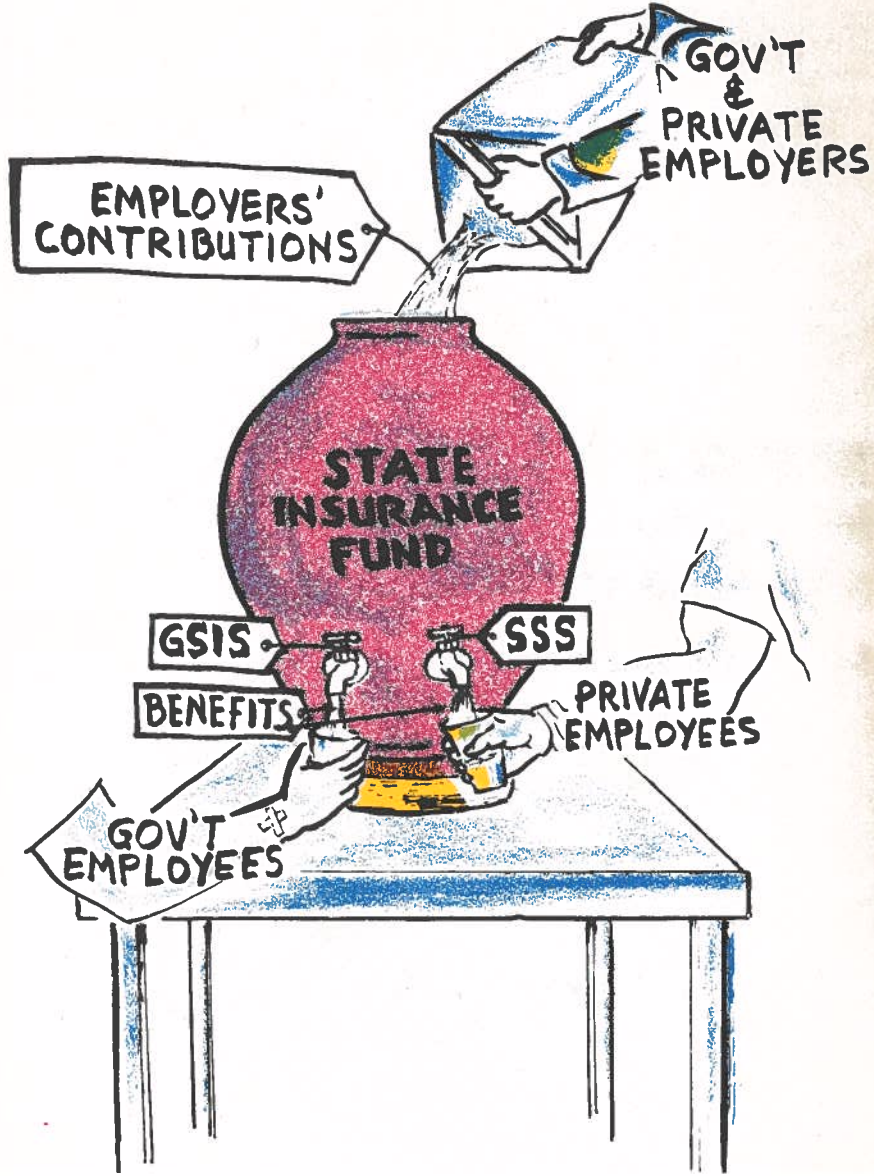
system assumes the totality of man.

MODERATOR : Dr. Kintanar

RAPPORTEURS

BY: Ms. Judy Castro
Ms. Elizabeth Arenas

cat:



EMPLOYER CONTRIBUTION FOR EMPLOYEE SYSTEM

AMBULANCE GULACAN HOSPITAL

ECC

CHECK

P6,000

P12,000

OLD ALLOWABLE INCOME BENEFITS

NEW ALLOWABLE INCOME BENEFITS

THEN NOW

WORKER: PROVE THAT YOU ARE ENTITLED TO THIS!

EMPLOYER (WCC)

WORKER: I THINK MY FRIEND HERE IS ENTITLED TO THAT!

EMPLOYER (ECC)

INCOME BENEFITS

DISABLED WORKERS

SSS/GSIS/MEDICARE BENEFITS

**Employees' Compensation Commission
6th Floor, Shurdut Bldg.
Intramuros, Manila**

Foreword

Here, in a concise and readable form, is a primer on the new Employees' Compensation Program which symbolizes the New Society's commitment to social justice.

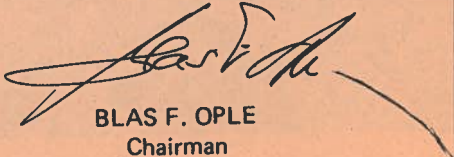
Heretofore, the interpretation or understanding of Presidential Decree No. 626, as amended, creating the EC Program and the State Insurance Fund has remained rather hazy on account of the legalese or technicality that simply confounds the laymen.

This primer, happily, explains the program graphically and lucidly in order to reach out to every workingman and to every employer as well — to make them fully aware of labor's new package of meaningful benefits as envisioned by President Marcos himself.

It is thus hoped that this publication shall attain its goal and, in the process, reveal the total significance of the government's multi-faceted social benefits program of which employees' compensation is actually but a part.

The Secretariat of the Employees' Compensation Commission should be congratulated for this worthy venture.




BLAS F. OPLE
Chairman



Shurdut Building, the new home of the Employees' Compensation Commission. It is located in Intramuros, Manila, just across Rizal Park.



The ECC is at present composed of four ex-officio members. They are, from left: Labor Sec. Blas F. Ople, chairman; SSS Administrator Gilberto Teodoro (represented by Deputy Administrator Reynaldo Gregorio); GSIS General Manager Roman Cruz, Jr. (represented by Senior Asst. Gen. Manager Domingo N. Garcia); and Chairman Pacifico E. Marcos of the Philippine Medical Care Commission (represented by PMCC Administrator Jose C. Denoga).

A primer

The Employees' Compensation Program

What is the Employees' Compensation Program?

The Employees' Compensation Program is the new tax-exempt compensation program for employees and their dependents created under Presidential Decree No. 626 which was signed by President Ferdinand F. Marcos on December 27, 1974. This decree was amended by PD 850 which took effect on December 16, 1975 and by PD 891 which took effect on February 9, 1976.

Its aim is to help workers and their dependents — in the event of employment-connected injury, sickness, disability or death — promptly receive meaningful and adequate income benefits, medical or related services, and rehabilitation services.

What is the Employees' Compensation Commission or ECC?

The ECC is the body that formulates the policies of the Employees' Compensation Program and reviews appealed cases from the GSIS and the SSS.

It is composed of six members, four of whom are *ex-officio* (meaning by virtue of their offices), namely:

- a. The Secretary of Labor, as Chairman,
- b. The GSIS General Manager,
- c. The SSS Administrator, and
- d. The Chairman of Medicare.

The remaining two members — one representing management and the other representing labor — are appointed by the President of the Philippines for a term of six years each.

Who are covered under the Employees' Compensation Program?

The following employers and employees are covered under the Employees' Compensation Program:

- a. Every employer with at least one employee and regardless of the capitalization and the type or nature of his business.
- b. Every employee who is not over 60 years of age.

When may employees over 60 years of age be covered under the Employees' Compensation Program?

When they have been paying contributions to qualify for the retirement or life insurance benefit administered by the GSIS or the SSS.

When shall coverage of employees under the Employees' Compensation Program start?

Employees shall be covered starting on the *first day* of their employment. This first day of employment may be earlier than January 1, 1975.

What are the administering agencies of the Employees' Compensation Commission?

The administering agencies of the ECC are:

- a. The Government Service Insurance System or GSIS for the public sector, and
- b. The Social Security System or SSS for the private sector.

Hereinafter, the term *System* shall mean either the GSIS or the SSS, as the case may be.

What employers are covered by the GSIS?

Employers who belong to the public sector are covered by the GSIS. These are:

- a. The National Government, its political subdivisions or instrumentalities.
- b. Government-owned or controlled corporations,
- c. The Philippine Tuberculosis Society, and
- d. The Philippine National Red Cross.



The SSS (above) is the ECC's administering agency for the private sector, while the GSIS (below) is the administering agency for the public sector.





The ECC during its inaugural session. Among those in photo are Medicare Administrator Jose C. Denoga (second from left), SSS Administrator Gilberto Teodoro, Chairman Blas F. Ople, Medicare Chairman Pacifico E. Marcos, GSIS Gen. Manager Roman Cruz, Jr., Senior Asst. Gen. Manager Domingo N. Garcia and Daniel Mijares, both of the GSIS, Eugenio Sagmit, Jr. of the Dept. of Labor, and ECC Executive Director E. M. Cayapas.

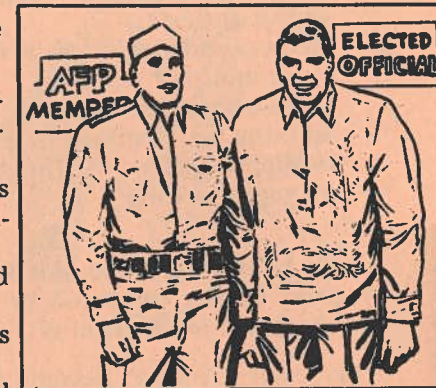
What employers are covered by the SSS?

All employers other than those covered by the GSIS. These are the employers who belong to the private sector.

What employees are covered by the GSIS?

Employees who are covered by the GSIS are:

- a. Permanent, temporary, casual, emergency, substitute or contractual employees in:
 - 1) the National Government, its political subdivisions or instrumentalities;
 - 2) Government-owned or controlled corporations;
 - 3) the Philippine Tuberculosis Society; and
 - 4) the Philippine National Red Cross.
- b. Members of the Armed Forces of the Philippines
- c. Elective officials who are receiving regular salary



What employees are covered by the SSS?

All employees in the private sector are covered by the SSS.

If an employee is coverable by both the GSIS and the SSS, under which System shall he be covered?

An employee who is coverable by both the GSIS and the SSS shall be covered *COMPULSORILY* by both Systems.

Are Filipinos employed abroad subject to coverage under the Employees' Compensation Program?

YES, provided that they are under the employ of any person — whether natural or juridical, domestic or foreign — who carries on any trade, industry, or business undertaking *IN* the Philippines.

What contingencies are compensable under the Employees' Compensation Program?

Any work-connected *INJURY* or *SICKNESS*, and any *DISABILITY* or *DEATH*, resulting from a work-connected injury or sickness, shall be compensated for under the new Employees' Compensation Program.

