

BALI 27 - 29 juillet 1988

INDONESIE P
JAPON -
IRAN P
THAÏLANDE P
COREE P
RFA -
UK -
SINGAPOUR P
INDE P
FINLANDE -
SVEDE -
BENGLADESH P
PHILIPPINES P
FRANCE -

PUDI 8 pages
P. indon. 6 pages.

50/50
indon. Etrang.

STATES ASIAN

INDONESIE
MALAISIE
PHILIPPINES = social
SINGAPOUR = social
THAÏLANDE

probleme reunion 91 BANGKOK

Confluence

WISNER - RUBIO

**SOUT-EAST ASIAN ERGONOMICS SOCIETY
(S E A E S)**

CERTIFICATE OF ATTENDANCE

presented to

A. Wisner

for having participated as

S P E A K E R

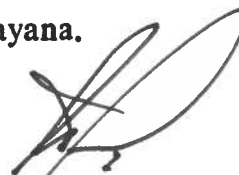
in the Second Conference of
South-East Asian Ergonomics Society,
held between 27 th - 29 th July, 1988
in Denpasar - Bali, Indonesia

organized by

SEAES with the co-operation of
the Indonesian Physiological Society

and

the Department of Physiology Faculty of Medicine
University of Udayana.



A. Manuaba

President of SEAES.

II

WISNER
RUBIO

- X - MASTERY
- X X - CONTROL (SATISFACTORY OPERATION)
STABILITY?
- XX XX X - DOWN GRADED MODE
- X - TECHNICAL SYSTEM
- X
X
X - ATROPHY - DILAPIDATION
AND SHORT LIFE
- XV - TEST RUN AND... NOTHING

X	CLARISSA RUBIO	PHILIPPINES
X	NERI DOS SANTOS	BRASIL
X	MOULDI SAGAR	TUNISIA
X	ALI KERBAL	ALGERIA
X	ARONA AW	SENEGAL
X	MICHEL GUY	FRANCE



HOTEL
BALI BEACH

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A SCALE OF SUCCESS IN TECHNOLOGY TRANSFER (WI)

- THE CRITERIA

- QUANTITY
- QUALITY

- THE HEALTH EFFECTS

DINIZ SILVA BRAZIL

- THE CULTURAL AND INDUSTRIAL ENVIRONMENT (INDUSTRIAL FABRIC)

CLARISSA RUBIO

- THE WORKERS COMPETENCES

AROMA AW (SENEGAL)
MICHEL SAILLY (FRANCE)

- MANAGEMENT QUALIFICATION

AROMA AW

- SOME APPLICATIONS OF

ORGANISATION CONTINGENCY THEORY

(post-it elwini)

10th May 1988

Professor A. Manuaba
Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia

Dear brother,

You shall find under the same cover, the summary of the report you have invited me to read in Bali next July. My coauthor is a very brilliant professor at the University of the Philippines, Quezon City, Metromanila, Ms Clarissa Rubio. She is now writing her thesis in Paris and she will not be able to attend the Bali Meeting. This thesis will be excellent. The concept of "mastery" she presents in our paper is new and very stimulating. I am sorry to have written 3 pages instead of 2 but as I have to prepare a report and not a communication, it will be perhaps acceptable.

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I intend to arrive at Denpasar Sunday 24th July at 10 pm coming from Paris, Bangkok and Jakarta by GA 898 but I am not yet sure of my reservation.

I am very happy to see you soon.

With my best regards, dear brother.

*suwey
an haduakan*
A. 15.3.88

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A. Wisner

Title of paper
Author (s)
Postal address
Presenter

MASTERY, SATISFACTORY OPERATION OR DOWNGRADED MODE OF TRANSFERRED TECHNOLOGY

A. WISNER* and C. RUBIO**

Summary of speech at the Second Conference of the South East Asia Ergonomics Society at Denpasar (Indonesia) - July 27th to 29th, 1988

Technology transfer is an old, universal process, but one which has taken on tremendous importance in the last ten years or so. This importance is all the more striking when, in addition to machines and operation and maintenance manuals, it includes organization systems, training programmes and experts' know-how.

The usual form of transfer involves very little adaptation to the real conditions of use in the purchaser country. Unfortunately, voltage variations or power failures, the insufficient quality and quantity of the water supply (salty, sandy, hard, etc.), the mediocrity of transport and telecommunications systems and the lack of competent workers, technicians and managers creates situations where the technical system fails to work or works abnormally: this is the downgraded mode. It has been shown (Wisner and coll., 1988) that, in this case, the planned production level may be reached within a certain time of delivery but the quality level is often disastrous, with goods barely finding a local use. In addition, the transferred technical system has numerous elements (controls, automated systems, alerts, etc.) which rapidly turn out to be useless in these unfavourable operation conditions: this is wasting of the technical apparatus (Kerbal, 1988). The activity of operators, which is sometimes very significant in the field of communication and control, is not sufficient to compensate for the failure of automated systems (SAGAR, 1988).

On the other hand, in countries or regions which have a more extensive and more developed industrial fabric, there are situations where the difficulties relative to local conditions have been systematically studied previous to the transfer. Solutions which are more or less efficient or more or less costly have been developed and applied in such a way that the technical system transferred operates in a way that is satisfactory in terms of quantity and quality. These efficient operating conditions are sometimes the result of original developments of the initial technology: developments themselves which could be transferred.

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This was noted, for example, in the French sector of electricity production in nuclear power stations. In fact the original technology is American, but major changes made to this technology in France led to original power stations which are exported. This situation of mastery of technology could be compared to that analyzed by C. Rubio (1988) in Filipino telephones using the old technology of electromechanical relays. Everything gradually became Filipino, including the production of spare parts under inventive conditions. Technical apparatus, including measuring instruments, were changed or replaced by Filipino design apparatus. As such, mastery of imported technology means that the purchasing company is able to find new solutions in order to develop and improve production.

In other cases, in between the situation of mastery and that of downgrading, there is a stage of satisfactory operation which complies with the conditions of the sale contract. Sometimes the compliance of system operation is very comprehensive, like the Rio Metro which uses technology very similar to that of the Paris Metro. Dos Santos (1985) showed that in this case the patterns of operators' visual fixations in the control room are similar in Rio and Paris. Unfortunately, in the same technology transfer, there may be more unfavourable aspects linked to insufficient transfer of know-how in the field of maintenance and the turnover of competent staff attracted by higher salaries outside the company which provided the training. In this case, there is also the fact that the stock of spare parts is not suited to the type of breakdowns observed locally. There are also major difficulties in solving rare and serious problems which may arise after a certain period of use. This no doubt explains the fact, observed very often, of the gradual downgrading of a system which operated satisfactorily at the outset. Finally, there is the extreme example in the "test run" where a satisfactory result is obtained on the day of inauguration, like a chemical plant in Senegal (AW, 1988) thanks to exceptional conditions: stable power supply, excellent water quality, presence of a large delegation from the seller country with experienced design office, production and maintenance staff using know-how which will never be transferred to the purchaser country.

As such, the situation of satisfactory operation is naturally very unstable when it does not result from the active acquisition of the technology by staff of the purchasing company, through mastery of the process. However, as shown by C. Rubio (1988) in the modern electronics technology stage which Filipino telephones have now reached, the expression of the purchaser's mastery is sometimes very restricted in the sale contract. In this case for example, the software must not be changed, even when this is required by the local situation, except where these changes are "transparent". Equipment repairs under guarantee are done by a firm associated with the seller. Maintenance is provided by the seller at the request of the purchaser. Although there is no obligation to buy spare parts from the sellers nor to have them repair equipment after the guarantee period, the fact is that the continued support of the seller is necessary for certain inevitable demands such as the supply of

special spare parts, the advice of the seller's specialists for major, complex changes in the software and for lots of hardware repairs.

However, there is a slow but continuous change in the operations done by the purchaser due to the professional progress of its staff and the development of scientific know-how in the Philippines.

Ergonomic analysis of work in the modern form of study of the course of action in the context of local pragmatic constraints is a excellent way in which to situate each company or company section on the continuum, ranging from downgrading to mastery, and to advance the company along this line.

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*Résumé de la conférence au colloque de la
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Le transfert de technologie est un processus ancien et universel, mais il a pris une grande importance depuis quelques dizaines d'années. Cette importance apparaît d'autant plus nettement que l'on y inclut à côté des machines les manuels d'utilisation et de maintenance, les systèmes d'organisation, les programmes de formation, le savoir des experts.

La forme habituelle du transfert ne prévoit que fort peu d'adaptations aux conditions concrètes d'utilisation dans le pays acheteur. Malheureusement, les variations de tension ou les pannes du courant électrique, l'insuffisance de la quantité et de la qualité de l'eau (salée, sableuse, calcaire, etc ...), la médiocrité des systèmes de transports et de télécommunications, l'insuffisance des cadres, techniciens et ouvriers compétents, créent des situations où le dispositif technique ne fonctionne pas ou fonctionne de façon anormale : c'est le mode dégradé. On a montré (Wisner et coll., 1988) que, dans ce cas, la quantité de production prévue peut être atteinte avec un certain délai après la livraison mais que la qualité est trop souvent désastreuse permettant à peine une utilisation locale des produits. Par ailleurs, le système technique transféré comporte de nombreux éléments (contrôles, automatismes, alertes, etc ...) qui sont très vite perçus comme inutiles dans ces conditions défavo-

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A l'opposé, on trouve dans des pays ou des régions où le tissu industriel est plus riche et plus dense, des situations où préalablement au transfert, les difficultés relatives aux conditions locales ont été systématiquement étudiées. Des solutions plus ou moins efficaces, plus ou moins coûteuses ont été élaborées et mises en oeuvre de telle sorte que le dispositif technique transféré fonctionne de façon satisfaisante en quantité et en qualité. Ces conditions de fonctionnement efficace sont parfois le résultat de développements originaux de la technologie initiale, développements qui pourraient eux-mêmes faire l'objet d'un transfert. C'est ce que l'on constate, par exemple, pour la filière française de production d'électricité dans des centrales nucléaires. En effet, la technologie d'origine en est américaine, mais les transformations importantes subies en France par cette technologie a donné naissance à des centrales originales et qui sont exportées. On peut rapprocher cette situation de maîtrise de la technologie de celle qu'a analysé C. Rubio (1988) dans les téléphones philippins utilisant l'ancienne technologie des relais électro-mécaniques. Tout y est devenu progressivement philippin, y compris la fabrication des pièces détachées selon des modalités originales. Des dispositifs techniques, en particulier des appareils de mesure, sont modifiés ou remplacés par des appareils de conception philippine. On entend donc par maîtrise de la technologie importée, le fait que l'entreprise acheteuse est en état de trouver des solutions nouvelles pour développer et améliorer la production.

Dans d'autres cas, intermédiaires à la situation de maîtrise et à celle de dégradation, on trouve un état de fonctionnement satisfaisant conforme aux conditions du contrat de vente. Il arrive que la conformité de fonctionnement du système soit très

grande comme pour le métro de Rio utilisant une technologie très voisine de celle du métro de Paris. Dos Santos (1985) montre, dans ce cas, que les patterns des fixations visuelles des opérateurs de la salle de contrôle sont analogues à Rio et à Paris.

Malheureusement, on peut trouver dans le même transfert de technologie des aspects plus défavorables liés à l'insuffisance de transfert des savoirs dans le domaine de la maintenance et à la rotation du personnel compétent attiré par des salaires plus élevés hors de l'entreprise qui a assuré la formation. On observe aussi, dans ce cas, une inadéquation du stock de pièces détachées au type de pannes observées localement. On note également de grandes difficultés pour résoudre les problèmes rares et graves qui peuvent se produire après un certain temps d'usage.

Cela explique sans doute le fait si souvent observé d'une dégradation progressive d'un système qui fonctionnait au début de façon acceptable. On peut en trouver un exemple extrême dans la situation de "test run" où un résultat satisfaisant est obtenu le jour de l'inauguration comme dans une usine chimique du Sénégal (AW, 1988) grâce à des conditions exceptionnelles : alimentation stable en électricité, qualité excellente de l'eau, présence d'une délégation importante du pays vendeur où des personnes expérimentées du bureau d'études, de la fabrication et de la maintenance utilisant un savoir-faire qui ne sera jamais transmis au pays acheteur.

Ainsi, la situation de fonctionnement satisfaisant est par nature très instable quand elle n'est pas le résultat d'une saisie active de la technologie par les membres de l'entreprise acheteuse, par la maîtrise du procédé. Toutefois, comme le montre C. Rubio (1988) dans la phase de technologie moderne électronique que connaissent maintenant les téléphones philippins, il arrive que le contrat d'achat limite de façon étroite, l'expression de la maîtrise des acheteurs. Dans ce cas, il est, par exemple, interdit de modifier les logiciels même si la situation l'exige sauf si ces changements sont "transparents". Les réparations de

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L'analyse ergonomique du travail sous la forme moderne de l'étude du cours d'action dans le cadre des contraintes pragmatiques locales, constitue un moyen puissant pour situer chaque entreprise ou partie d'entreprise sur le continuum qui va de la dégradation à la maîtrise et pour faire progresser l'entreprise selon cet axe.

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Summary of speech at the Second Conference of the South East Asia Ergonomics Society at Denpasar (Indonesia) - July 27th to 29th, 1988

Technology transfer is an old, universal process, but one which has taken on tremendous importance in the last ten years or so. This importance is all the more striking when, in addition to machines and operation and maintenance manuals, it includes organization systems, training programmes and experts' know-how.

The usual form of transfer involves very little adaptation to the real conditions of use in the purchaser country. Unfortunately, voltage variations or power failures, the insufficient quality and quantity of the water supply (salty, sandy, hard, etc.), the mediocrity of transport and telecommunications systems and the lack of competent workers, technicians and managers creates situations where the technical system fails to work or works abnormally: this is the downgraded mode. It has been shown (Wisner and coll., 1988) that, in this case, the planned production level may be reached within a certain time of delivery but the quality level is often disastrous, with goods barely finding a local use. In addition, the transferred technical system has numerous elements (controls, automated systems, alerts, etc.) which rapidly turn out to be useless in these unfavourable operation conditions: this is wasting of the technical apparatus (Kerbal, 1988). The activity of operators, which is sometimes very significant in the field of communication and control, is not sufficient to compensate for the failure of automated systems (SAGAR, 1988).

On the other hand, in countries or regions which have a more extensive and more developed industrial fabric, there are situations where the difficulties relative to local conditions have been systematically studied previous to the transfer. Solutions which are more or less efficient or more or less costly have been developed and applied in such a way that the technical system transferred operates in a way that is satisfactory in terms of quantity and quality. These efficient operating conditions are sometimes the result of original developments of the initial technology: developments themselves which could be transferred.

* Laboratoire d'Ergonomie du Conservatoire National des Arts et Métiers, 41 rue Gay-Lussac, 75005 Paris

** Faculty of Sociology, University of the Philippines, Quezon City.
Invited researcher at the Laboratoire d'Ergonomie du CNAM

This was noted, for example, in the French sector of electricity production in nuclear power stations. In fact the original technology is American, but major changes made to this technology in France led to original power stations which are exported. This situation of mastery of technology could be compared to that analyzed by C. Rubio (1988) in Filipino telephones using the old technology of electromechanical relays. Everything gradually became Filipino, including the production of spare parts under inventive conditions. Technical apparatus, including measuring instruments, were changed or replaced by Filipino design apparatus. As such, mastery of imported technology means that the purchasing company is able to find new solutions in order to develop and improve production.

In other cases, in between the situation of mastery and that of downgrading, there is a stage of satisfactory operation which complies with the conditions of the sale contract. Sometimes the compliance of system operation is very comprehensive, like the Rio Metro which uses technology very similar to that of the Paris Metro. Dos Santos (1985) showed that in this case the patterns of operators' visual fixations in the control room are similar in Rio and Paris. Unfortunately, in the same technology transfer, there may be more unfavourable aspects linked to insufficient transfer of know-how in the field of maintenance and the turnover of competent staff attracted by higher salaries outside the company which provided the training. In this case, there is also the fact that the stock of spare parts is not suited to the type of breakdowns observed locally. There are also major difficulties in solving rare and serious problems which may arise after a certain period of use. This no doubt explains the fact, observed very often, of the gradual downgrading of a system which operated satisfactorily at the outset. Finally, there is the extreme example in the "test run" where a satisfactory result is obtained on the day of inauguration, like a chemical plant in Senegal (AW, 1988) thanks to exceptional conditions: stable power supply, excellent water quality, presence of a large delegation from the seller country with experienced design office, production and maintenance staff using know-how which will never be transferred to the purchaser country.

As such, the situation of satisfactory operation is naturally very unstable when it does not result from the active acquisition of the technology by staff of the purchasing company, through mastery of the process. However, as shown by C. Rubio (1988) in the modern electronics technology stage which Filipino telephones have now reached, the expression of the purchaser's mastery is sometimes very restricted in the sale contract. In this case for example, the software must not be changed, even when this is required by the local situation, except where these changes are "transparent". Equipment repairs under guarantee are done by a firm associated with the seller. Maintenance is provided by the seller at the request of the purchaser. Although there is no obligation to buy spare parts from the sellers nor to have them repair equipment after the guarantee period, the fact is that the continued support of the seller is necessary for certain inevitable demands such as the supply of

special spare parts, the advice of the seller's specialists for major, complex changes in the software and for lots of hardware repairs.

However, there is a slow but continuous change in the operations done by the purchaser due to the professional progress of its staff and the development of scientific know-how in the Philippines.

Ergonomic analysis of work in the modern form of study of the course of action in the context of local pragmatic constraints is an excellent way in which to situate each company or company section on the continuum, ranging from downgrading to mastery, and to advance the company along this line.

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Generalities Linguis
SEAES

WISNER

BALISANUR

BUNGALOW

Dim 7.8.88

" DESA TENGANAN "

Desa Tenganan adalah salah satu dari desa Bali Aga di Bali. Desa Bali Aga lainnya ialah Desa Trunyan di Kintamani dan Desa Sembiran, Tiga Wasa di Singaraja. Sejarah nama Tenganan terdapat dua Versi, yang ditinjau dari segi metodologi dan ditinjau dari segi Prasasti Bali.

Menurut Metodologi dikatakan bahwa nama Tenganan berasal dari kata ngatengahang (bahasa Bali) yang berarti ke pedalaman. Kemudian dari sebutan ngatengahang ini dalam perkembangan melalui Proses asimilasi menjadi nama Tenganan. Dalam prasasti Bali nama Desa itu disebutnya dengan nama Tranganan yang kemudian dalam perkembangannya menjadi Tenganan.

Sedangkan mengenai sebutan Pegeringsingan ada hubungannya dengan hasil kerajinan menenun masyarakat Tenganan yaitu kain gringsing yang sudah dikenal di tingkat internasional.

Desa Tenganan, apabila diperhatikan dari ciri-cirinya merupakan desa peninggalan zaman megalithic. Ciri yang jelas adanya bangunan batu dan pemeliharaan kerbau yang dianggap sebagai binatang suci. Kerbau dilepas begitu saja di lingkungan desa yang merupakan milik komunal desa dan binatang itu baru dipotong untuk keperluan upacara saja.

Tempat-tempat suci di Desa Tenganan terwujud dalam 2 tipe. Tipe yang lebih tua menunjukkan pada zaman megalithic dan tipe yang lebih muda menunjukkan tempat suci yang ada hubungannya dengan tempat suci seperti di desa-desa lainnya di Bali.

Tempat-tempat suci yang merupakan peninggalan zaman megalithic seperti :

- Kaki dukun : Tempat suci yang merupakan bentuk dan yang menyerupai bentuk palus (kemaluan) kuda yang dalam keadaan tegak. Menurut kepercayaan masyarakat setempat apabila ada suami istri yang lama belum memperoleh keturunan dalam perkawinannya maka mereka mohon ke tempat suci itu untuk memperoleh keturunan.
- Batu Taikik atau Batu Talikik : tempat suci dari batu yang menyerupai monolith, dan menurut kepercayaan masyarakat adalah merupakan isi perut atau tahinya kuda. Upacara yang dilakukan di sini dengan sujud mohon kemakmuran.
- Rambut Pule adalah tempat suci yang merupakan ongkokan-ongkokan batu-batu kali. Rambut pule ini dianggap sebagai bekas kepala rambut kuda.
- Penimbangan adalah tempat suci yang berbentuk monolith besar, yang menurut kepercayaan masyarakat setempat dianggap sebagai bekas paha kuda. Upacara yang dilakukan di tempat suci ini dalam rangkaian upacara untuk *Truna Nyoman*.
- Batu Jaran : tempat suci yang oleh masyarakat setempat dianggap sebagai bekas tempat mata kuda.

Mengapa tempat-tempat suci di atas selalu dilambangkan de-

ngan kuda? Karena menurut cerita mitologi bahwa Raja Bedahulu di zaman dahulu kehilangan kuda. Kuda itu dicari ke jurusan Bali arah timur kemudian kuda itu dijumpai oleh Ki Patih Tunjung Biru dalam keadaan sudah mati. Karena setianya Ki Patih terhadap kuda itu maka oleh Raja ia diberi hak untuk menguasai daerah yang luasnya sampai di mana bangkai kuda itu bisa tercium. Dalam hal ini, maka Ki Patih yang cerdas itu memotong-motong bangkai kuda itu serta membawanya keliling, sehingga dengan demikian bisa lebih luas menguasai daerah itu. Keadaan ini dapat dilihat sampai kini dari adanya peninggalan.

Upacara-upacara penting yang perlu diketahui di Desa Tenganan ialah upacara sasih Kasa pada bulan Juli, upacara sasih Karo pada bulan Agustus, upacara sasih Ketiga pada bulan September, upacara sasih Kapat pada bulan Oktober, upacara sasih Kelima pada bulan November, upacara sasih Keenam pada bulan Desember, upacara sasih Kepitu pada bulan Januari, upacara sasih Kewolu pada bulan Februari, upacara sasih Kesanga pada bulan Maret, upacara sasih ke Dasa pada bulan April, upacara sasih Desta pada bulan Mei, upacara sasih Sada pada bulan Juni.

Yang paling terkenal dari upacara tersebut di atas adalah mekare-kare atau perang pandan. Mekare-kare ini adalah dalam rangkaian upacara sasih Kelima atau Ngusaba sambah yang berlangsung selama 1 bulan (bulan November). Selama upacara ini mekare-kare dilakukan sebanyak 4 kali yang tujuannya kemungkinan ada hubungannya dengan upacara tabuh rah.

Rangkaian upacara ini selalu diiringi dengan musik tradisional yang disebut gamelan selonding.

TENGANAN

Tenganan is one of few remaining "Bali Aga", or original Balinese villages in Bali. There are two versions of the history of this villages, one originating from mythology, the other from historical records. According to mythology, the name Tenganan is derived from the word "Ngatengahang" which is Balinese for interior. In historic records it is recorded as "Tranganan" with later developed to Tenganan. Now it is often given an additional title, Tenganan Pegeringsingan, referring to the rare double ikat woven cloth "Kain geringsing" that is made there.

The characteristics of this village have changed little since megalithic times. Houses are joined in long rows, with a wide common in between for ceremonial long houses. The occasional grey oxen, still regarded as a holy animal, wanders the street. These oxen are the communal property of the village, to be used for ceremonial purposes only.