What are the forms of compensation for injury, sickness, disability and death?

The compensation shall be in the following forms:

- a. Cash income benefit — for disability or death
- b. Medical and/or related services — for injury or sickness
- c. Rehabilitation services (in addition to monthly cash income benefit) — for permanent disability

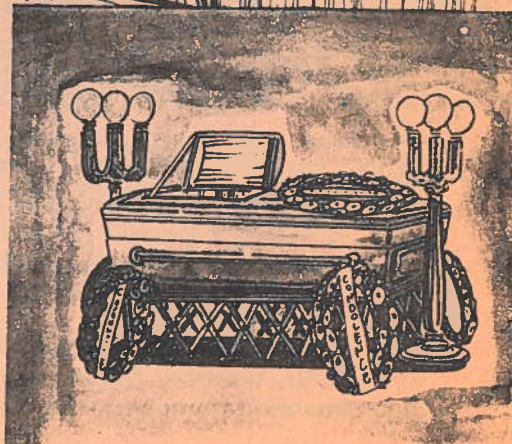
To be more specific, the benefits given to the employee or his dependents are in the form of:

- a. Cash income benefit for Temporary Total Disability (TTD)
- b. Monthly cash income benefit for Permanent Total Disability (PTD)
- c. Monthly cash income benefit for Permanent Partial Disability (PPD)
- d. Monthly cash income benefit for death, except for benefit paid to secondary beneficiaries, which is in lump sum
- e. Medical services, appliances and/or supplies for injury or sickness
- f. Rehabilitation services for permanent disability

When is an injury compensable?

An injury is compensable when it is sustained:

- a. During the employee's working hours
- b. While performing his official function, and
- c. At the place where his work requires him to be



Or:

An injury is compensable when it is sustained by an employee *anytime and anywhere* while executing an order for the employer.

When is sickness compensable?

Any sickness is compensable provided that it is listed by the ECC as an "occupational disease". (See Annex "A".)

Can an illness not listed as "occupational" be compensable?

YES, if the employee can prove that the risk of contracting that sickness is increased by the working conditions.

What is meant by disability?

Disability means the loss or damage of a physical or mental function which prevents an employee from performing his work, or from being engaged in any gainful occupation.

What is meant by gainful occupation?

An occupation is said to be gainful when the earnings derived from it amount to at least ₱250 a month.

When is a disability compensable?

A disability is compensable when it is caused by a work-connected injury or sickness.

When is death compensable?

When death is the result of a work-connected injury or sickness.

What is Temporary Total Disability (TTD)?

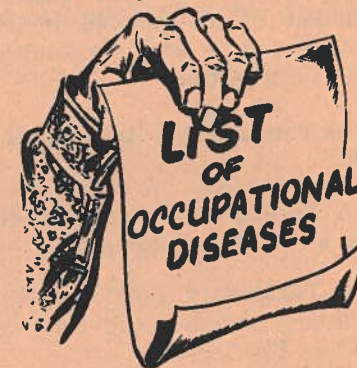
TTD is a disability which prevents an employee from performing his work for a continuous period not exceeding 120 days.

If the disability is the result of an injury or sickness, the period of compensability shall be counted from the **FIRST DAY** of such injury or sickness.

How much income benefit is an employee entitled to receive for Temporary Total Disability?

For TTD, the income benefit is *ninety per cent (90%)* of the employee's *Average Daily Salary Credit* or his *actual wage or salary*. This income benefit shall not be less than ₱2.50 nor more than ₱16 per day, and shall not be paid longer than 120 days.

Does the employee have any obligation to the System while he is receiving TTD income benefit?



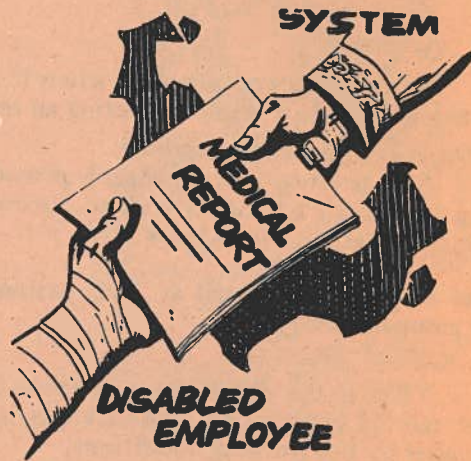
YES. He must submit to the System a monthly medical report on his disability certified by his attending physician.

Failure to do so shall cause the suspension of his income benefit until such a time when he complies with this obligation.

What is Permanent Total Disability (PTD)?

A Permanent Total Disability is any of the following:

- a. A Temporary Total Disability lasting continuously for more than 120 days
- b. Complete loss of sight of both eyes
- c. Loss of two limbs at or above the ankles or wrists
- d. Permanent complete paralysis of two limbs
- e. Brain injury resulting in incurable imbecility or insanity
- f. Such cases as determined by the System and approved by the ECC.



How much income benefit is an employee entitled to receive for Permanent Total Disability?

Under the amended Labor Code, an employee under PTD shall, for each month until his death but not exceeding five years, be paid by the System an income benefit equivalent to 115% of the basic benefit. The basic benefit is computed as follows:

- 45% of the first ₱300 of his *Average Monthly Salary Credit* or fraction thereof; plus
- 25% of the next ₱300 of his *Average Monthly Salary Credit* or fraction thereof; plus
- 9% of each succeeding ₱100 of his *Average Monthly Salary Credit* or fraction thereof; plus
- 1/10 of 1% of his *Average Monthly Salary Credit* for each month of paid coverage in excess of 120 months of paid coverage preceding the semester of his disability.

For example, an employee with an average monthly salary credit of ₱700 shall receive ₱135 for the first ₱300 (equivalent to 45%), ₱75 for the second ₱300 (equivalent to 25%), and ₱9 for the succeeding ₱100 (equivalent to 9%), or a total of ₱219. This is the basic benefit. Now, add 15% of this whole benefit and the total reaches ₱251.85.

The monthly income benefit shall be at least ₱51.75. It shall be guaranteed for 5 years but the total payments shall not be more than ₱12,000.

What are the employee's obligations to the System while he is receiving PTD income benefit?

An employee receiving income benefit for Permanent Total Disability has the following obligations to the System:

- a. He must submit a quarterly medical report certified by his attending physician.
- b. He must present himself for examination, upon being notified by the System, at least once a year.

Under what conditions can PTD income benefit be suspended?

The monthly income benefit for Permanent Total Disability can be suspended:

- a. If the employee fails to submit his quarterly medical report;
- b. If he fails to present himself for the annual examination;
- c. Upon recovery from his Permanent Total Disability; or,
- d. Upon being gainfully employed.

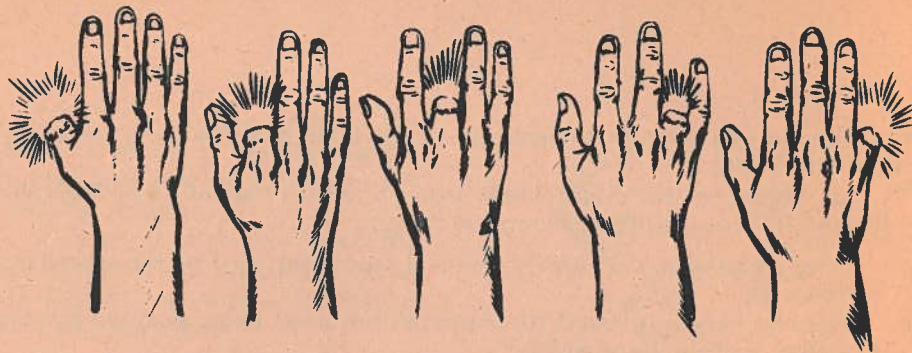
What is Permanent Partial Disability?

A disability which causes the harmful loss, permanently, of the use of any part of an employee's body.

How much income benefit is an employee entitled to receive for Permanent Partial Disability?

An employee under PPD shall be paid a monthly income benefit equal to the monthly income benefit paid for Permanent Total Disability according to the schedule of payment — beginning with the first month of disability and shall continue for a period — as follows:

Complete and Permanent Loss of the use of	Number of Months
One thumb	8
One index finger	6
One middle finger	5
One ring finger	4
One little finger	2
One big toe	5
Any toe	2
One hand	31
One arm	40
One foot	25
One leg	37
One ear	8
Both ears	16
Hearing of one ear	8
Hearing of both ears	40
Sight of one eye	20



8 months

6 months

5 months

4 months

2 months



5 months. Any other toe is 2 months



40 months



25 months

37 months



31 months



20 months



8 months



This man didn't lose an ear. But he woke up one morning to find the hearing of both his ears gone because of noise pollution at their factory. That's why he looks so alarmed. But he will receive a 40-month pension from the ECC.



Loss of one thumb means an income benefit for 8 months, while the loss of an index finger is good for 6 months. That makes it a total of 14 months.

If an employee loses more than one member or part of his body at the same time, how much income benefit is he entitled to receive?

He shall be paid the *same amount* of monthly income benefit for a period equivalent to the SUM TOTAL of the periods established for the loss of the individual members.

Thus, if an employee, for example, whose monthly income benefit is ₱150, loses his thumb (8 months) and his little finger (2 months) at the same time, he shall continue to receive an income benefit of ₱150 a month but for a period of 10 months.

Does an employee who is receiving PPD income benefit lose his right to receive such income benefit if he becomes — or remains to be — gainfully employed?

No. He shall continue to receive his monthly income benefit for as long as he is entitled to it, even if he is gainfully employed.

In case an employee dies, who shall receive the income benefit to which he is entitled?

His beneficiaries.

Who are the employee's beneficiaries?

Beneficiaries are classified into:

- a. Primary beneficiaries, and
- b. Secondary beneficiaries.

The status of the beneficiaries shall be determined at the time of the employee's death.

Who are the primary beneficiaries?

The following are the primary beneficiaries:



- a. The legitimate husband or wife who was living with the employee at the time of death, until he or she remarries; and
- b. The legitimate, legitimated or legally adopted children who are unmarried, not gainfully employed and not over 21 years of age.

To be considered a primary beneficiary, a legitimate, legitimated or legally adopted child who is over 21 years of age must have been incapacitated and incapable of self-support due to a physical or mental defect which is congenital or acquired during minority.

Who are the secondary beneficiaries?

The following are the secondary beneficiaries.

- a. The legitimate parents wholly dependent upon the employee for support; and
- b. The legitimate descendants and illegitimate children who are unmarried, not gainfully employed and not over 21 years of age.