The shrines in the village of Tenganan reflect its ancient ways and pre-Hindu religious customs. There are piles of

stones that date back to megalithic times, as well as similar to other temples in Bali. Amongst the ancient are many symbolising the part of a horse. There is a known as "Kaki Dukun" which is in the shape of an horses phallus. The village people believe that this has special powers, and if a childless husband and wife at this shrine they will be blessed with offspring. A monolith known as "Batu Taikik" is considered to be center of a horses stomach or its droppings.

Ceremonies are conducted here for prosperity and ple crops. "Rambut Pule" is another shrine made from of stones that is considered to contain the hair of a horse. Another large monolith is regarded to symbolise the of horse. An esoteric ceremony is conducted around shrine known as "Truna Nyoman". Yet another shrine known as "Batu Jaran" is considered to be the of the horse.

A strange tale lies behind all of this symbolism. According to mythology the Raja of Bedahulu once lost one of his horses.

He sent out people all over the island to search for it. Finally it was found dead, by a man known as Ki Patih Tunjung Biru. Because of his faithfulness the Raja promised to give his servant all the land, as far one could still smell the carcass of the dead horse. Being a far and wide, so at the time measuring the land he covered extensive area. This is the tale of how the people of Tenganan obtained such a area of fertile land, which to this day still belongs to the village.

A number of fascinating ceremonies are held in the village of Tenganan at different times of the year. The most famous of these is the "Mekare-kare" or "perang pandan" that takes place in the 5th month according to the Balinese calendar (November). Fights are held between the youths of the village using the barbed pandan leaves as weapons. The ancient gamelan "selonding" instrument accompanies the battle and crowds of people gather in full ceremonial dress to watch the gladiators. This ceremony is thought to be similar to the "tabuh rah" cock fighting tradition which is held for the purposes of shedding blood on ceremonial soil to appease the evil spirits.

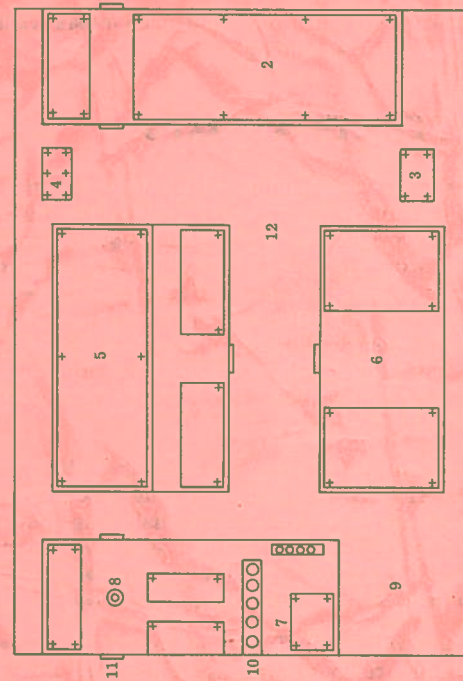
DESА TENGANAN (TENGANAN BURAKU)

Kono buraku wa betsumei dewa Bali Aga to yonde iru. Kono Aga to wa furui aruiwa junsui no Bali to iu imi de aru. Kono too zentai dewa kono buraku to onaji yoo na furui buraku ga yottsui arimasu. Kintamani no hoo de hitotsu Trunyan buraku Bali too hokubu no Buleleng (Singaraja) chiku ni hitotsu Sembiran to Tiga Wasa buraku, moo hitotsu ga kono Tenganan buraku desu. Koko wa Karangasem chiku ni

Denpasar kara yaku 70 Km. no tokoro kara yoku michi ni haita tokoro ni arimasu. Kono buraku no tokuchoo wa kuni no hooritsu higai ni buraku no kisoku ga arimashite sonchoo wo kashira to shite kisoku ni motosuite seikatsu shite iru. Buraku no seihin aruiwa senzo daidai kono buraku igai ni wa dekinai orimono *ikatto* (kain geringsing) wo katei koogyoo to shite seihin shite orimasu. Sore ga sekai demo yuumei de, okyaku San ga kenkyuu aruiwa motome ni kimasu. Gyooji to shite yuumei na no wa nen ni ikkai toge no aru happa wo kasanete. sore wo buki to shite kanshin hadaka no otoko tachi no gyooji ga akonawaremasu. Sono toki ni wa sekai-juu no okyaku, kameraman ga taihen afureru yoo ni kono buraku wo otozureru.



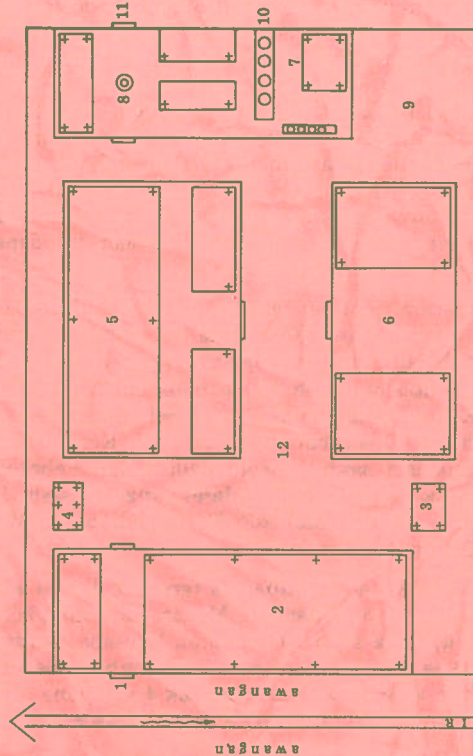
DESA TENGANAN



KETERANGAN DENAH / NOTE /

CHIZU AISETSU :

1. Lawang (pintu masuk).
2. Bale Buge (Balau suci).
3. Sanggah Kelod / Sanggah Kemulan.
4. Sanggah Pesmpangan.
5. Bale Tengahan (di atasnya untuk Lumbung).
6. Umah Mesten.



7. Poon (dapur).
8. Tempat menumbuk padi.
9. Belakang (tempat W.C.).
10. Tebe (tempat memelihara babi).
11. Lawang (pintu belakang).
12. Nalau (halaman).

HOTEL **BALI** BEACH

Conversation à déjeuner du 26. 7. 88

KITTI INTARAMONT professeur assistant à CHULALONGKORN
vu prendre contact avec moi après le 8 Août pour visiter le
département d'ingénierie. Il veut travailler avec nous

- HORINO, professeur à YOKOHAMA (Université?)
travaille dans les centrales nucléaires. Il veut un
enregistrement (type Côte d'Ivoire) de Paris ce qui se fait
refait dans les centrales. Il est intéressé par une
collaboration j'ai proposé PAVARD

Il dit que les Français mettent beaucoup d'argent
avec une quarantaine de profs dans l'Asian Institute
of Management et l'ayouvent à l'extérieur

HORINO fait partie du 2^e commun li chungru
nucléaire. L'invitation à Paris fin Sept - Début Oct 89
C'est d'accord -

Special Programmes

Various social programmes will be organized for the conference participants as well as for their accompanying persons.

Informal gathering, evening of 26 July 88.

Short evening tour on 27 July 1988.

Reception on 28 July 1988.

Activities/Accompanying persons' programmes (demonstration of Balinese Offerings, a wedding ceremony, traditional dances).

Post-conference half-day tour to ergonomics villages on 29 or 30 July 1988.

Climate for Participants

The climate in Bali in July is quite agreeable. The average temperature is 26-27° C as July is the coolest month of the year. It may rain but does not continue long.

July is thus the highest tourist season. It is recommended to secure your accommodation through our conference Secretariat in good advance.

Food of all varieties is available in Bali. Seafood and fruits are particularly good.

Excursion tours can be readily organised at reasonable prices. (handled by ASTINA Tours)

Village Ergonomics

A particular activity of interest in Bali is village ergonomics. A number of villages have participated, with the cooperation of the staff and students of the University of Udayana, in improving workplace arrangements in air cottage industries and agriculture.

Workstations allow natural postures and efficient work have been introduced in metalware, ceramics, weaving and other operations. Improved implements and better materials handling also benefited farming work.

Garuda the official carrier

Passengers on Garuda flight will have 25% discount on applicable fares to Bali & Sydney. Please contact Garuda offices.

SOUTH-EAST ASIAN ERGONOMICS SOCIETY (SEAES)

SEAES founded in 1984, is a professional society of researchers and practitioners in ergonomics who work primarily in ASEAN countries : Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand.

Its aim is to promote research and action in ergonomics, looking into human factors arising from the relationship between man and his occupation, equipment and environment in the countries in South-East Asia.

In view of the recent industrialisation and economic growth in the region, the promotion of ergonomics is particularly important in fostering sound development.

Technology often neglects local peoples' capacities and size. Its mismatch can bring about serious consequences for many people, such as accidents, discomfort, ill health and lowered productivity.

Recent experiences show that where ergonomics is effectively applied, it can make workplaces, equipment and products safer, more comfortable and more productive also in the context of the developing world.

The first General Meeting of SEAES was held in Denpasar in November 1985. It was held after the International Symposium on Ergonomics in Developing Countries organised in Jakarta by the ILO, WHO, the Ministry of Manpower in Indonesia, the International Ergonomics Association and SEAES.

SEAES organises meetings, promote study and training and help advance practical application in the field of ergonomics.

It publishes two publications :

- SEAES Newsletter and
- the Journal of Human Ergology (jointly with the Human Ergology Society based in Japan).

SOUTH - EAST ASIAN ERGONOMICS SOCIETY

SECOND CONFERENCE

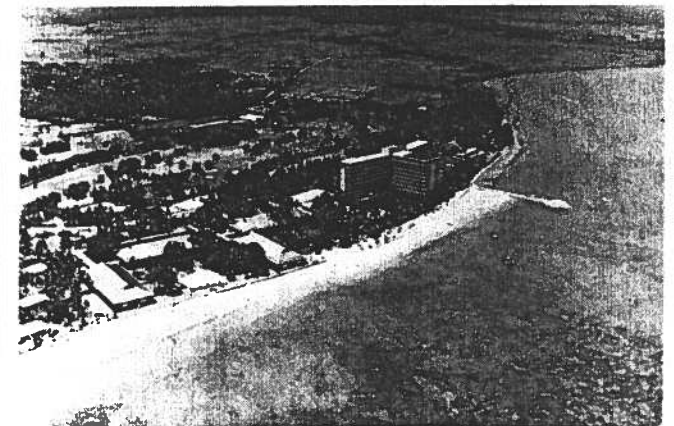
27 - 29 July 1988

Denpasar, Bali, Indonesia

**An
Associate Conference
of
10th IEA Congress
Sydney, Australia
1 - 5 August 1988**

Invitation to the Conference and Call for Contributions

Bali



BALI BEACH HOTEL Sanur Denpasar

Invitation to the Second SEAES Conference

Dear Friend, Fellow Colleague

You are cordially invited to take part in the Second Conference of the South-East Asian Ergonomics Society (SEAES) to be hosted by SEAES, the Indonesian Physiological Society and the Department of Physiology of Udayana University.

We are particularly delighted to hold the conference as an associate conference of the 10th Triennial Congress of the International Ergonomics Association (IEA) which will be hosted by the Ergonomics Society of Australia in Sydney from 1 - 5 August 1988, in the following week of our conference dates.

Four major themes of the conference have been selected to discuss "the role of ergonomics in development"

Special attention is directed to research and application of ergonomics in developing countries. Ergonomics is playing an increasingly important role in industrial and rural sectors in these countries.

Exchange of recent experiences in different parts of the world and in our region will facilitate this role through making work and equipment adapted to people and products fit for effective use.

Bali, the site of the conference, is known as the island where work and leisure go hand in hand. Its friendly atmosphere will no doubt make you at home during and outside the conference sessions.

We look forward to greeting you and fostering contacts and co-operation links in Denpasar, Bali, in 1988.

Adnyana Manuaba
SEAES President.

Programme.

The conference will be held over the three days of Wednesday 27 to Friday 29 July 1988. The scientific programme will cover four major themes. Each theme will be discussed by invited papers and participants' contributions.

Four major themes of the conference are :

- Rural/village ergonomics.
- Inter-country differences in ergonomics application.
- Education and training for ergonomics.
- Impacts of new technologies and the role of ergonomics.

Contributions to other areas of ergonomics interest are also welcome.

Language

English will be the official language of the conference.

Venue and Accommodation

The conference will be held at the Bali BEACH HOTEL, a four star hotel located at Sanur Beach, Denpasar. Special conference group rates will be applied to all the participants.

Further Information

If you wish to be kept informed of plans for the conference, or if you wish to make a contribution, please complete the appropriate parts of the attached form and air mail it to the address shown thereon as soon as possible. You will then be put on the mailing list for the Conference Registration Brochure to be mailed late 1987.

The address of the Conference Secretariat is :

Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia. Tel. : (0361) 26132

Important deadlines

Intent to contribute	31 December '87.
Abstract (200 words)	1 May 1988
Paper (2 pages)	1 June 1988

Call for contributors

Contributions will be accepted in the forms of reviews, research reports and case studies. All papers are planned to be orally presented.

The procedure for submitting an abstract and a camera-ready copy of the paper is given below.

Contributions concerning the four major themes of the conference and the other areas of interest are invited

Procedure

1. Further information : Fill in the Intention to Participate form and air mail it to the Conference Secretariat as soon as possible. A registration brochure will be sent in late 1987.

2. Intent to Contribute : Indicate in the Intention to Participate form that you are willing to contribute a paper. This must reach the Conference Secretariat by 31 December 1987.

3. Abstract : Prepare your abstract (in about 200 words) and air mail it to the Conference Secretariat so that it is received by 1 May 1988. Abstracts should be in English and typed single-spaced on a sheet of A4 paper. Include on your abstract your name, organisation, mailing address and conference theme which you intend to present the paper.

4. Acceptance : In due course you will be notified if your contribution has been accepted. Instruction to Authors will be sent at this time.

5. Proceedings : All contributions will be published as short papers and distributed to all the participants. Camera-ready copy (a maximum of 2 pages, single-spaced on A4 paper sheets) is due at the Conference Secretariat by 1 June 1988.

Registration

Final registration should be made later by filling in the registration form which will be sent to those in the mailing list. Registration fees will be charged to both SEAES and non-SEAES members.

Accommodation can be applied for using the same form

**SECOND CONFERENCE OF SOUTH EAST ASIA ERGONOMICS SOCIETY
DENPASAR, 27 - 29 JULY 1988**

Instructions for Authors :

Checklist.

1. Your paper must be in English,
two A4 pages maximum, including photographs.
2. Use the enclosed typing guide.
3. Do not stick photographs to the typescript.
4. Do not fold the sheets.
5. Airmail the original of the typescript to the Conference Secretariat, Dept. of Physiology, Fac. of Medicine, UNUD, P.B. Sudirman Denpasar, Indonesia, before June 1, 1988.

INTRODUCTION

The proceedings will be printed directly from authors' typescripts by photo reduction, hence the authors' typescripts and illustrations determine the quality of the final work. The position and spacing of headings should be as in these notes.

The typescript must be no more than two pages including illustrations, photographs and bibliography. If your paper exceeds two pages it will not be published. Use one side of the paper only. Single spacing should be used for the text. Use double spacing between paragraphs. Avoid crowding illustrative material.

Illustrations

Line drawings. These should be drawn in Indian ink. The use of a lettering stencil is recommended. Lettering should be no less than 2.5 mm high. Drawings should be positioned 5 - 10 mm below the text and a further 5 mm should be left between the bottom of the drawing and the caption.

Photographs (half tones). These should not be mounted in the text because they will be processed separately. Photographs should be sharp glossy prints with high contrast. Leave a sufficiently large blank space in the text above the caption where the photograph is to appear.

Each photograph must bear on the back the name (s) of the author (s), the title of the work, and the figure number. Indicate the top of each photograph.

Tables

Each table should have a table number and a caption typed above the table. Leave 10 mm blank between the table and the text.

References

Place the full references at the end of the paper, arranged in alphabetical order.

10th May 1988

Professor A. Manuaba
Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia

Dear brother,

You shall find under the same cover, the summary of the report you have invited me to read in Bali next July. My coauthor is a very brilliant professor at the University of the Philippines, Quezon City, Metromanila, Mrs Clarissa Rubio. She is now writing her thesis in Paris and she will not be able to attend the Bali Meeting. This thesis will be excellent. The concept of "mastery" she presents in our paper is new and very stimulating. I am sorry to have written 3 pages instead of 2 but as I have to prepare a report and not a communication, it will be perhaps acceptable.

I am in relation with Dr Ong. He sent me an interesting paper on which I have to work for he wants my cosignature. He shall send it to you soon.

I had some phone communications with K. Kogi to solve some financial problems of SEAES and Bali meeting. Kogi and I shall try to pay SEAES dues to IEA so that IEA will be able to send 2.000 US \$ to SEAES for the Bali meeting. But the move of Kogi from Bangkok to Geneva has been a complication.

I intend to arrive at Denpasar Sunday 24th July at 10 pm coming from Paris, Bangkok and Jakarta by GA 898 but I am not yet sure of my reservation.

I am very happy to see you soon.

With my best regards, dear brother.

A. Wisner

**SOUTH EAST ASIAN ERGONOMICS SOCIETY
SECOND CONFERENCE, DENPASAR - BALI, INDONESIA, 27 - 29 JULY 1988.**

**REGISTRATION FORM
Section A. PERSONAL DETAILS**

Title (Dr. Mr. Miss <u>Prof</u> etc)		Family Name WISNER		Given Name ALAIN	
Institution/Organization LABORATOIRE D'ERGONOMIE DU CONSERVATOIRE NATIONAL DES ARTS ET METIERS			Position Held DIRECTOR		
Postal Address 41 RUE GAY-LUSSAC		Country FRANCE	Postal Code 75005	Phone PARIS 43.54.18.27	Telex
Name, Profession and Country as you wish them to appear on your Name Badge Pr WISNER FRANCE					

ACCOMPANYING PERSONS

Family Name	Given Name	Name for Badge
/	/	/

Section B. ACCOMMODATION

Please complete (1), (2) or (3) and tick (V) the appropriate box

1. I do not wish the Congress Secretariat to reserve accommodation on my behalf () because I am making my own arrangements		
2. I do not wish the Congress Secretariat to reserve accommodation on my behalf () because accommodation is being reserved by my travel agent. Name of Travel Agent _____ Hotel in Denpasar _____		
3. Please make accommodation reservations for me as follows :		
<input checked="" type="checkbox"/> Hotel Bali Beach	Single US\$50.00	Double/Twin US\$55.00

Arrival Date : **25.7.88**
Arrival Time :

Flight No :

Departure Date : **29.7.88**

Section C. SOCIAL Programme
Congress Events

Date	Event	No. Persons	Cost
July 26 July 27, 28, 29 July 28 July 29	Informal Gathering Breaks Reception Post Conference Half Day Tour to Ergonomics Village or Hotels.		Included within registration fee in addition to abstracts, proceedings, bag, etc.

Payment of Fee

	Amount	Payment	
1. Delegate Registration Fee			Credit this amount in Cash via Bank Bumi Daya Denpasar, on behalf of Dr. DM. Kusmayuni, Treasurer of O.C. c/o FK. Univ. Udayana Denpasar.
Recieved Prior to April 1, 1988			
Member of SEAES	US\$40.00	40	
Non-member	US\$50.00		
Recieved After April 1, 1988.			
Member of SEAES	US\$50.00		
Non-member	US\$60.00		
2. Accompanying Person (Includes informal gathering, reception and Ergonomics Tour)	US\$30.00		
3. Accommodation Deposit	US\$50.00	50	
	TOTAL	90	

Pre and Post Conference Tours will be informed
in due time to the interested Participants.

.....
Signature
9.2.88
.....
Date



30th October 1987

Paris, le

I have received today your letter of October 27. I agree to prepare a report in relation with D: ONG on one of the ~~two~~ subjects given in this letter. I will write to D: ONG I will write you another letter about finances Truly yours J.W.

Professor A. Manuaba
SEAES President
Department of Physiology
University of Udayana
DENPASAR 80232A (Indonésie)

Dear brother,

I am happy to confirm you my intention to take part to second S.E.A.E.S. Conference, you are organizing in Bali next year.

Our anthropotechnology group is more and more alive, 6 theses have been successfully presented. 20 are on preparation. Some of them are excellent. My contribution could be related to the subjects I am working with some of these students. The most interesting would be perhaps "Deteriorated ~~working~~ order in transferred complex systems, causes, operation and prevention". But I can also speak about one of the 3 subjects I have recently studied :

- "The role of workers in complex and dangerous systems" (a paper about Bhopal, Three Miles Island, Tchernobyl)

4 - "The new factory in industrially developing countries, transfer or reconception" (a paper about organization theory, training and the role of geographic factors).

- "Variety of physical characteristics in industrially developing countries, ergonomic consequences" (a paper about the social cause of variation in anthropometry versus the ethnic causes).

Please choice freely what would be the most convenient for your conference.

It is a great joy to meet you again in your friendly environment.

Truly yours.

A. Wisner

Intention to Participate

Please send by 31 December 1987

Second South-East Asian Ergonomics Society Conference

27 - 29 July 1988 Denpasar, Bali, Indonesia

Name : Prof./Dr./Mr./Ms. WISNER Surname ALAIN Given and other names

Full mailing address : LABORATOIRE D'ERGONOMIE DU C.N.A.M.
41 RUE GAY-LUSSAC 75 005 PARIS

Country : FRANCE

- I intend to participate in the Conference
- I intend to present a paper to the conference and will submit an abstract by 1 May 1988
- I shall require accommodation in Bali Beach Hotel.

I shall probably be accompanied by 1 persons.

Please air mail this form to : Secretariat SEAES 88, Dept. of Physiology, Udayana University,
Denpasar 80232 A, Bali, Indonesia.

PROFESSOR A. WISNER
CNAM
Ergonomie et Neurophysiologie du travail
41, rue Gay-Lussac
75005 Paris
France

31 January 1988

Dear Professor Wisner,

First of all, please apologize for the delay in answering your letter of Oct.30,1987. I was so occupied with various works and could not find a way to get out of those pressed environments. I just recovered from a long influenza weeks, just because I omitted the doctor's advice to have rest. What a pity, I know very well how to be fit and healthy, but I could not get away from works, that is the problem. Every good friend I met always gave the same advice : "get a rest", but I always failed to do so.

I regard to SEAES Second Conference, although not so many friends from ASEAN countries gave their positive response to attend the meeting, due to financial constraints, practically from various part of the world, a quite number of colleagues showed interest to attend the meeting. I hope their numbers will be increasing until the D-day.

To make it successful, various preparations have been done and second circulars have been sent to the registrars. You will accept it in due time. Finance is still our most prominent problem and I am still waiting for your support. Since Dr Kogi, from mid-January moved to Geneve, I appreciate very much if you could contact each other for this purpose, especially to make Dr Sen, Mrs Sonia, Dr Chaiyuth, Dr Ong participation are possible.

About your paper, I rely it to you, since I found all the papers you wrote in your letter will be essential ones. A talk or agreement with Dr Ong about this will be wised, and two papers in this topics which add each other will be highly appreciated.

Finally, thank you again for your attention and assistance to make the conference a succesful one.