To be considered a secondary beneficiary, a legitimate descendant or an illegitimate child who is over 21 years of age must have been incapacitated and incapable of self-support due to a physical or mental defect which is congenital or acquired during minority.

If there are primary and secondary beneficiaries at the time of the employee's death, to whom shall the death benefits be given?

Only to the *primary* beneficiaries, who have priority claim to the death benefits. No death benefits shall be given to secondary beneficiaries whenever there are primary beneficiaries.

How much income benefit are the primary beneficiaries entitled to receive as death benefit?

The monthly income benefit for primary beneficiaries shall be equal to the monthly income benefit paid for Permanent Total Disability and guaranteed for 5 years.

If there are dependent children, the benefit shall be increased by 10% for every dependent child but not more than 5 children counted from the youngest and without substitution.

The total income benefit, however, shall not exceed P12,000 nor paid longer than 5 years.

If an employee dies while receiving income benefit for Permanent Total



LIST OF OCCUPATIONAL DISEASES

Annex "A"

OCCUPATIONAL DISEASES	NATURE OF EMPLOYMENT
1. Cancer of the epithelial lining of the bladder (Papilloma of the bladder)	Work involving exposure to alpha-naphthylamine, beta-naphthylamine or benzidine or any part of the salts; and auramine or magenta.
2. Cancer, epithellomatons or ulceration of the skin or of the corneal surface of the eye due to tar, pitch, bitumen, mineral oil or paraffin, or any compound product or residue of any of these substances.	The use or handling of, or exposure to tar, pitch, bitumen, mineral oil (including paraffin) soot or any compound product or residue of any of these substances.
3. Cataract produced by exposure to the glare of, or rays from molten glass or molten or red hot metal.	Frequent and prolonged exposure to the glare of or rays from molten glass or red hot metal.
4. Deafness	Any industrial operation having excessive noise particularly in the higher frequencies.
5. Decompression sickness	Any process carried on in compressed or rarefied air.
(a) Caissons disease	Any process carried on in compressed air.
(b) Aeroembolism	Any process carried on in rarefied air.
6. Dermatitis due to irritants and sensitizers	The use or handling of chemical agents which are skin irritants and sensitizers.
7. Infections	
(a) Anthrax	Work in connection with animals infected with anthrax, handling of animal carcasses or parts of such carcasses including hides, hoofs and horns.
(b) Brucellosis	Any occupation involving handling of contaminated food and drink particularly milk, butter and cheese of infected goats and cows.

OCCUPATIONAL DISEASES

NATURE OF EMPLOYMENT

- (c) Glanders
Any occupation involving rabid dogs, or equine animals or carcasses.
 - (d) Rabies
Any occupation involving rabid dogs.
 - (e) Tuberculosis
Any occupation involving close and frequent contact with a source or sources of tuberculosis infection by reason of employment: (a) in the medical treatment or nursing of a person or persons suffering from tuberculosis, (b) as a laboratory worker, pathologist or postmortem worker, where occupation involves working with material which is a source of tuberculosis infection.
 - (f) Tularemia
Any occupation involving handling of rabbits, ground squirrels, mice or other rodents.
 - (g) Weill's disease
Any occupation involving handling of rats, mice, swine and dogs.
 - (h) Q. fever, or equine encephalomyelitis
Any occupation, involving handling of horses, cattle and sheep, or their slaughter and meat packing.
 - (i) Mite dermatitis
Any occupation involving handling of fowls or pigeons.
8. Ionizing radiation disease, inflammation, ulceration or malignant disease of skin or subcutaneous tissues of the bones or leukemia, or anemia of the aplastic type due to x-rays, ionizing particle, radium or other radioactive substances.
- (a) Acute radiation syndrome
Short durations of exposure to large doses of X-rays, gamma rays, alpha rays and beta rays.
 - (b) Chronic radiation syndrome
Chronic over exposure to X-rays with a long latent period affecting the skin, blood and reproductive organ.
 - (c) Glass Blower's cataract
Among furnace men, glass blowers, baker, blacksmith, foundry workers.

OCCUPATIONAL DISEASES

NATURE OF EMPLOYMENT

- These are workers exposed to infrared rays.
9. Poisoning and its sequelae caused by:
- (a) Ammonia
All work involving exposure to the risk concerned.
 - (b) Arenic or its toxic compound
All work involving exposure to the risk concerned.
 - (c) Benzene or its toxic homologues; nitro and aminotoxic derivatives of benzene or its homologue
All work involving exposure to the risk concerned.
 - (d) Beryllium or its toxic compounds
All work involving exposure to the risk concerned.
 - (e) Brass, zinc or nickel
All work involving exposure to the risk concerned.
 - (f) Carbon dioxide
All work involving exposure to the risk concerned.
 - (g) Carbon bisulfide
All work involving exposure to the risk concerned.
 - (h) Carbon monoxide
All work involving exposure to the risk concerned.
 - (i) Chlorine
All work involving exposure to the risk concerned.
 - (j) Chrome or its toxic compounds
All work involving exposure to the risk concerned.
 - (k) Dinitrophenol or its homologue
All work involving exposure to the risk concerned.
 - (l) Halogen derivatives of hydrocarbon of the aliphatic series
All work involving exposure to the risk concerned.
 - (m) Lead or its toxic compounds
All work involving exposure to the risk concerned.
 - (n) Manganese or its toxic compounds
All work involving exposure to the risk concerned.

OCCUPATIONAL DISEASES

NATURE OF EMPLOYMENT

- (o) Mercury or its toxic compounds All work involving exposure to the risk concerned.
 - (p) Nitrous fumes All work involving exposure to the risk concerned.
 - (q) Phosgene All work involving exposure to the risk concerned.
 - (r) Phosphorus or its toxic compounds All work involving exposure to the risk concerned.
 - (s) Sulfur dioxide All work involving exposure to the risk concerned.
10. Pneumoconioses
- (a) Coal miners Exposure to coal dust.
 - (b) Bysinosis Exposure to cotton dust causing weaver's cough or mill fever.
 - (c) Bagassosis Exposure to sugar cane dust.
 - (d) Psittacosis Any occupation involving handling of parrots, parakeets and other species of birds.
11. Diseases caused by abnormalities in temperature and humidity.
- (a) Heat stroke/cramps/exhaustion Any occupation involving exposure to excessive heat.
 - (b) Chilblain/frostbite/freezing Any occupation involving exposure to excessive cold.
 - (c) Immersion foot/general hypothermia Any occupation involving exposure to excessive cold.
12. Vascular disturbance in the upper extremities due to continuous vibration from pneumatic tools or power drills, riveting machines or hammers.
- Any occupation causing repeated motions, vibrations and pressure of upper extremities.

Disability, will the sum received before his death be deducted from the amount due the primary beneficiaries?

Yes. The amount received as PTD income benefit shall be deducted from the benefit due the primary beneficiaries who will be paid only for the remainder of the 5-year period or until the total payments equal ₱12,000 — whichever comes first.

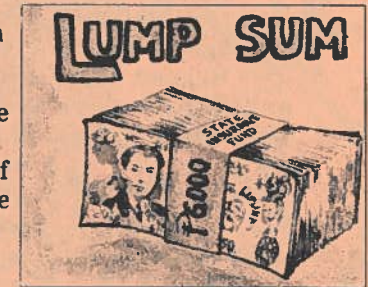
When are the secondary beneficiaries entitled to receive death benefits?

Only when the deceased employee has no primary beneficiaries at the time of his death.

How much are secondary beneficiaries entitled to receive?

The secondary beneficiaries shall receive a lump sum benefit which shall be the lowest of:

- a. ₱6,000;
- b. 35 times the employee's monthly income benefit; and
- c. The unpaid balance of his income benefit, if the employee dies within 5 years while receiving income benefit for Permanent Total Disability.



If the deceased employee has no beneficiaries at the time of his death, who shall be entitled to the death benefits?

The death benefits shall become a part of the State Insurance Fund. It is from this Fund that income benefits are paid out to covered employees.

When is injury, sickness, disability or death not compensable?

When these are due to the employee's:



Can an employee avail himself of benefits under the Employees' Compensation Program and benefits under another law for the same contingency at the same time?

No. When benefits for the same contingency are provided for under other laws, the qualified employee shall choose under which law shall benefits be paid to him.

If the benefits provided by the law chosen are less than the benefits under the Employees' Compensation Program, the System shall pay *only* the *difference* in benefits.

What are medical or related benefits?

Medical benefit means all payments made to the providers of medical care, rehabilitation services and hospital care which are extended to employees for work-connected injury, sickness or disability.

Related benefit means all payments for appliances and supplies provided the employees who contract work-connected sickness, or sustain work-connected injury or disability.

What medical or related services is an employee entitled to receive?

An employee who sustains work-connected injury or contracts work-connected sickness shall be entitled to:

- a. ward services during confinement in an accredited hospital;
- b. subsequent domiciliary care by an accredited physician; and
- c. medicines.

What do ward services consist of?

Ward services consist of all the services an in-patient would ordinarily receive in a hospital, such as:

- a. Bed in a ward (6 beds in a room);
- b. All meals, including special diets;
- c. Regular nursing services;
- d. Medicines furnished by the hospital;
- e. Laboratory services such as blood and urine tests;
- f. Radiology services such as X-rays;
- g. Medical supplies such as splints and casts;
- h. Use of appliances and equipment furnished by the hospital, such as a wheelchair, crutches and braces;
- i. Anesthetic services;
- j. Operating room charges;
- k. Surgery; and
- l. Doctor's services. (See illustration on opposite page.)

Under what conditions is an employee entitled to private or semi-private room accommodations?

An injured or sick employee is entitled to private or semi-private



room accommodations when it becomes medically necessary to isolate him because of the contagious nature of his disease.

If an employee receives services more expensive than ward services, shall the System pay for the services?

Ordinarily, if an injured or sick employee receives services more expensive than ward services, the System shall pay *only* for *ward services*. The excess of the total amount of expenses thus incurred shall be borne by the employee.

What is meant by "Ambulatory Services"?

Ambulatory services are services extended to patients who are treated for a specific minor surgical procedure or who undergo other treatment that keeps him in the hospital for less than 24 hours regardless of the hour of admission, and whether or not he uses a bed or whether or not he remains in the hospital past midnight.

When are ambulatory services allowed?

Ambulatory services are allowed only in case of injury.

Who are entitled to medical or related services?

Any employee who sustains a work-connected injury or contracts work-connected sickness is entitled to medical and/or related services as mentioned earlier.

During what stage of his injury or sickness is an employee to be provided with medical or related services?