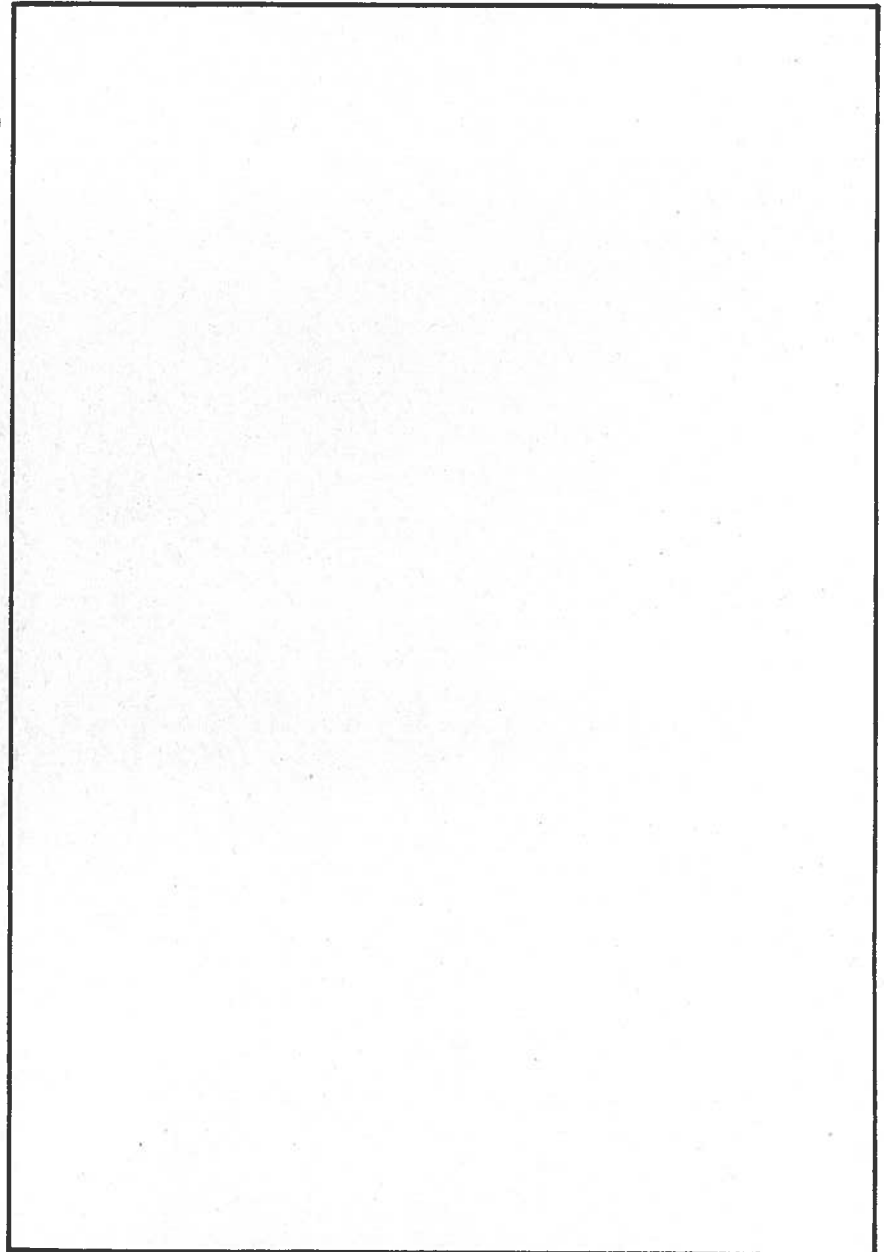
My best personal regards, brother.

Yours sincerely,


A. Manuaba

**SOUTH EAST ASIAN ERGONOMICS SOCIETY
SECOND CONFERENCE, DENPASAR - BALI
INDONESIA, 27 - 29 JULY 1988**

**TITLE OF
ABSTRACT
AUTHOR (S)
POSTAL
ADDRESS**



DEADLINE OF ABSTRACT : MAY 1, 1988



SEAES

NEWS LETTER

South-East Asian Ergonomics Society

SECRETARIAT: NATIONAL INSTITUTE FOR THE IMPROVEMENT OF WORKING CONDITIONS AND ENVIRONMENT (NICE)

PHRA PINKLAO-NAKORN CHAISRI HIGHWAY, THALING CHAN, BANGKOK 10170, THAILAND. Tel. 424-3698

Second SEAES Conference 27-29 July 1988 in Denpasar, Indonesia

The Second Conference of our SEAES will take place in Denpasar, Bali, Indonesia from 27-29 July 1988.

This will be an associated meeting of the 10th Congress of the International Ergonomics Association (IEA) in Sydney, 1-5 August 1988.

The SEAES Conference circular is being distributed from the Department of Physiology of the University of Udayana, Denpasar, which has formed the Organising Committee of the meeting together with SEAES and the Indonesian Physiological Society.

It has been decided to have four main themes. They are:

- Rural/village ergonomics;
- Inter-country differences in ergonomics application;
- Education and training for ergonomics;
- Impacts of new technologies and the role of ergonomics.

These main themes will be introduced by invited speakers. SEAES members and foreign participants are invited to present a paper in any of these themes. Papers dealing with other areas of ergonomic interest will also be welcome.

The official language of the meeting will be English.

The Conference will be held at the Bali Beach Hotel, Denpasar. Special group rates will be applicable to all the participants.

SEAES Newsletter No. 7, September 1987

Let us gather at Denpasar next year!

This Second SEAES Conference will be an important event for all of us. It will be the second general gathering for the South-East Asian Ergonomics Society. The first SEAES General Meeting was held in Denpasar in November 1985 in connection with the International Symposium on Ergonomics in Developing Countries in Jakarta. Since then, a lot of development has been seen in SEAES member countries. As many are expected to join us from abroad at this Second Conference next year, it will give us an important opportunity to exchange views and experience as to research and application of ergonomics.

Call for papers

The Organising Committee is calling for contribution from SEAES members as well as from participants from Europe, the U.S.A., Japan and other countries.

The procedures are as follows:

- Send the Intention to Participation form attached to the circular which you will get soon from the Organiser;
- The abstract (200 words in English) of your paper should reach by 1 May 1988;
- In due course, you will be notified about acceptance of the paper; then
- A camera-ready copy (2 pages, single-spaced, A4 size) should reach by 1 June 1988.

The address for registration is:

Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia.

(Tel. 0361-26132)

Manila Workshop on Ergonomics
of SEAES, now 1-3 December 1987

The SEAES Workshop on Ergonomics to be held in Manila soon has been shifted to 1-3 December 1987. This is because the workshop will be held in association with another meeting.

Those who wish to participate are requested to contact the organiser directly. The address is:

Mrs. S. Tiong-Aquino
Institute of Small-Scale
Industries
University of the Philippines
Diliman, Quezon City,
Philippines.

The meeting will have six sessions:

1. What is ergonomics (the nature, evolution and scope of ergonomics);
2. Application of ergonomics: in manufacturing establishments, maritime industry and agribusiness;
3. Techniques in identifying areas of study (tools and indications);
4. Ergonomics in the medical and allied profession, engineering and allied fields and academe and extension institutions;
5. Experiences in ergonomics; and
6. Presentation of cases and technological choices.

International Ergonomics Association
(IEA) 10th Congress, Sydney

The 10th IEA Congress will be held in Sydney from 1-5 August 1988.

Please note that this will be the 10th Congress which incorporates the 25th Conference of the Ergonomics Society of Australia and that Australia will be celebrating its Bicentennial. Our Second SEAES Conference is, as you know, an associated meeting of the Congress.

Secretariat IEA88
P.O. Box 380
Spit Junction NSW 2088
Australia.
(Tel. (02)969-1400)

National Ergonomics Conference
Bandung, 9-10 October 1987

The Institute of Technology Bandung, SEAES and the Department of Manpower, Indonesia, will co-sponsor the National Ergonomics Conference. The theme will be: "Digging Ergonomics Potentials for Development".

The purpose of this meeting is to enhance awareness of the community of the role of ergonomics and to open the co-operative efforts of various agencies.

All SEAES members are cordially invited to attend this meeting. For information:

Secretariat
Laboratorium Teknik Tata Cara Kerja
dan Ergonomi
Jurusan Teknik Industri ITB
Jalan Ganesa 10, Bandung
Indonesia.

(Tel. 022-84189)

Master of Science Degree in Ergonomics

The programme of M.Sc. course in ergonomics is planned at the Luleå University of Technology, Luleå, Sweden.

The first M.Sc. course, commencing in August 1988, will be for 18 months.

Foreign students should have a Bachelor's degree or equivalent. The studies should be in human sciences, engineering or design. Relevant work experience can also be considered.

The programme will cover topics such as human performance, characteristics and limitations, work organisation and design and effects of environmental factors on job performance and human well-being.

For information, contact:

Dr. H. Shahnavaz
Department of Human Work Sciences
Luleå University of Technology
S-95187 Luleå, Sweden.

Any contribution from you?

This SEAES Newsletter awaits contribution from you. Please send any information about meetings, research or your own views. The News letter is for you!



SOUTH EAST ASIAN ERGONOMICS SOCIETY
SECOND CONFERENCE, DENPASAR - BALI - INDONESIA, 27 - 29 JULY 1988

March, 12, 1988

DEAR ..Prof. Alain Wisner.....
..Laboratoire D'Ergonomie Du C.N.A.M.....
..41 Rue Gay-Lussac 75005 PARIS.....
.....

fair from 88

I hope that have received the last circular from the Organizing Committee of SEAES Second Conference in Denpasar - Bali.

Have you sent your registration fee and for Hotel deposit ?

Whenever you have not sent the registration fee and hotel deposit yet, let me to inform you for the address of Bank to which your money will be addressed.

For simple administrative procedure, please sent the money in cash (Telegraphic Transfer) :

Via : BANK EKSPOR IMPOR INDONESIA DENPASAR BRANCH
TELEKS (031) - 35116 on behalf.

Dr. D.M. Kusmayuni

Treasurer of O.C. Second SEAES Conference

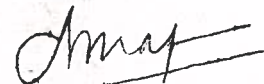
c/o : Physiology Department

Medical Faculty - Udayana University Denpasar

For those who already sent the money through the previous address of the Treasurer of O.C, nothing to be worry about.

Thank you, Hoping we will meet soon in Denpasar - Bali

Sincerely Yours



Dr. D.M. Kusmayuni

Treasurer of Second SEAES
Conference Denpasar.

15 Février 1988

SOCIETE GENERALE
37 rue Gay-Lussac
75005 PARIS

Messieurs,

Je vous serais reconnaissant de bien vouloir faire virer la somme de US \$ 90 à la Bank Bumi, Daya Denpasar (références jointes) en précisant qu'il s'agit de l'inscription de A. Wisner à la Conférence de Denpasar-Bali de Juillet 1988.

La contrepartie de cette somme est à prélever sur mon compte n° 5.0600/71.8.

Veillez agréer, Messieurs, avec mes remerciements, l'expression de mes sentiments les meilleurs.

A. Wisner

2 Février 1988

Monsieur Jean Gavrel
6 rue des Petits Bois
92370 CHAVILLE

Mon cher Jean,

Je ne suis pas sûr que tu aies reçu l'invitation à la conférence de la Société d'Ergonomie d'Asie du Sud-Est qui aura lieu à Bali juste avant le congrès de Sydney. En effet, récemment, Hugues Monod se plaignait de ne pas en avoir été informé.

Je t'adresse ci-joint un dépliant adressé par les organisateurs qui m'ont fait savoir que les "deadlines" n'étaient pas sévères et que l'essentiel était de prévenir le plus tôt possible de son intention de participer à la réunion et, éventuellement, de présenter une communication.

Je serais heureux que tu puisses en faire part à nos collègues dans le Bulletin.

Bien amicalement,

A. Wisner

15 Mai 1987

Copie : Pr F. Davoine

Monsieur le Professeur J. Saurel
Directeur

Monsieur le Directeur,

La préparation du Colloque d'Ergonomie qu'organise la SEAES (South East Asia Ergonomics Association) en Août 1988, m'oblige à participer à une réunion à Dusseldorf les samedi et dimanche 6 et 7 Juin prochain. En effet, le Professeur Kogi, Directeur Régional du BIT pour l'Asie du Sud-Est dans le domaine de l'hygiène et de la sécurité du travail, qui est le principal organisateur de ce Colloque, ne dispose que de ces jours-là.