An injured or sick employee should be provided with medical and/or related benefits starting on the *first day* of injury or sickness, during the subsequent period of his disability, and as the progress of his recovery may require.

Will the System pay for medical or related services to any hospital and any physician?

No. The System will authorize payments for medical or related services only to hospitals and physicians *accredited* by the ECC.

When is a hospital accredited?

A hospital shall be accredited by the ECC if it agrees:



- a. not to charge the patient for ward services;
- b. to return any money incorrectly collected;
- c. to provide services on a non-discriminating basis;
- d. to abide by the Rules on Employees' Compensation and State Insurance Fund; and
- e. to be a member in good standing of the Philippine Hospital Association.

When is a physician accredited?

A physician shall be accredited by the ECC if he agrees:

- a. not to charge the patient for ward services;
- b. to return any money incorrectly collected;
- c. to provide services on a non-discriminating basis;
- d. to abide by the Rules on Employees' Compensation and State Insurance Fund; and
- e. to be a member in good standing of the Philippine Medical Association.

When may non-accredited hospitals and non-accredited physicians be paid for medical or related services?

Only in cases of emergency.

When does an emergency exist?

An emergency exists when medical or related services are necessary to prevent death or serious damage to the employee's health.

However, no payment shall be made for services rendered when an emergency has ended.

When is an emergency deemed to have ended?

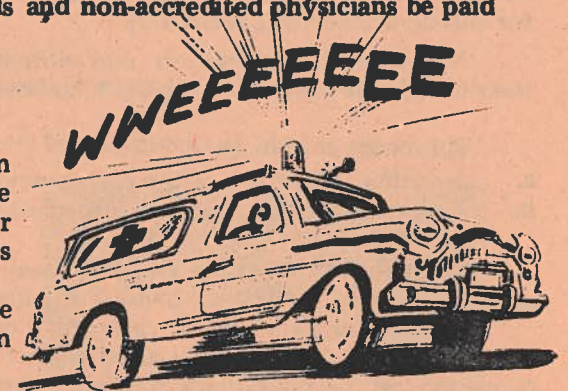
An emergency is deemed to have ended when it becomes safe, from the medical standpoint, to move the patient to an accredited hospital or to discharge him — whichever occurs first.

How will the existence, or the end, of an emergency be determined?

In determining the existence or the end of an emergency, the physician's evaluation of the case and, when appropriate, the patient's medical record and other additional data furnished by the hospital shall be the bases.

Can an accredited hospital or physician be discredited?

Yes. For violating any of the conditions of the agreement.





How much medical benefit is to be paid to an accredited physician for domiciliary care?

For domiciliary care extended to injured or sick employees, an accredited physician shall be paid a medical benefit not to exceed Ten Pesos (P 10.00) each daily visit.

How much medical benefit is to be paid for ambulatory services?

The medical benefit for ambulatory care in an accredited hospital — either by a physician in his hospital clinic, or by a training resident in an emergency — shall not exceed Ten Pesos (P10.00) a day, exclusive of drugs and medicines.

How will non-accredited hospitals and non-accredited physicians be paid for emergency services rendered?

Non-accredited hospitals and non-accredited physicians shall file their claims for medical or related benefits directly with the System.

The claim should be accompanied by a physician's statement which:

- describes the nature of the emergency,
- furnishes relevant clinical information about the condition of the patient, and
- states that the services rendered were necessary to prevent the death of the individual or the serious impairment of his health.

A bare statement that an emergency existed is *not* sufficient.

When in-patient services are involved, the statement shall include the date when, in the physician's judgment, the emergency ceased.

What are rehabilitation services?

Rehabilitation services are services designed to help an injured or disabled employee, entitled to such services, attain the restoration of his physical capacity to the maximum level as early as possible so that he can remain to be a productive and useful member of society.

The Labor Code provides for the System to establish, as soon as practicable, "a continuing program for the rehabilitation of injured or handicapped employees, who shall be entitled to rehabilitation



services which shall consist of medical, surgical, or hospital treatment, including appliances if they have been handicapped by the injury, to help them become physically independent."

The Code further provides that, as soon as practicable, "the System shall establish centers equipped and staffed to provide a balanced program of remedial treatment, vocational assessment and preparation designed to meet the individual needs of each handicapped employee to restore him to suitable employment, including assistance as may be within its resources to help each rehabilitee to develop his mental, vocational or social potential."

Who are entitled to rehabilitation services?

Any employee who sustains a *permanent disability* as a result of a work-connected injury or sickness.

How can an employee be entitled to cash income benefits, medical or related services, or rehabilitation services?

An employee is entitled to cash income benefit, medical or related services, or rehabilitation services if:

- he is duly registered with the System;
- he sustains an injury, contracts sickness, or gets disabled as a result of injury or sickness; and
- the System is duly notified of the injury, sickness, or disability.

How is an employee registered with the System?

An employee does not by himself register with the System.

He is registered with the System thru his employer by accomplishing the prescribed forms.

Where does an employer register his employees?

- With the GSIS — for employees in the National Government, its political subdivisions or instrumentalities, and in government-owned or controlled corporations.
- With the SSS — for employees in the private sector.

When should employees be registered?

Employees who are covered by the GSIS shall be registered within one month from the date of employment.



Employees who are covered by the SSS shall be registered according to the following guidelines:

- a. Every employee already registered with the SSS need not be registered again, for he is automatically registered.
- b. Every employee not yet registered with the SSS shall be registered not later than the *first day* of employment.

Is an employee registered separately for coverage under the GSIS/SSS, Medicare and Employees' Compensation Program?

No. Only one registration is needed for coverage under the GSIS/SSS, Medicare and Employees' Compensation Program.

Do employers need to register for coverage under the Employees' Compensation Program?

Yes, employers covered by the GSIS and the SSS shall register with the Employees' Compensation Program.

When shall employers register under the Employees' Compensation Program?

Employers shall register under the Employees' Compensation Program according to the following guidelines:

- a. For employers covered by the GSIS —
 - 1) Every employer operating BEFORE January 1, 1975 should have registered not later than March 31, 1975.
 - 2) Every employer operating on or after January 1, 1975 shall register within *one month* from the first day of operation.
- b. For employers covered by the SSS —
 - 1) Every employer already registered with the SSS need not register again for he is automatically registered.
 - 2) Every employer not yet registered with the SSS shall register not later than the *first day* of operation.

Is an employer penalized by law if he fails or refuses to register his employees with the System?

Yes. The official responsible for such violation shall be fined from ₱1,000 to ₱10,000 and/or imprisoned for the duration of the violation or non-compliance, at the court's discretion.

If a compensable contingency occurs before an employee is reported for coverage to the System, is he entitled to any benefit? From whom?



Yes, he is entitled to receive the due benefits from the System.

However, the employer shall be liable to the System for the *lump sum* equivalent of the benefits due him or his dependents.

How much is the employee's contribution to the Employees' Compensation Program?

None. The employee does not contribute any amount to the Employees' Compensation Program.

Any contract or device for the deduction of any portion of the contribution from the wages or salaries of the employee shall be *null and void*.

How much is the employer's contribution to the Employees' Compensation Program?

The employer pays to the System an amount corresponding to the employee's salary or monthly salary credit according to the following schedule:

- a. For employees covered by the GSIS:

One per cent (1%) of the *actual* wage or salary an employee receives at the end of the month but not to exceed ₱10 for every employee.
- b. For employees covered by the SSS:

One per cent (1%) of an employee's monthly salary credit in accordance with the tabulation below:

Salary Bracket	Monthly Salary Credit	Employer's Contribution
I	₱ 25	₱ 0.25
II	₱ 75	₱ 0.75
III	₱ 125	₱ 1.25
IV	₱ 175	₱ 1.75
V	₱ 225	₱ 2.25
VI	₱ 300	₱ 3.00
VII	₱ 425	₱ 4.25
VIII	₱ 600	₱ 6.00
IX	₱ 800	₱ 8.00
X	₱1,000	₱10.00

When should the contribution to the System be remitted?

The employer should remit the contributions every month starting from the first month of employment — but not earlier than January 1975 — and for as long as the employee has earnings.

Is the employer penalized if he fails to remit on time?

Yes. An employer covered by the SSS shall pay, in case of delinquency, a penalty of *three per cent* (3%) per month from the date the contribution falls due until paid, besides the contribution.

Who will notify the System in the event of injury, sickness, or death?

The employer will notify the System of the occurrence of any of these contingencies.

What is the procedure in notification?

In case of injury, sickness or death, the following procedure shall be followed in notifying the System:

- a. The employee, his dependents or anybody, on his behalf, shall notify his employer within 5 days from the occurrence of the contingency.
- b. The employer shall record in his logbook *all* contingencies within 5 days from the date of notification or knowledge of the contingency.
- c. The employer shall then notify the System, in a prescribed form, only of the contingency which he deems to be work-connected within 5 days from the date of entry in his logbook.

What is the employer's logbook?

Every employer shall keep a logbook to record chronologically every incidence of injury, sickness or death of his employees, whether compensable or not, as reported to him or of which he has knowledge.

The entry should state the NAME of the employee, the DATE, the PLACE and NATURE of the contingency, and the employee's ABSENCES.

Is the employer penalized if he fails to record the contingency in his logbook within 5 days from knowledge or due notice of the contingency?

Yes, the employer shall be liable to 50% of the lump sum equivalent of the income benefit to which his employees may be found to be entitled, and/or a fine and imprisonment, at the court's discretion. The fine shall be from P500 to P5,000; imprisonment shall not be less than 6 months nor more than one year.

When is notification by the employee to his employer not necessary?

The employee is not required to notify his employer of the contingency if:

- a. the contingency is known to the employer or his representative, or
- b. the contingency occurred at his workplace.

Is the employer's notification to the System sufficient for the employee to be entitled to receive income benefits?

No. The employee himself, his dependents or his employer, on his



behalf, must first file a claim for income benefit with the System before he can be paid his income benefit.

Where does the employee file his claim?

Claims shall be filed with:

- a. the GSIS — for employees in the National Government, its political subdivisions or instrumentalities, and in government-owned or controlled corporations.
- b. The SSS — for employees in the private sector.

When should an employee file his income benefit?

Claims for income benefit for disability or death must be filed with the System by the employee, his dependents or anybody, on his behalf, within *one year* from notice of the contingency to the employer, unless such notice is not required as pointed out earlier.

How is a claim filed and processed?

The employee may file his claim directly with the System in a prescribed form.