Je vous serais reconnaissant de bien vouloir me faire établir un ordre de mission sans frais pour ce déplacement.

Veillez agréer, Monsieur le Directeur, l'expression de mes sentiments dévoués.

A. Wisner



SEAES

NEWS LETTER

South-East Asian Ergonomics Society

SECRETARIAT: NATIONAL INSTITUTE FOR THE IMPROVEMENT OF WORKING CONDITIONS AND ENVIRONMENT (NICE)

PHRA PINKLAO-NAKORN CHAISRI HIGHWAY, THALING CHAN, BANGKOK 10170, THAILAND. Tel. 424-3698

Let us meet in Bali !

- Second SEAES Conference
27-29 July 1988

As you already know from the circular from Bali, the Second SEAES Conference will be held in Denpasar, Bali, from 27-29 July 1988. Let us try to gather there for this important event of our society.

This Denpasar Conference will provide us with an excellent opportunity to share our experience among us and with participants from outside the ASEAN region. It is expected that a number of international experts will attend the Conference, as this Conference is held as an associate meeting of the 10 th Congress of the IEA (International Ergonomics Association Sydney, 1-5 August 1988). Please plan to join in the Denpasar Conference now!

If you want to participate, but do not intend to present a paper, write to the Secretariat SEAES 88 as soon as possible. You will get detailed information about registration and hotel accommodation from the Secretariat.

If you want to participate and present a paper, inform the Secretariat SEAES 88 of your intention to present a paper now (the deadline is 31 December 1987, but special consideration will be given to SEAES members if the application reaches the Secretariat by the end of January 1988). (See reverse)

SEAES Newsletter No.8, December 1987

A Summary of the Second SEAES Conference

Date : 27-29 July 1988
Venue : Bali Beach Hotel,
Denpasar, Bali, Indonesia
Themes : Rural/village ergonomics
Intercountry differences in
ergonomics application
Education and training for
ergonomics.
Impacts of new technologies
and the role of ergonomics

Language : English

Presentation of a paper : open to both SEAES members and non-SEAES members. The intention to present a paper must reach the Secretariat SEAES 88 by the end of January 1988 and the abstract must be sent by 1 May 1988. The format for preparing the paper will be sent after the paper is accepted for presentation.

Proceedings : all papers will be published as proceeding.

Accommodation : Special group rates will be applied to all the participants at the Bali Beach Hotel.

All correspondence about the conference should be addressed to :

Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232 A
Indonesia
Tel. (0361) - 26132

Important deadline

Intent to participate	as soon as possible
Intent to present a paper	31 January 1988 (for SEAES members)
Abstract (200 words)	1 May 1988.
Paper (using the format to be sent to each author).	1 June 1988.

PLEASE PAY SEAES MEMBERSHIP FEE FOR 1988

All the SEAES members are requested to pay their membership fee for 1988 : five US dollars to the Secretariat in Bangkok at your earliest convenience.

South-East Asian Ergonomics Society

NEWS LETTER

SEAES



Contributions to one of the four major themes of the Conference will be particularly appreciated, but contributions to other areas of ergonomics interest are also welcome.

10 th IEA Congress
Sydney, 1-5 August 1988

Our Second SEAES Conference in Bali is an associated meeting of the 10 th Congress of the International Ergonomics Association (IEA). This IEA congress in Sydney is scheduled for 1-5 August 1988 in the week following our SEAES Conference.

For further information of the IEA congress, write to :
Secretariat IEA 88
P.O.Box 380
Spit Junction NSW
Australia 2088

Prof. A. Wisner
Conservatoire National des Art et Metiers
Departement des Sciences de l'Homme au Travail
Physiologie du Travail-Ergonomic
41, Rue Gay-Lussac, Paris 75005
France

**PAR AVION
BY AIR MAIL**

PRINTED MATTER



PLEASE PAY SEAES MEMBERSHIP FEE FOR 1988

All the SEAES members are requested to pay their membership fee for 1988 : five US dollars to the Secretariat in Bangkok at your earliest convenience.

I N V I T A T I O N

TO ALL SEAES MEMBERS:

DATE : JULY 29. 1988

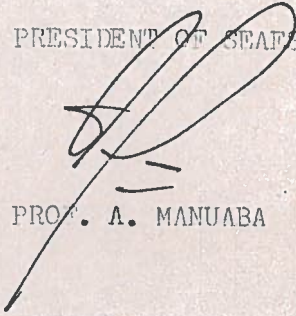
TIME : 11.00 - 12.00 A.M

PLACE : RAJA ROOM

TOPICS:

1. GENERAL MEETING OF SOCIETY
2. ELECTION OF THE OFFICERS AND COUNCIL MEMBERS OF SEAES 1988 - 1991

PRESIDENT OF SEAES



PROF. A. MANUABA

S.E.A.S.

et ses finances

—

WISNER

DEA fee

2,218 FR B43SR
→ # 370 US \$

advance IEA

1,200 US \$

1,570 US \$

3 PAGES = 92 x 3 US \$ = 46 US \$

INTRODUCTION

The proceedings will be printed directly from authors' typewritten copy by photo reduction, hence the authors' typewritten copy and illustrations determine the quality of the final work. The position and spacing of headings should be as in these notes.

The typewritten copy must be no more than two pages including illustrations, photographs and bibliography. If your paper exceeds two pages it will not be published. Use one side of the paper only. Single spacing should be used for the text. Use double spacing between paragraphs. Avoid crowding illustrative material.

Illustrations

The drawings. These should be drawn in Indian ink. The use of a lettering stencil is recommended. Lettering should be no less than 2.5 mm high. Drawings should be positioned 5 - 10 mm below the text and a further 5 mm should be left between the bottom of the drawing and the caption.

Photographs (half tones). These should not be mounted in the text because they will be processed separately. Photographs should be sharp glossy prints with high contrast. Leave a sufficiently large blank space in the text above the caption where the photograph is to appear.

Each photograph must bear on the back the name (s) of the author (s), the title of the work, and the figure number. Indicate the top of each photograph.

Tables

Each table should have a table number and a caption typed above the table. Leave 10 mm blank between the table and the text.

References

Place the full references at the end of the paper, arranged in alphabetical order.

envoyé à B. Sleschak le 11.7.88

Agence: **G SAINT MICHEL**
G ST MICHEL

Transfert vers l'étranger

Nous avons donné ordre au correspondant indiqué ci-contre, sous avis, de :

LLOYDS BANK PLC LONDRES

verser au bénéficiaire créditer le compte du bénéficiaire Tenir à la disposition du bénéficiaire

Destinataire

Frais à votre charge
 Guichet * N° d'avis * Date *
 03080 1826601 30.06.88
 Devise * Montant *
 CHF 543,0000

NATURALIA ET BIOLOGIA
11 PLACE MARCELIN BERTHELOT

75005 PARIS

* références à rappeler dans toute correspondance

17 Banque du bénéficiaire
LLOYDS BANK LTD
LOUGHBOROUGH HIGH STREET LE 11 EQG
CODE BANQUE 30 95 21

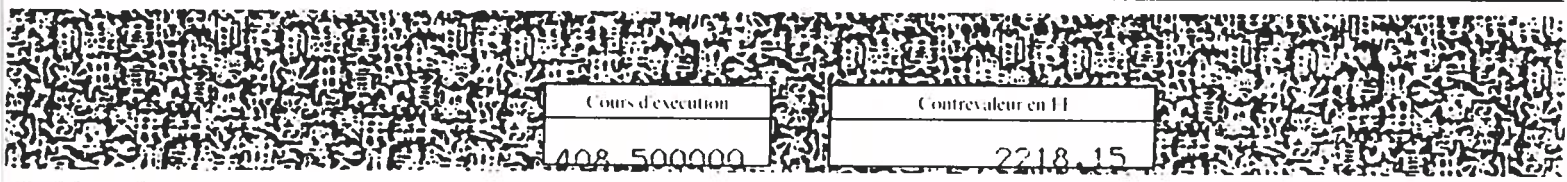
53 Couverture émetteur **CRESCHZZ80A**
 72 Informations complémentaires
NOS REFS IMP VIRT AF 3777

19 Bénéficiaire
/2 40 29029 COMPTE IEA
COMPTE IEA

20 Banque ou agence donneur d'ordre

54 Couverture récepteur

20 Motif du paiement
REGLEMENT COTISATION DE LA SEAES /



Cours d'exécution: **408.50000** Contrevaleur en FF: **2218.15**

Nous débitons, en Francs Français votre compte numéro :

000 57260987 1826601

Valen: **29.06.88** Total à votre débit: **2379.45**

Commission de change
 Commission de paiement et dossier
 Port, timbre, télégramme, avions

Montant (H. F.)	I. V. A.	Montant (H. F. C.)
58,00	10,79	68,79
58,00	10,79	68,79
20,00	3,72	23,72

en devises votre compte numéro :

Valen: Montant devises

Visa: *Antoine*



MINISTÈRE DE L'ÉDUCATION NATIONALE
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS

ERGONOMIE ET NEUROPHYSIOLOGIE DU TRAVAIL

Paris, le 9 Février 1988

Monsieur le Docteur K. Kogi
Chef du Service d'Hygiène et Sécurité
du Travail
Bureau International du Travail
Case postale 500
1211 GENEVE 22 (Suisse)

Cher ami,

J'ai été heureux de parler avec vous hier. Si je vous écris, c'est parce que, depuis notre conversation, je me suis renseigné et j'ai réfléchi au sujet des intérêts de la SEAES.

Je vous envoie ci-joint des extraits de la délibération de l'IEA à Stuttgart (Juillet 1987). Il s'ensuit que la SEAES doit, pour une année, 1.250 francs suisses plus 2 francs suisses par membre, soit 50 Francs suisses si nous déclarons 25 membres, ce qui est je crois le minimum. Or, 1.300 francs suisses représentent environ 930 dollars U.S.

Il semble donc que nous ayons avantage à payer notre dû pour 1987 et à demander par ailleurs l'allocation prévue de 2.000 dollars U.S. pour le congrès de Bali. A ces considérations on pourrait ajouter les deux données suivantes :

- 1) Une nouvelle société, comme la SEAES, n'est considérée véritablement comme membre de l'IEA que si elle a versé sa cotisation pour une année au moins.
- 2) Je crois que les sociétés affiliées ont une cotisation annuelle égale à la moitié de la cotisation des sociétés membres. Je me demande s'il ne serait pas plus raisonnable, pour SEAES, de prendre le statut de société affiliée afin de réduire les frais car je ne sais pas comment nous pourrions payer notre cotisation à l'IEA l'an prochain. Mais il faudrait savoir, en le demandant à Bryan Shackel, si nous aurions droit, dans ce cas, à l'allocation de 2.000 dollars.

En fait, je crois qu'il serait raisonnable, pour les sociétés des pays en développement industriel, d'adopter au moins pour un certain temps un statut de société affiliée.

.../...

Je suis désolé de vous charger de tout cela mais c'est une lettre récente de Manuaba qui m'a rappelé les discussions de Stuttgart.

Je vous envoie également une copie de ma lettre du 2 Novembre 1987, que vous n'avez peut-être pas emportée à Genève.

Par ailleurs, je donne l'ordre de verser 50 US \$ de la part de notre laboratoire, et 50 US \$ de la part du laboratoire du Professeur Laville, comme cotisation 1988 à SEAES.

Comme je vous l'ai dit au téléphone, je pense que le Docteur Ong devrait venir à ses frais.

Je regrette que Manuaba n'ait pas tenu compte de ma suggestion de faire payer des droits d'inscription suffisamment élevés pour les congressistes venant des pays riches : 50 \$, ce n'est vraiment pas assez.

Bon courage. Bien amicalement,

A. Wisner

N.B. Je pourrais faire faire l'avance des 1.300 francs suisses dus par SEAES à l'IEA, mais cela me gênerait de ne jamais être remboursé, et je crois que cela ne serait pas bon pour les dirigeants de SEAES de vivre sur des dons aussi importants

2nd November 1987

Professor K. Kogi
ILO Regional Office for Asia
and the Pacific
P.O. Box 1759
BANGKOK 10 200

Thailande

Copie : Mr Kuorinka

Dear friend,

I realize that I have not yet written to you after the I.E.A. council of August 31st. The question of SEAES and Bali meeting finances has been evoked. Dr Kuorinka will probably write to SEAES more precisely, but what I have caught from the discussion is a very general position about Ergonomic Societies in industrially developing countries :

- 1) They have to pay their annual fee to I.E.A. If not, they will be removed from the list as any other society.
- 2) They are in a position to ask for a contribution from I.E.A. when they organize a meeting. This contribution will be reimbursed if the balance is positive after the meeting. A part or the totality of the money will become a gift if the balance is negative.

These 2 connected positions have the advantage of being fully honourable : it is the same treatment for all Societies in the world.

My opinion is that it is possible to ask to I.E.A. a loan of 2 or 3.000 US \$ to help for the travel of some invited speakers to Denpasar. But SEAES cannot ask for a loan if the annual fees have not been paid first. The final balance (fees and loan) will be of course positive for SEAES after the Bali meeting.

Coming back to Bali meeting itself, I suggest a rather high conference fee, for foreigners so that they each contribute a little to invited speakers travel.

I suppose that Dr Kogi, Ong, Wisner and Zen will pay their own travel. Mr Manuaba is in his place. We have only to pay for Chaiyuth, Mrs Sonia and Nag. .

I am looking for other sources of finance.

I will stay 2 or 3 weeks in Bangkok after the Sydney Conference, to work with Malinee at Mahidol. I hope to see you then.

A. Wisner

Professor A. Wisner
CNAM
Physiologie du Travail-Ergonomie
41, Rue Gay Lussac
75005 Paris
France

27 October 1987

Dear Professor Wisner,

I am confident that you had already received our announcement of SEAES Second Conference next July, 27-29, 1988 in Bali. As a founding member of SEAES, I believe that you shall give your active participation to this meeting.

Last August, I and Dr Kogi discussed about who will be invited as speakers to this meeting, and we came to a conclusion that you will be one of those VIP. We planned to have eight speakers for the four topics discussed at the conference. They are Dr Zen and Dr Kogi who will talk about "education", Prof. Wisner and Dr Ong (Singapore) on "Transfer of Technology", Dr Chaiyuth and Mrs Sonia on "application difference", while I and Dr Nag will talk on "rural ergonomics". Of course, there will be other papers from other participants.

If until now I did not send any formal letter yet to those speakers, is due to the financial problem we faced to bring them to Bali. I don't know from where I have to collect that money, except from the efforts done by those speakers who are also members of SEAES. Dr Kogi told me that it might be possible for you, Dr Kogi and Dr Kuorinka to raise some money for this purpose, not only to support your own travel but also to assist the others. I hope this is true, and if so I thank you and appreciate very much your contribution and help.

In the meantime, I appreciate very much if you could accept our proposal, and looking forward to have your paper and your coming to that important meeting in this region.

My best personal regards to the whole family, brother.

Yours truly,


A. Manuaba

- ZEN
- KOGI
- WISNER
- ONG
LHAYUTH
SONIA
- MANUABA
NAG

A. WISNER
WISNER EXPERT 029180

SEAES US \$ 100 (50 \$ pour labo Ergonomie CNAM)
(50 \$/pour labo Laville EPHE)

En précisant : cotisations 1988

X

Paris 12.2.88



Paris, le 2nd November 1987

*Je ne me souviens pas exactement de la
discussion. Je crois qu'il faudrait
que vos écrivains à SEAES à ce sujet*

Bien amicalement

Professor K. Kogi
ILO Regional Office for Asia
and the Pacific
P.O. Box 1759
BANGKOK 10 200

Thaïlande

Copie : Mr Kuorinka —

Dear friend,

I realize that I have not yet written to you after the I.E.A. council of August 31st. The question of SEAES and Bali meeting finances has been evoked. Dr Kuorinka will probably write to SEAES more precisely, but what I have caught from the discussion is a very general position about Ergonomic Societies in industrially developing countries :

- 1) They have to pay their annual fee to I.E.A. If not, they will be removed from the list as any other society.
- 2) They are in a position to ask for a contribution from I.E.A. when they organize a meeting. This contribution will be reimbursed if the balance is positive after the meeting. A part or the totality of the money will become a gift if the balance is negative.

These 2 connected positions have the advantage of being fully honourable : it is the same treatment for all Societies in the world.

My opinion is that it is possible to ask to I.E.A. a loan of 2 or 3.000 US \$ to help for the travel of some invited speakers to Denpasar. But SEAES cannot ask for a loan if the annual fees have not been paid first. The final balance (fees and loan) will be of course positive for SEAES after the Bali meeting.

Coming back to Bali meeting itself, I suggest a rather high conference fee, for foreigners so that they each contribute a little to invited speakers travel.

I suppose that Dr Kogi, Ong, Wisner and Zen will pay their own travel. Mr Manuaba is in his place. We have only to pay for Chaiyuth, Mrs Sonia and Nag. .

I am looking for other sources of finance.

I will stay 2 or 3 weeks in Bangkok after the Sydney Conference, to work with Malinee at Mahidol. I hope to see you then.

A. Wisner

Professor A. Wisner
CNAM
Ergonomie et Neurophysiologie du Travail
41, rue Gay-Lussac
75005 Paris
FRANCE

29 May 1988

Dear brother,

Thank you for your kind letter of 10th May.

In relation to the SEAES Second Conference I would like to inform you some informations as follows :

There about 40 participants from various countries showed their interest to participate, but only a few from the ASEAN countries. Finance is their most constraint issue for not be able to join this meeting. So is also with our friends Dr Sen, Chaiyut, Sonia Aquino, Ong, etc. What a pity.

I tried to support Mrs Sonia Aquino with US 350,- and Dr Sen US 450 from donation given by the Finnish Ergonomics Society, but in fact it is not enough for them. Do you think that the 2.000 US\$, which will be given by IEA to SEAES due to your initiative could be used to solve the problem? If so, please contact me as soon as possible so that I can manage all matters related. Other wise, there will be no delegates from Thailand, and The Phillipines. I am waiting for your good news, at least to assist Dr Sen, Dr Chaiyut and Mrs Aquino.

In relation to the preparation of our meeting, all are running well, except from financial point of view, since until now our expenditure for letters are tremendously high. We hope that your assistance will solve some of the problems. Anyhow with optimist we shall go on.

In regard to your accommodation from 24th of July, shall I book you at the same hotel Bali Beach? Please inform me as soon as possible since Bali in July is always crowded by tourists.

We received already your paper from Dr Ong, but with regret he told me that he will not be able to come to Bali this time. So he asked you to read the paper.

Finally, looking forward to meet you in Bali next July.

My best personal regards, dear brother.

Yours truly,

A. Manuaba

23 Juin 1988

Monsieur le Docteur K. Kogi
Chef du Service Hygiène et Sécurité du Travail
B.I.T.
Case postale 500
1211 GENEVE 22
(Suisse)

Cher ami,

J'ai enfin obtenu de Shackel les coordonnées de la banque de l'I.E.A. et le montant qu'il juge normal, c'est-à-dire 175 S.F. pour la Société et 4 S.F. x 92 membres, soit 543 S.F. Je fais verser aujourd'hui cette somme au nom de la SEAES.

Par ailleurs, Shackel m'a dit avoir reçu la lettre de Manuaba. Le problème est maintenant d'arriver à obtenir que Shackel envoie à Manuaba les 2.000 US \$ prévus par le Conseil de l'I.E.A., avant la réunion de Bali. Pourriez-vous essayer de vous en informer vers le 15/20 Juillet ?

Bien amicalement,

A. Wisner

19 / 44,509,263,171

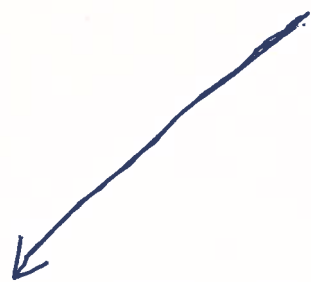
Doubles adressés à K. Kogi
I. Kuorinka

nd
2nd June 1988

92 = 543 S.F.

1.75
4 x 92

10445
23,6



M. Brian Shackel
Loughborough University of
Technology
Dept. of Human Sciences
Loughborough, Leics
Grande Bretagne

LLOYDS BANK LTD

30 - 95 - 21

IEA 2.40 29029
High St COGNAC LE 11 - 206
Dear Brian,

I have been happy Monday to have you at the phone and to realize that you are now out of your severe eye problems.

I am, of course, writing about the money problem of S.E.A.E.S.. The member of this very serious Society are extremely poor and the travels are very expensive in this part of the world.

I.E.A. has decided in Stuttgart to help S.E.A.E.S. Bali meeting with 2.000 USD seed money if the need is expressed by the S.E.A.E.S. officials. Pr Manuaba president of S.E.A.E.S. will write you soon.

There is one condition for S.E.A.E.S. to receive this help : to have paid its dues to I.E.A. for 1987. In fact, S.E.A.E.S. receive from its members less than its dues to I.E.A.. It is why, S.E.A.E.S. contribution to I.E.A. has not yet been sent.

Dr Kogi head of Hygiene and Safety Department at I.L.O. and I have proposed to Professor Manuaba to pay S.E.A.E.S. dues to I.E.A. from our own private pocket. It is why Kogi and I are in touch with you.

I think that, following the motion voted in 1985, we have to send you

175 SF for the Society
+ 4 SF X members.

I think that the count of 50 members would be a good one. It is why I propose you to pay

375 SF expressed in British Pounds.

Could you write me the Bank references of I.E.A. and the dues of S.E.A.E.S. for 1987 expressed in pounds.

S.E.A.E.S. will have the same problems for the next years it is why, I am writing to you and Ilka Kuorinka to suggest for the Council Meeting in Sydney the creation of a special category of adherent societies with low membership dues to I.E.A.

Thank you for all you can do for S.E.A.E.S. and us.

Truly yours.

A. Wisner

N.B. I have been elected Chairman of the Organization Committee of the XIth I.E.A. Congress Paris 1991 and I am again the representant of SELF at I.E.A. Council.

Double adressé au Dr Kogi

22th June 1988

Professor A. Manuaba
Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia

Dear Brother,

Thank you for your letter of June 16th and for what you kindly did for my reservation.

About I.E.A., I would like to draw your attention on 3 points of my letter of June 2nd.

1) We cannot obtain any money from I.E.A., if you dont write yourself to Bryan Shackel asking for 2000 US \$ that have been attributed to S.E.A.E.S. at the I.E.A. council meeting in Stuttgart.

2) You can spend money at the limit of 1200 US \$ for Pr Sen and Dr Chayuth. I will give you the money cash in Bali if you have not yet received the money from I.E.A. But after you have received the money from I.E.A. you shall reimburse me at least partially.

3) Kogi and I are trying to pay the S.E.A.E.S. dues to Shackel.

I am sorry to write such a short letter but I am really overloaded.

With my best regards, brother.

A. Wisner

Professor A. Wisner
CNAM
Lab. Ergonomie et Neurophysiologie du Travail
1, Rue Gay-Lussac
75005 Paris
FRANCE

16 June 1988

Dear Brother,

Thank you for your kind letter of June 2, 1988.

In regard to your hotel for July 24 - 29 at Bali Beach Hotel was already booked, which meant no problem at all. But for August 7, due to the high season you are still on the waiting list. Anyhow do not worry about that, I shall do my best. A room will be ready for you in due time.