The System shall process the claim upon receipt thereof, and determine if the contingency is compensable. If the supporting papers are insufficient, the System may require the claimant to submit additional proofs.

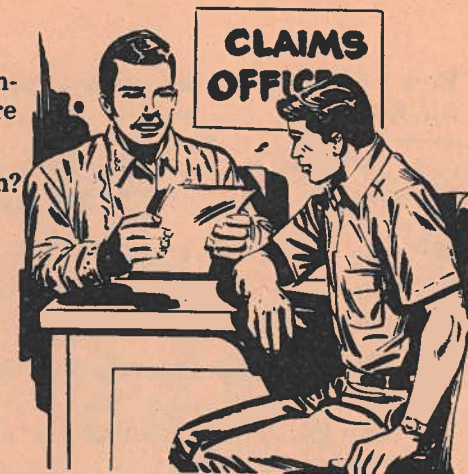
The System shall evaluate the claim within 5 days from submission of the complete requirements, and the decision either denying or awarding compensation shall be made promptly.

Can the claimant — in case of denial by the System— ask for reconsideration?

Yes. The claimant may be allowed to submit to the System, within 5 days from his receipt of the letter of denial, additional proofs to support his claim.

In case of denial, or affirmation of denial, where can the claimant appeal from the System's decision?

To the Employees' Compensation Commission.



How and when does a claimant appeal from the System's decision to the ECC?

By informing the System *in writing* of his desire to appeal from the System's decision within 10 days from his receipt of the decision.

How are the appeals to the ECC processed?

After the claimant has informed the System of his desire to appeal from its decision to the ECC:

- The System shall forward, within 5 working days, the entire record of the case to the Commission for review.
- The Commission shall review and decide on the appealed case within 20 working days from submittal of the evidence.
- All awards granted by the ECC shall be complied with by the System within 15 working days from receipt of notice thereof.

What are the advantages of the new Employees' Compensation Program over the defunct Workmen's Compensation System?

The advantages of the new Employees' Compensation Program over the defunct Workmen's Compensation System are:

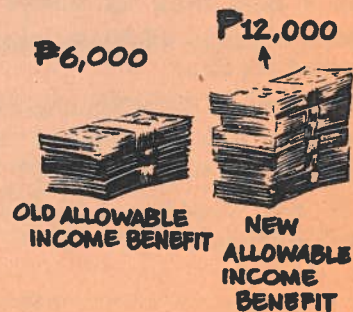
a. *Integration of Benefits*

Compensation benefits for work-connected injury, sickness, disability and death have been integrated with those of the SSS/GSIS and Medicare, thereby simplifying and facilitating the processing of claims.



b. *Increase in Benefits*

Allowable income benefit has been increased to a maximum of P12,000 from P6,000 and the period of entitlement to 5 years from 4 years. Burial expenses have also been increased from P200 to P750.



c. *Prompt Payment of Benefits*

The new Employees' Compensation Program does away with the adversary type of proceedings obtaining under the old system so that controversy by the employer or by the insurance-company of the claim is eliminated. In other words, the claimant does not even have to go to court to establish his claim. In fact, his own employer will even file the claim in his behalf. This new system results in the early settlement of claims and the prompt payment of income benefits. Generally, it now takes only TEN days to process and determine the compensability of a claim.

d. *Less Expense to claimants*

Legal services are dispensed with in the processing of claims in the System, thereby eliminating the payment of attorney's fees. In the old system, a sizable portion of the income benefit — when the claim did get to be awarded — was paid out to third parties.



Wider Coverage

More employees are now covered with the inclusion into the System of employers with at least one employee and regardless of the capitalization and the type or nature of their businesses.



f. Rehabilitation

A more balanced rehabilitation program, with a wider coverage, enables permanently disabled employees to avail themselves of rehabilitation services under the new Employees' Compensation Program which can help them regain, as early as possible, their physical capacity to the maximum level. In this manner, disabled workers can remain to be useful members of society and regain their self-confidence and their self-respect.

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BULLETIN TODAY, MON., JAN. 31, 1977

ILO expert is due

An adviser of the International Labor Organization, Prof. Alain Wisner of the Work Physiology and Ergonomics Laboratory of France, is arriving here on Thursday to begin a one-month study mission to aid the Philippine government improve working conditions and the working environment.

The mission, the first of its kind sent to an Asian country under the new ILO World Program to Improve Working Environment, is being undertaken on

(Continued on page 16)

ILO

(Cont'd from page 12)

the joint initiative of Labor Secretary Blas F. Opie and the ILO.

Wisner, who will be accompanied by Miss Josefina Dy, a Filipino staffer of ILO's Conventions of Work and Life Branch in Geneva, will study various approaches of government, employers' and workers' organizations toward improvement of working conditions as a first step to further ILO activities in the Philippines.

He will contact universities and research centers studying working conditions, develop institutional arrangements for training specialists in this field — particularly in Asian countries — and arrange for a case study on the impact of technology choice on working conditions.

The ILO program is designed to aid member countries to set and attain specific objectives in improving conditions of work and occupational safety and health. New standards for protection of working environment are due for adoption by the International Labor Conference to be held next June.

THE TIMES JOURNAL, TUESDAY, FEBRUARY 1, 1977

ILO man here Feb. 3 on labor study visit

An adviser of the International Labor Organization, Professor Alain Wisner of the Work Physiology and Ergonomics Laboratory of France, is arriving in Manila on Thursday, Feb. 3, to begin a one-month study mission to help the Philippine government improve working conditions and the working environment.

The mission, the first of its kind sent to an Asian country under the new ILO World Program to Improve Working Environment, is being undertaken on the joint initiative of Labor Secretary Blas F. Ople and the ILO.

Various approaches

Wisner, who will be accompanied by Miss Josefina Dy, a Filipina staffer of ILO's Conditions of Work and Life Branch in Geneva, will study various approaches of government, employers'

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Program

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New standards for protection of working environment are due for adoption by the International Labor Conference to be held next June.

La conférence annuelle de l'Association internationale de sciences économiques

Quelle technologie pour les pays du tiers-monde ?

L'ASSOCIATION internationale de sciences économiques, sous la présidence de M. E. Malinvaud, directeur de l'INSEE, a tenu cette année sa conférence annuelle à l'université de Téhéran, à la fin du mois dernier. Son thème était le choix des technologies appropriées pour les pays en voie de développement. Après la recherche de l'industrialisation à tout prix, puis le succès des techniques intermédiaires « à la chinoise »,

le moment est aujourd'hui bien venu pour faire le point à travers les succès et les échecs rencontrés ici et là de bientôt vingt années de stratégie de développement économique. Organisée par Sir Austin Robinson et par le recteur, M. H. Nahavandi, de l'université de Téhéran, cette rencontre a permis de dresser un éventail des différents problèmes soulevés par le choix des techniques en pays sous-développés.

QU'EST-CE qu'une technologie appropriée ? La majorité des participants à cette conférence a insisté sur la spécificité de cette notion, qui ne se confond ni avec l'« efficacité » ni avec la « rentabilité » des modèles micro-économiques d'optimisation. Mais à partir de là, deux tendances divergentes se sont manifestées. Pour la première, principalement représentée par des économistes britanniques, l'efficacité au sens économique du terme, sans être une condition suffisante, est une condition cependant nécessaire pour qu'une technologie puisse être considérée comme appropriée. Telle est, par exemple, la définition défendue par Sir Austin Robinson et P. Dasgupta. Pour la seconde, à laquelle se rallient un certain nombre de participants français, la notion de technologie appropriée n'est pas toujours compatible avec le critère d'efficacité, même définie en termes de coût d'opportunité.

C'est ainsi que M. Mercier, président de la SEDES, met en évidence dans son rapport la contradiction possible entre la recherche du maximum de quantité produite et l'objectif de l'équité dans la répartition des revenus résultant du choix d'une technologie. En prolongeant cette idée, il est possible de soutenir que, dans certains cas, une technique peut fort bien se trouver appropriée aux objectifs poursuivis tout en se révélant par ailleurs inefficace au sens strict de la théorie économique.

Ces deux positions révèlent le caractère ambigu de la notion de technologie appropriée. Il s'agit en réalité d'un concept relatif et multidimensionnel. Le caractère approprié d'une technique peut être envisagé à quatre points de vue différents, comme l'a clairement mis en évidence le rapport de P. Bourrières, directeur du B.C.E.O.M. : celui des objectifs, des ressources disponibles, de la nature des acteurs, et de l'évaluation des résultats antérieurs. Ce dernier critère fait du reste apparaître une difficulté supplémentaire tenant au choix d'une méthode d'évaluation pertinente. Sur cette question, la majorité des orateurs est tombée d'accord sur le fait que, au

moment de substitution des importations et taux de substitution des exportations) on serait tenté de conclure un peu rapidement à la sagesse de Taiwan, qui a préféré un développement harmonieux de ces deux secteurs en encourageant sa production agricole, et à la folie des Philippines, qui se sont au contraire abandonnées à l'industrialisation sauvage.

Telle n'est pas cependant la conclusion de M. Radis, qui explique que les résultats obtenus par Taiwan et les Philippines ne sont pas directement comparables et qu'ils ne peuvent être appréciés qu'à travers les modèles de société auxquels renvoient ces deux stratégies de développement. Cette observation se trouve renforcée par la comparaison entre les choix technologiques opérés respectivement par la Chine et le Japon, tels qu'ils se dégagent des rapports des professeurs C. Riskin (Columbia University) et S. Ishikawa Hitosubashi (University).

Cette confrontation permet en outre de remettre en cause un certain nombre d'idées reçues puisqu'on apprend notamment que les petites et moyennes entreprises ont joué un rôle déterminant dans le développement du Japon contemporain, tandis que la croissance des petites unités de production locale chinoises n'a pas empêché l'extension de secteurs économiques de grandes dimensions.

L'ensemble de ces expériences débouche cependant sur la question centrale : quelles sont la nature et l'étendue des options effectivement offertes aux pays en voie de développement, en matière de technologie ? De nombreux participants ont eu l'occasion de souligner la distance qui sépare en ce domaine la théorie pure des conditions pratiques d'application. Ainsi, la majorité des choix que rencontrent les pays en voie de développement portent moins sur des processus alternatifs de production concernant un même produit que sur les biens eux-mêmes qu'il convient de produire au niveau local.

Vus sous cet angle, les choix technolo-

riables économiques (emplois, prix, etc.).

En dépit de sa vocation scientifique, la conférence de Téhéran ne s'est pas cantonnée dans des discussions académiques. Elle s'est interrogée sur les moyens concrets de promouvoir un choix raisonné de techniques appropriées. Cette préoccupation a conduit les participants à discuter la stratégie suivie en la matière par les firmes multinationales implantées dans ces pays à partir des rapports établis par MM. Veldhuls (Unilever) et Ramaer (Philips). Elle a également examiné les conditions de prêts financiers accordés par des organismes internationaux, comme la Banque mondiale, représentée à la conférence par le Dr Dunkerley. Enfin et surtout, une proposition de Sir Austin Robinson, visant à la création d'une banque de données à la disposition des pays en voie de développement, a suscité un débat très animé.

Trois conclusions générales se dégagent de cette réunion. En premier lieu, l'inadaptation des règles simplificatrices du calcul économique néo-classique au problème du choix des techniques, en raison notamment de la pluralité des critères qui entrent en jeu. En second lieu, le renouvellement de ce que l'on peut appeler l'« économie normative » qui, sous l'impulsion en particulier du professeur A. Sen, de la London School of Economics, fournit les premiers éléments d'un cadre approprié pour formuler le véritable enjeu socio-économique des choix technologiques. Enfin, il semble, pour le moment au moins, tout à fait illusoire de chercher une doctrine unique en cette matière, en raison de l'incomparabilité des situations concrètes de choix.

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pour rejeter le système des prix de marché en raison de l'absence d'un marché véritable et de le remplacer par une évaluation en termes de coûts d'opportunité. Mais, des problèmes aussi importants que celui de la définition de systèmes de prix correspondant à des horizons temporels variés sont restés sans réponse.

La complexité d'une définition opérationnelle de la technologie appropriée se trouve encore accrue dès que l'on passe du débat théorique aux expériences concrètes. Ainsi, le professeur Radis, de l'université Yale, montre dans sa communication que des conditions objectivement semblables (dualisme économique, surplus de main-d'œuvre, ouverture vers l'extérieur) ont pu conduire deux pays, les Philippines et Taiwan, à opter pour des solutions technologiques opposées.

A la lecture des indicateurs économiques classiques (taux de croissance, taux de

giques apparaissent seulement induits d'options économiques beaucoup plus fondamentales. En outre, l'assimilation d'un choix technologique à la simple sélection d'un procédé technique ne tient aucun compte de la forme de « paquet technologique » que prennent le plus souvent aujourd'hui les procédés modernes. Enfin, on peut même douter qu'il existe de véritables alternatives technologiques pour des pays dont le développement dépend étroitement de richesses naturelles, exploitées selon des procédés uniques.

C'est ainsi que le Dr Rad-Serecht, de l'université de Téhéran, met en cause l'existence de choix technologiques véritables dans le cas de l'Iran. Une telle situation, cependant, n'élimine pas les choix nationaux mais inverse seulement les termes de la problématique : la technique n'est plus une variable à déterminer, mais une donnée à laquelle il convient d'adapter de la meilleure manière possible les différentes va-

Le redressement de l'Inde

(Suite de la page 17.)

La même orientation marque évidemment les relations avec les sociétés étrangères et leurs filiales indiennes. Ainsi que l'écrit *Economic and Political Weekly* : « Le plus grand gain (depuis l'état d'urgence), pour le gouvernement et la communauté d'affaires, est celui résultant de la fin des hésitations et d'un changement hardi par rapport à la politique antérieure. »

Maintenant, les sociétés étrangères, en particulier, si elles travaillent pour l'exportation, sont invitées à développer leurs activités.

Enfin, l'Inde a singulièrement resserré ses relations avec les pays producteurs de pétrole, auxquels elle vend notamment des connaissances techniques. Ainsi tend-elle à réduire le coût de ses achats pétroliers, qui absorbaient, bon an mal an, les trois cinquièmes de ses réserves de changes, et à capter un peu de la manne des pétrodollars. L'Iran, par exemple, financera la mise en valeur d'un grand gisement indien de minéral de fer. Mais c'est une filiale de l'U.S. Steel qui sera chargée de l'ingénierie... Aussi n'est-il pas surprenant que l'ambassadeur des Etats-Unis à New-Delhi déclare que son pays « revient très fort »

en Inde et que les milieux d'affaires américains se montrent intéressés par « toutes les opportunités d'investissements » que semble leur offrir ce pays.

Quelles sont les retombées de cet inflexion économique et son « coût social » ? Les « masses » profitent, certes, de la stabilité relative des prix. Mais toute augmentation de leur pouvoir d'achat est également freinée. Les primes annuelles correspondant à un treizième mois de salaire ont été carrément réduites sur ordre du gouvernement, et les entreprises qui n'enregistrent pas de bénéfices sont exemptées de leur versement.

Les grèves, les séquestrations de dirigeants d'entreprises, auxquelles étaient imputées une partie des difficultés du secteur industriel, sont interdites mais n'ont pas totalement disparu. Et si les fermetures d'établissement sont également prohibées, plusieurs manufactures de jute jugées « malades » ont été autorisées à licencier quelques dizaines de milliers d'ouvriers au Bengale-Occidental. Sans doute faudra-t-il que la reprise soit très soutenue pour qu'elle ouvre des perspectives d'emplois aux neuf millions de sans-travail déclarés que compte l'Inde.

GÉRARD VIRATELLE.



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GROUPE IV. — Quatre-vingt-dix (90) clés sectionnatrices avec mécanisme d'opération motorisé, tension nominale 500 kV, courant nominal 2500 A, 60 Hz, courant momentané 10 kA (rms) montage horizontal, ouverture verticale, avec soixante-dix-huit (78) unités sans lames de terre et douze (12) unités avec lames de terre.

GROUPE V. — Quatre-vingt-dix (90) clés sectionnatrices avec mécanisme d'opération tension nominale 500 kV, 60 Hz, courant d'interruption 35 et 45 kA (symétrique), temps d'interruption 2 cycles, avec résistance de pré-insertion de 400 ohms, air comprimé ou SF₆.

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BIBLIOGRAPHIE

UN NOUVEAU LIVRE DE FRANÇOIS PERROUX
Vers une théorie adaptée au réel

par PIERRE URI

Il y a un peu plus de deux ans, M. François Perroux avait publié sous le titre *Pouvoir et Economie* un petit livre plein de sève : reprenant tous les concepts fondamentaux de la théorie, de la micro à la macro-économie, de l'individu à la nation, de l'équilibre à la croissance, il les reformulait en introduisant au cœur de l'analyse la notion de pouvoir qui est, au dire de Bertrand Russell, l'essence même des sciences sociales ; il ordonnait autour d'elle ses propres apports sur les structures, les effets de domination ou d'entraînement, les pôles de développement. C'était l'introduction à une économie nouvelle ; elle écartait les représentations irréalistes qui ne tiennent compte ni des inégalités fondamentales de situation ou d'influence ni de l'effort des agents pour changer leur environnement, qui ignorent les déplacements des positions relatives au sein d'une évolution globale et laissent même de côté la puissance publique et les transferts de tous

ordres. Cette introduction appelait la rédaction d'un traité. Voilà qui est fait.

Le titre *Unités actives et mathématiques nouvelles* (*) met immédiatement l'accent sur deux préoccupations centrales : réintroduire des sujets authentiques, qu'ils soient individus, entreprises ou groupes, et qui sont porteurs de mémoire, d'un projet, d'une capacité d'action, en place de pièces inertes ; mettre au service d'une analyse renouvelée les instruments les plus neufs et les plus variés des mathématiques. Le sous-titre « Révision de la théorie de l'équilibre économique général » axe tout le propos sur le cœur même du discours économique. « Le moyen direct d'apprécier la pensée d'un économiste de métier est de l'interroger au fond sur la notion d'équilibre général qu'il retient... » Il en est de la théorie en économie comme de la philosophie : on en fait toujours, au pire implicitement ; il est essentiel qu'elle devienne consciente et explicite, pour pouvoir être discutée et ajustée.

laquelle aucun agent n'a d'influence sur le prix. « La liberté humaine, disait Walras, ne se laissera jamais résoudre en équations » ; et la concurrence parfaite n'était, pour Pareto, qu'une des voies à explorer ; il donnait autant de poids aux obstacles qu'aux goûts.

Les reformulations n'ont pas manqué : substitution de la topologie au calcul différentiel chez Debreu, et, chez Arrow, effort pour surmonter la coupure entre individus et entreprises (les familles sont associées aux profits), pour insérer des monopoles et même les biens publics. François Perroux n'écarte rien de ces apports. Mais il observe qu'on n'y trouve encore qu'un « équilibre des choses » ; ces représentations ignorent le temps nécessaire aux calculs et nécessairement inégal selon les agents, écartent la dimension fondamentale de la concurrence, qui est dynamique à travers la création ou la concertation. Il faut donc un progrès décisif pour décrire un « équilibre des agents » caractérisés par leur situation de départ, les structures où ils sont pris, leur énergie de changement.

François Perroux assure modestement qu'il prend place dans une évolution et que la recherche n'est pas achevée. Du moins elle permet l'analyse concrète des inégalités autour de deux notions capitales de notre temps, l'énergie et l'information ; elle renoue avec l'idée des luttes-concours qui remonte à Cournot, de sorte que l'équilibre apparaît comme résultante de tensions, de conflits et de relations de pouvoir. Sur cette base se dégage la construction propre offerte par François Perroux. L'agent pris dans toute sa force et son originalité ne fait pas obstacle à la formalisation : la représentation topologique doit tenir compte de l'espace où il étend son action autant que de celui où il se trouve encadré. De même que la théorie générale de Keynes

englobe l'équilibre classique comme un cas particulier en position de plein emploi, notre auteur développe, suivant une expression qu'il affectionne, une théorie « englobante » où l'équilibre walrasien apparaît comme un cas très particulier, et en outre irréaliste puisqu'il ignore les variations des actifs qu'entraîne l'ajustement des prix.

François Perroux dépasse la coupure entre l'analyse des marchés, c'est-à-dire les équilibres partiels, et la formulation de l'équilibre général : les progrès de la première ont été considérables ; les formes de concurrence imparfaite, y compris sous l'influence des coûts de vente, les marchés à deux ou à petit nombre de vendeurs mettent en scène des stratégies qu'a explorées la théorie des jeux. Perroux jette des aperçus neufs sur l'oligopole si caractéristique de notre temps, et intègre dans son modèle d'équilibre général, toutes ces formes de marchés.

Une autre révision fondamentale concerne les relations internationales : elles sont autre chose que la traversée des frontières ; il faut donner tout leur poids aux relations d'information et d'interaction entre les entreprises et leurs gouvernements ; il faut faire

sa place à l'espace économique inter-frontières qui lie une entreprise multinationale à ses filiales ; il faut porter attention à l'exportation poussée par le vendeur à côté de celle qui est tirée par la demande.

Cette approche rend en outre sa dimension véritable à la monnaie. Elle ne fournit pas seulement, comme dans les modèles classiques, l'équation supplémentaire qui codétermine toutes les autres ; si elle est instrument de précaution, elle est inséparable du facteur temps ; la demande de monnaie n'est pas identique à l'offre de biens, elle tend seulement à l'égaliser à l'équilibre.

Le passage s'opère sans contradiction vers une dynamique où les états successifs ne se tirent pas les uns des autres, comme chez les néo-classiques, en fonction des prix prévus : il y a changement constant des rapports de pouvoir au cours de la croissance, aussi bien que des prix relatifs à travers ce qu'on tente de décrire comme leur niveau général. L'« équilibration » dynamique se substitue à l'équilibre hors du temps en gardant contralement présents des agents essentiellement différenciés par leurs moyens et leur volonté.

Un cheminement continu

François Perroux a réussi le tour de force de rassembler toute l'économie autour de ce thème central. Il y parvient par un cheminement continu où la richesse s'allie partout à la rigueur : il n'y a pas d'idées qui ne soient accompagnées de leur traduction en équations, en matrices ou en graphes ; comme disait Henri Poincaré : « Il n'y a pas de symboles pour les idées confuses. » Le style sobre n'exclut pas l'ironie, par exemple sur ces sosies qui, dans les modèles classiques, se substituent à des agents différenciés et vivants, sur la feinte naïveté avec laquelle on invoque la concurrence pour réclamer la liberté des prix qu'elle ne justifierait que si elle était

pure et parfaite, ou sur les économètres qui mettent des modèles de marchés au service de leurs systèmes mathématiques en inversant l'objet et l'instrument.

Comme on sait, la théorie de l'équilibre général dans ses premières formes classiques montre comment l'ensemble des services acquiert l'ensemble des biens dans un système où les prix se déterminent simultanément et réalisent du même coup le maximum d'utilité pour les agents en cause. Cette optimisation use des ressources du calcul différentiel. Les créateurs de cette théorie mathématique n'ignoraient pas les limites sur l'exercice qui repose sur l'hypothèse de la concurrence parfaite dans

Rejeter l'hypocrisie

Cette représentation soucieuse de fidélité au réel rejette l'hypocrisie consciente ou inconsciente de ceux qui sont dupes de modèles abusivement simplificateurs pour s'en remettre à un marché dont on ne spécifie même pas les composantes et les structures, du soin de régler les affaires humaines, en ignorant les phénomènes de répartition et les situations fondamentalement conflictuelles. Les choix de politique économique ne peuvent être finalement tranchés que par l'appel à des valeurs qui transcendent l'économique.

Par son érudition dominée, c'est-à-dire assimilée, située et dépassée, par sa remise en question toujours compensée par la création, par sa maîtrise des instruments les plus techniques et des liaisons entre disciplines, François Perroux n'a pas fini de nous étonner.

(*) *Unités actives et mathématiques nouvelles - Révision de la théorie de l'équilibre économique général*. Dunod, éditeur. Collection « Finance et Economie appliquée ». Vol. 50 - XVII + 205 p. + 70 p. de notes et annexes. Prix : 180 F.



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7 Janvier 1977

Monsieur Unni Nayar
Director ILO AREA OFFICE
MANILLE P.O. Box 2965
(Philippines)

Dear Mr Unni Nayar,

I am very happy that the good development of PIACT, the demand coming from Philippines Government and the decision of Mr Blanchard allow me to visit Manilla a second time and have a new occasion to work in the ILO area office in Manilla.

As you have seen on the papers you have received from Geneva, my task is a difficult one and I need help. I expect a lot from yourself and from your coworkers. Some of the ILO experts in Manilla have been extremely helpful the first time and I hope to see the continuation in February. I have also the great chance to be accompanied by Miss Dy who is a distinguished member of the ILO central service on working conditions in Geneva and also a Philippine, and the daughter of the remarkable director of WHO for South East Asia.

I will leave Paris February the 1st for Bangkok where I will have the benefit of a briefing from Mr Karasaki and his coworkers. I will arrive in Manilla Thursday the 3rd in the afternoon and I will take some rest in the hotel where I have reserved a room with the help of my travel agency. I intend to be at your office Friday the 4th around 9,30 a.m.

I thank you for the work you have to prepare my stay.

Seasons greetings,

Truly yours,

A. Wisner
Professeur de Physiologie du
Travail et Ergonomie au CNAM

7 Janvier 1977

Monsieur Karasaki
Deputy Director
ILO REGIONAL OFFICE for ASIA
P.O. Box 1759
BANGKOK (Thaïlande)

Dear Mr Karasaki,

I am very happy that the good development of PIACT, the demand coming from Philippines Government and the decision of Mr Blanchard allow me to visit your region a second time and to see you again.

As you have seen on the papers you have received from Geneva, my task is a difficult one and I need help. I hope that you will be able to give me the fruit of your important experience and knowledge of such missions during my too short stay in Bangkok.

I will arrive Wednesday the 2nd February at 7 a.m. by the flight TG 905. I know rather well Bangkok and I will go directly to the hotel where I have a reservation. Around 10 a.m. I will be at your office being free till 5 p.m. I intend to take a morning flight to Manilla Thursday the 3rd.

I am afraid, I will not be able to stop in Bangkok during my return flight. I have a very short period to work in Manilla, due to the fact that I can leave my job only for a short period.

Seasons greetings,

Truly yours,

A. Wisner
Professeur de Physiologie du
Travail et Ergonomie au CNAM

5 Janvier 1977

Monsieur Bernard Fortin
Directeur du Cabinet
Direction Générale - B.I.T.
CH 1211 GENEVE 22
(Suisse)

Cher ami,

Je vous remercie de votre lettre du 20 Décembre et de vos bons voeux, et je vous adresse les miens les plus sincères pour vous-même et l'importante action dont vous êtes la cheville ouvrière.

Je suis très heureux que vous ayez pu avoir l'accord du Ministre Oplé et j'attends avec intérêt confirmation de ma mission.

Je suis également heureux que Monsieur Blanchard ait écrit à Monsieur Citti mais, malheureusement, le double de cette lettre ne se trouvait pas joint à la vôtre.

Veillez agréer, cher ami, l'expression de mes sentiments dévoués.

A. Wisner



BUREAU INTERNATIONAL DU TRAVAIL
GENÈVE

CABINET DU DIRECTEUR GÉNÉRAL

le 20 décembre 1976

Cher Ami,

Je suis désolé de n'avoir pas répondu plus tôt à votre lettre du 2 décembre, mais j'ai été débordé.

Vous trouverez ci-joint copie de la lettre que M. Blanchard vient d'adresser à M. Citti. Je pense qu'elle répond à vos vœux.

Vous avez certainement reçu entretemps le mémo de M. Spyropoulos, qui prépare votre mission aux Philippines.

De mon côté, j'ai vu le Ministre Oplé, qui était à Genève, et qui vous attend à Manille. Le Directeur général lui adressera une lettre officielle lui demandant de vous accorder toutes facilités.

Tous mes meilleurs vœux en cette fin d'année, et au plaisir de vous revoir bientôt.

Très amicalement,

Bernard Fortin

Monsieur le Professeur A. Wisner
Conservatoire national des arts et métiers
Département des Sciences de l'Homme au Travail
41, rue Gay-Lussac
75005 - Paris

21 Décembre 1976

Monsieur G. Spyropoulos
Service des Conditions de travail
et de vie
BUREAU INTERNATIONAL DU TRAVAIL
CH 1211 GENEVE 22 (Suisse)

Cher Monsieur,

Je reçois régulièrement les lettres d'information du Laboratoire de Recherche Clinique sur le Stress, que dirige le Professeur Lennart Levi à Stockholm, et qui est un centre psychosocial de l'OMS.

Je note, en page 2 de la circulaire du 14 Décembre, que ce laboratoire a la responsabilité d'un thème qui lui est confié par le BIT, dans le cadre du PIACT. Or, il se trouve que ce thème "l'application de l'ergonomie à la prévention de la surcharge mentale" est un thème fondamental de notre laboratoire. Aussi serions-nous particulièrement heureux d'être associés aux travaux de cette recherche.

Par ailleurs, je souhaiterais que ma collaboration avec le BIT ne soit pas isolée, étant donné qu'en fait beaucoup de membres du laboratoire agissent avec moi dans la perspective du PIACT, en allant à l'étranger et en recevant des stagiaires. Je serais donc heureux de savoir à quelles conditions une étude analogue à celle qui a été confiée au laboratoire de Stockholm pourrait nous être attribuée, si toutefois cela entre dans les perspectives de votre Service.

Je vous remercie de votre aimable lettre du 16 Décembre et du projet de mission aux Philippines, qui est tout à fait conforme à mes vues.

Veillez agréer, cher Monsieur, l'expression de mes sentiments dévoués.

A. Wisner



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BUREAU INTERNATIONAL DU TRAVAIL
OFICINA INTERNACIONAL DEL TRABAJO

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Réf. BIT/ILO n° PIACT 471

Votre réf. n°

Professeur A. Wisner,
Conservatoire national
des Arts et Métiers,
Département des Sciences
de l'Homme au Travail,
41 rue Gay-Lussac,
75005 PARIS

(France)

6 DEC. 1976

Cher Monsieur,

Comme suite à ma lettre du 9 décembre 1976, je vous prie de trouver ci-joint copie d'un mémorandum que je viens d'adresser à notre Bureau de Manille concernant votre mission aux Philippines.

Ainsi que vous le verrez, des contacts préliminaires ont été pris, à Genève, avec le Ministre M. Ople. J'espère que le Bureau de Manille confirmera l'acceptation du Ministère du Travail en ce qui concerne la mission proposée, tout en faisant, d'ores et déjà, le nécessaire pour préparer cette mission.

Je vous recontacterai dès réception de la confirmation du Bureau de Manille.

En attendant, je vous envoie mes meilleurs voeux pour Noël et la nouvelle année et vous prie d'agréer, cher Monsieur, l'expression de mes sentiments très cordiaux.

G. Spyropoulos,
Chef du
Service des conditions de travail
et de vie,
Département des conditions et
du milieu de travail.

Professor Wisner

Mr. Unni Nayar, Director, Area Office,
Manila, Philippines

Mr. Spyropoulos, Chief, CONDI/T, Geneva

CL 110

FD/acg

PIACT 2-84

PIACT 4-1

14.12.1976

Mission of Philippines by Professor Wisner and Miss Dy

1. As part of the ILO International Programme for the Improvement of Working Conditions and Environment (PIACT) and in connection with our project on the social effects of choice of technology, a mission to the Philippines by Professor A. Wisner and Miss F.J. Dy is planned. Mr. A. Wisner's mission is from 1-28 February 1977 and Miss Dy's is from 1-10 february 1977.

2. Professor Wisner is an ILO consultant from the Work Physiology and Ergonomy Laboratory, French National Conservatory. He was in the Philippines (16-21 February) at the time of consultations concerning the launching of PIACT. Miss Dy is from the Conditions of Work and Life Branch, ILO;

3. This mission should be sent as a follow-up to the letter (copy attached) sent to the ILO by the Acting Secretary of the Labour Department of the Philippines in reply to the Director-General's circular letter of 16 December 1975. In this letter, Mr. Inciong had requested that the Philippines be given priority for a pilot mission to be undertaken by the ILO multidisciplinary team of specialists to assist the Department of Labour in the evaluation and improvement of national problems in the area of working conditions and environment.

4. The objectives of the mission are :

- a) To study the various approaches of the Government, employers and workers toward the improvement of working conditions. Specifically, this includes:
 - 1) policies and activities of Government Departments and agencies and employers' and workers' organisations, such as the Department of Labour, the Department of Health, the National Economic and Development Agency, the Chamber of Commerce, the trade union organisations, etc.;

- ii) conditions of work in various enterprises (e.g. agriculture, forestry, small-scale industries, etc.);
 - iii) work of universities and research centres related to working conditions;
 - iv) relevant projects and programmes of other UN agencies and the World Bank;
- b) to initiate and to develop institutional arrangements for training specialists in working conditions, especially within the Asean countries;
 - c) to make as concrete arrangements as possible for the execution of the case study on "Working Conditions and the Choice of Technology" (Research design attached).

5. Attached is a list of suggested contacts. Please note that some of the people mentioned have recently been written to with copies to you (our reference CL LLO). In addition, these contacts may suggest other persons who should be included in the mission itinerary.

6. A more detailed work programme will be sent to you by mid-January.

7. Secretary Ople has been informally informed about this mission. It is intended to follow this up by a letter from the Director-General. In the meantime, the Department of Labour should be fully informed of the planned mission.

8. In order for us to proceed with the necessary preparation, it is crucial that you confirm the Department of Labour's agreement regarding the dates and objectives of the mission. This should be done prior to preparing the itinerary.

9. A reply before the end of the first week of January would be greatly appreciated.

Visas: ~~CONFIDENTIAL~~
CABINET Mr. Fortin

I. Government

1. Department of Labour (Mr. Ople).
2. Department of Health.
3. National Economic and Development Agency (Mr. Manuel Alba).

II. Employers

Chamber of Commerce (Mr. Periquet and Mr. Borbon).

III. Trade Unions

1. Philippine Federation of Free Farmers (Mr. Jeremas Montemayor).
2. Representatives of various other unions.

IV. Universities

1. The University of the Philippines
 - College of Engineering (including the Industrial Research Centre).
 - School of Economics and the College of Business Administration (Professor R. Bantish, J. Encarnacion, and Mr. Mangahas have been contacted).
 - Institute of Small-scale Industries.
 - School of Agriculture.
 - Department of Psychology and Sociology.
 - College of Medicine (Department of Hygiene and Physiology).
2. Mindanao State University (Branch of the University of the Philippines).
 - Centre for Appropriate Technology.

3. Ateneo de Manila University
- Institute of Philippine Culture.
4. Asian Institute of Management (Professors Lazaro and Tan)/

V. Research Centres

1. International Rice Research Institute.
2. Centre for Research and Communication
(1607 Gorge Bocabo Street, Malate, Manila),
Mr. Bernardo Villegas has been contacted.
3. Regional Centre for Adaptive Technology
(if already in operation).
4. International Centre for Rural Reconstruction
(Cavite province).
5. There is also a centre which is a joint project of the
Departments of Labour and Health and the University
of the Philippines in Taft Avenue (possibly within the
College of Medicine compound) to train factory inspectors.

VI. International Organisations

- W.H.O., U.N.D.P. (Mr. Melford), F.A.O., U.N.E.S.C.O., etc.
- World Bank.

Visa: Mr. Fortin (CABINET)



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Réf. BIT/ILO n° PIACT 4-1

Votre réf. n°

Professeur A. Wisner,
Conservatoire national
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Département des Sciences
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41 rue Gay-Lussac,
75005 PARIS

(France)

29 DEC. 1976

Cher Monsieur,

Je vous remercie de votre lettre du 2 décembre, dont j'ai pris bonne note, ainsi que du projet de mission pour les Philippines qui lui était joint.

Sur la base d'une première lecture de ce document, je peux vous confirmer mon accord de principe avec vos propositions. Vous comprendrez cependant que des consultations sont nécessaires, au sein du Bureau, avant de confirmer cet accord par l'envoi d'un contrat de collaboration extérieure. Il va sans dire que je ferai de mon mieux pour que ces consultations puissent être menées à bien dans les jours à venir et pour que notre réponse définitive puisse vous être envoyée avant la fin du mois.

Je ne pense pas qu'il soit nécessaire de nous revoir avant votre départ pour les Philippines. En revanche, il faudrait prévoir un séjour à Genève de deux jours après votre voyage, de préférence pendant la période allant du lundi 21 mars au jeudi 7 avril 1977. Je vous saurais gré de bien vouloir me proposer les dates qui vous conviennent le mieux. Quant au billet d'avion, le BIT l'achètera et le mettra à votre disposition.

Je me réjouis sincèrement de cette nouvelle possibilité de collaboration. Vous savez, en effet, que nous considérons votre contribution au lancement et à la réalisation du PIACT, tant sur le plan de la réflexion comme sur celui de l'action pratique, comme non seulement utile, mais je dirais même capitale, notamment en ce qui concerne l'action du BIT dans le domaine de l'ergonomie et, de façon plus générale, à l'amélioration des conditions de travail dans les pays en voie de développement.

Je vous prie d'agréer, cher Monsieur, l'expression de mes sentiments très cordiaux.



G. Spyropoulos,
Chef du
Service des conditions de travail
et de vie,
Département des conditions et
du milieu de travail.

2 Décembre 1976

Monsieur Fortin
Directeur du Cabinet
Direction Générale du B.I.T.
CH 1211 GENEVE 22 (Suisse)

Cher ami,

Je vous remercie encore de l'amical accueil que vous m'avez réservé à Genève la semaine dernière, et de l'entrevue que vous m'avez ménagée avec Monsieur Blanchard.

Comme je m'y étais engagé, je vous adresse ci-joint un projet de mission aux Philippines que j'ai voulu motiver avec assez de soin de telle sorte qu'il apparaisse d'une part lié à un choix politique reposant sur des bases objectives et, d'autre part, lié à la taxonomie que j'ai proposée et qui paraît être à peu près acceptée par les services du B.I.T.

Il est bien évident que des choix restent à faire pour trouver les lieux et les agents les meilleurs aux Philippines, mais j'espère que l'intervalle de temps qui me sépare de mon départ éventuel permettra de préciser ce que j'ai à faire.

Les tâches que me confie le BIT sont à la fois un honneur pour le CNAM mais aussi une charge. Je crois que Monsieur Citti, Directeur du CNAM, serait très sensible au fait que le Directeur Général lui adresse une lettre le remerciant pour les facilités qu'il m'a laissées antérieurement pour participer à la préparation du PIACT, et lui demandant de bien vouloir maintenir cette attitude pour les années suivantes, en particulier pour la mission de Février 1977.

Il est bien évident que les usages universitaires m'interdisent à Monsieur Citti de s'opposer à de telles missions, mais je suis certain qu'il serait très sensible à une telle marque de courtoisie.

J'espère vous voir bientôt à Paris porteur de vos bons écrits, et vous prie d'agréer l'expression de mes sentiments amicaux.

A. Wisner

2 Décembre 1976

Monsieur G. Spyropoulos
Département des Conditions de
Travail et de Vie - B.I.T.
CH 1211 GENEVE 22 (Suisse)

Cher Monsieur,

Je vous remercie encore de l'aimable accueil que vous m'avez réservé à Genève la semaine dernière, et je vous prie de remercier de ma part tous les participants pour leur patience à mon égard et les contributions importantes qu'ils ont apportée à la discussion de mes réflexions trop limitées.

Comme je m'y étais engagé, je vous adresse dès aujourd'hui le projet de mission pour les Philippines. Si la Direction Générale juge toujours opportun de choisir ce pays, et si le Gouvernement philippin donne son accord, je serais heureux que vous me confirmiez, dès que vous le saurez, la mission et la période où elle aura lieu, afin que je puisse prendre mes dispositions, compte tenu de mes diverses responsabilités en France.

Par ailleurs, ce que je propose dans cette note est tout à fait indicatif et, comme vous le verrez dans la dernière partie, nécessite un choix très sévère dans les domaines d'intervention et dans les contacts avec les agents responsables. Je serais très heureux de recueillir vos critiques et vos conseils.

S'il vous paraît nécessaire que je vous revoie avant d'aller aux Philippines, je préférerais passer une journée à Genève indépendamment de ce voyage, car je ne voudrais pas raccourcir encore un séjour assez bref. De même, si vous jugez souhaitable de me voir après le voyage, je préférerais également que cette visite soit détachée de ma période de voyage en Asie, dussè-je payer moi-même l'aller-retour Paris-Genève comme cela s'est produit l'année dernière.

.../...

En ce qui concerne la Direction Régionale du B.I.T. à Bangkok, je crois qu'il est difficile d'éviter d'y passer à l'aller, et je propose pour cela la journée du mercredi 2 Février. Je souhaiterais éviter de renouveler ce contact à la fin de ma mission, car cela m'obligerait à quitter Manille le jeudi matin pour passer le vendredi à la Direction Régionale de Bangkok, ce qui constitue une amputation très importante de mon séjour aux Philippines. Toutefois, je ferai ce que vous déciderez, car certains blocages peuvent être définitifs.

Je serais également heureux de savoir, quand cette mission sera décidée, si c'est le BIT ou moi-même qui doit acheter le billet d'avion. J'ai, en effet, rencontré des difficultés à ce propos lors de ma mission de Février 1976.

Veillez agréer, cher Monsieur, l'expression de mes sentiments dévoués.

A. Wisner