In regard to IEA financial assistance, I wrote already to Dr Kogi about that. I asked him in co-operation with you to use that money to assist Dr Sen and Dr. Chaoyuth travel expenses. In the meantime, I am still busy to assist Mrs Sonia participation. Formerly, I thought that from Finnish Ergonomics Society's donation, I shall be able to assist Mrs Sonia and Dr. Sen, but in fact it seems impossible. Therefore, I asked You and Dr Kogi to do something from IEA help, to make Dr Sen and Dr Chaoyuth participation possible. In addition, Dr Wongpanich, Dr Ong and Dr Reverente already wrote a letter to me, that it is impossible for them to attend the meeting. By helping Dr Sen and Dr Chaoyuth, SEAES meeting will be more flourish, since we had already participants from Malaysia, Bangla Desh, and others.

Finally, thank you again for all efforts done to make our SEAES meeting a successful one.

My best personal regards,

Yours sincerely,



A. Manuaba

Note :
A room is available finally
at Bali Sanur Bungalows, a
small hotel but nice.
(US \$ 20-25/night)
I shall pick you up at the
airport.

Doubles adressés au Dr Kogi

2th June 1988

Professor A. Manuaba
Secretariat SEAES 88
Department of Physiology
University of Udayana
Denpasar 80232A
Indonesia

Dear Brother,

Thank you for your kind letter of May 29th.

I am happy to learn that the preparation of the meeting works well but sad to learn that the attendance is not the one we expected. For people from Europe, US or Japan it is not so dramatic. In fact the ticket from Europe to Australia is much to expensive for us if we have to pay it full. We have to find reduced rate tickets. They are very easy to find eather for Bali or to Sydney but very difficult for Bali and Sydney because of the rivalry between airlines. For these reasons, I have to change my dates slightly. I will arrive Sunday 24th July at 10.40 pm with GA 875 and leave Friday 29th July at 11.20 pm with QF 030. I have sent 90 dollars to Bank Bumi. Daya in which I think 50 dollars are included as a reservation for one night at Bali Beach Hotel. But this reservation was made for my arrival the 25th and I arrive the 24th. Would you please check that I have a 5 nights reservation (24th to 29th).

Could you also reserve me a room in Bali Beach Hotel for the night 7 to 8 August. Due to my tickets, I have to stop at Bali. I will arrive the 7th at 11.45 pm (QF 029) and leave the 8th at 1.35 pm (GA.663).

What is really sad is the little number of Asean Countries representatives. I really think that you shall receive 2.000 U.S. dollars from I.E.A.. Anyway you can use this money up to 1.200 U.S. \$. I give my guarantee as far as you have written to Bryan Shackel a letter to ask for it as quickly as possible.

To obtain this money, Kogi and I will pay S.E.A.E.S. dues to I.E.A.. I have called Shackel to know the details. It will be done very soon.

.../...

- 2 -

So I think that you can know firmly invite a few of our Asean friends in the limit of the 1.200 US \$.

I am really happy to see you soon.

Truly yours.

A. Wisner

$$14 = 2,665 \text{ SF}$$

$$\times 375 = 999,375 \text{ \#1,000 L}$$



92

tel à BRIAN SHACKEL

19 / 44-509.²⁶³~~623~~. 171

quand il 'en mitch'ici, il est 11^{he}
à LOUGBOURON

Société

Membre

Compte

A Contrex, le 19 mai 1988.

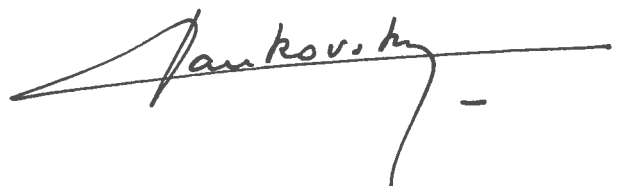
Cher Honnime Wisner,

Cela m'a procuré beaucoup de plaisir de bavarder quelques instants au téléphone avec vous ; vous m'avez aussi rassuré sur mon état de santé. Je profite au repos prescrit pour reprendre les pièces abandonnées depuis plus d'un an.

Je vous prie de trouver, ci-joint, une photocopie de la page du rapport de l'IEA où sont indiqués les taux de cotisations des Sociétés-bombes.

Dès que des décisions auront été prises sur la création de l'Institut d'Exploitation d'Orpèus, je vous demanderai de bien vouloir m'accorder un rendez-vous pour que je puisse bénéficier de vos avis précieux.

En vous souhaitant de bonnes vacances reposantes, je vous prie d'après, cher Honnime Wisner, l'assurance de mes sentiments respectueux et très amicaux.

 -

Recommendation

However, I am aware that quite a number of Federated Societies wish to receive a proposal for a change in membership dues and deliberate it in their own Councils, rather than have their representatives agree such matters on the spot when tabled at an IEA Council Meeting. Therefore I propose the following procedure:-

The delegates attending here from all Federated Societies shall refer the motion below to the Council or equivalent body of their Society as soon as possible. Each Federated Society shall communicate with the IEA Treasurer and record their votes (according to their numerical voting rights in Council), so as to be received by 15 December (by letter, telex or telephone). The decision will be carried by a simple majority.

The motion is that the annual membership dues for the IEA from January 1986 shall be:

- 1. 175 Swiss francs fixed amount for each Society
- 2. plus 4 Swiss francs for each member of a Society up to 500 members
- 3. and plus 2 Swiss francs per member over 500

(Subsequent note - this procedure was approved by Council. Please note that, following a suggestion at Council, the change in dues per member is proposed to be at 500 (instead of 600) as does the voting rights numbers on Council. This subscription basis has been calculated to yield \$11,000 per annum, that is, an additional \$6,000, and thus to give a balanced budget for the IEA on the basis estimated above)

Conclusion

I commend the above recommendation and motion to the IEA Council and the Member Federated Societies. I believe that this proposal will set the IEA on course for a sounder financial basis and a more respected position among the community of international scientific organisations.

B. Shackel

Professor B. Shackel (Hon Treasurer)

Handwritten calculations in a circle:

$$\begin{array}{r} 175 \quad 175 \\ + 4 \times 50 = 200 \\ \hline 375 \times 4 \neq 1500 \text{ FF} \end{array}$$

125 ?

PERSONAL LETTER

Dr. A. Manuaba,
Jalan Serma Gede 18,
Denpasar, Bali,
Indonesia.

27 May 1988

Dear Dr. Manuaba,

Thank you for your letter of 1 May 1988. I am pleased to learn of the progress in preparation of the SEAES Conference. I hope many colleagues from the region will attend it.

Of late I have learned of the possibility of obtaining financial assistance from the International Ergonomics Association (IEA) to the SEAES Conference. This is based on my telephone conversations with Dr. Kuorinka and Prof. Wisner last week. In this connection, I would like you to take two actions as stated below as soon as possible. Two actions mean (1) writing a letter to Prof. Shackel about the IEA assistance to you and (2) writing another letter to Dr. Kuorinka about possible future reduction of IEA membership fees. Both are urgent.

Background: The Council of the IEA, in its last meeting, decided to provide financial assistance in the form of "seed money" for the SEAES Conference if so requested by SEAES. (The "seed money" means help for making the meeting successful, and if it produces profits, the profits should be returned within the amount provided; but if there are no profits, the money may need not be returned.) This assistance might amount up to about US\$ 2,000, but the actual amount is unclear at this stage.

To obtain this assistance, it seems necessary and useful to express the intention of SEAES for being an active IEA member society by paying the annual IEA membership fee, though unfortunately the fee is quite costly. (For the moment, I am not sure about the exact amount of the fee for SEAES, but, as I learn, the annual membership fee for SEAES would be 375 Swiss Francs or so, which consists of a basic fee of 175 Swiss Francs plus 4 Swiss Francs multiplied by 50 assuming '50' is a reasonable number of 'regular' SEAES members.) To help your action seeking for the IEA assistance, I have taken the liberty (in co-operation with Prof. Wisner) of paying the first SEAES fee of 375 Swiss Francs (the exact amount is being confirmed) to the IEA on your and Dr. Chaiyuth's behalf. How to refund this payment could be discussed among us when we meet in Bali next July.

In the meantime, while taking the above actions, we should seek for the reduction in the future of the IEA fee which is so high for any society from the Third World. Dr. Kuorinka said he would take up this problem in the next IEA Council meeting scheduled in July if he gets a letter from you.

Your letter to Prof. Shackel (with a copy to Dr. Kuorinka):
(Prof. B. Shackel, IEA Treasurer, Loughborough University
of Technology, Loughborough LE11 3TU, U.K.)

Please write to him requesting "financial assistance to the SEAES Conference as seed money for organizing it successfully in the maximum amount available". Please do not mention any concrete amount, but write as above. It is desirable to explain,

in your letter, the importance of the Conference. You may also mention that arrangements have been made to pay the IEA membership fee of SEAES. To help you, I attach a draft letter. In any case, the letter should be brief. You may wish to attach a copy of the circular of the SEAES Conference.

Your letter to Dr. Kuorinka:

(Dr. I. Kuorinka, IEA Secretary-General, Institute of Occupational Health, Topeliuksankatu, 00250 Helsinki, Finland.)

Please write a separate letter to him indicating the difficulty in paying the annual membership fee of the IEA as it is so high for an ergonomics society covering developing countries. In the letter, please make a plea to Dr. Kuorinka to consider any possible measures to reduce the amount for payment for SEAES and other societies in developing countries. Again, the letter should be brief. It is important that the letter reaches him before summer.

I hope that these actions will help establish a closer relation with the IEA.

If you should get the seed money in time, please make sure to use it only for inviting participants from among the SEAES countries for presenting papers. The money, if granted, should be meant for that. We have only a limited period of time for this arrangement, but I do hope that some more can come to Bali responding to your last-minute efforts.

With best personal regards,

Yours sincerely,

Kazutaka Kogi
P.O.Box 500,
1211 Geneva 22
Switzerland.

cc: Dr. Chaiyuth Chavalitnitikul
Prof. A. Wisner

Draft letter to Prof. Shackel, IEA Treasurer

Dear Prof. Shackel,

I am writing this letter to seek for financial assistance of the International Ergonomics Association to the South-East Asian Ergonomics Society (SEAES) in holding its Conference in Denpasar, Indonesia, in July 1988. I have learned that the matter was discussed at a recent IEA Council meeting.

The Second Conference of SEAES will be held in Denpasar from 27-29 July 1988 as a satellite meeting of the Tenth IEA Congress in Sydney. The Conference will provide an important opportunity to discuss the ergonomics problems and solutions in developing countries and exchange the views of experts from both developed and developing countries. As you will note from the attached circular of the Conference, particular emphasis will be placed on I am confident that the success of this meeting will greatly contribute to the promotion of ergonomics research and application in the difficult conditions prevailing in developing countries such as ours.

I should appreciate it very much if the IEA would provide a financial assistance to this Conference in the maximum amount available as seed money for organising it successfully. This seed money would greatly help us organise scientific sessions in which leading SEAES members in respective fields could be invited to participate.

I look forward to hearing from you soon on the matter. As there is not much time left until the Conference dates, I should be grateful for your immediate attention and co-operation.

With best regards,

Yours sincerely,

A. Manuaba
President
South-East Asian Ergonomics
Society (SEAES)

cc: Dr. Kuorinka

Dr. A. Manuaba
Jalan Serma Gede 18
Denpasar, Bali
Indonesia

22. June 1987

Dear Dr. Manuaba,

I am writing to you from Helsinki to inform you of my recent talks with some SEAES members. I am now on mission to Europe, visiting Geneva, West Germany, Stockholm and Helsinki. I will be back in Bangkok at the end of this month.

I am pleased to note that many people in Asia and Europe are looking forward to the Bali meeting of SEAES you will organise next year. I'll agree that this meeting will be an important event for both SEAES and other people interested in Third World ergonomics. Among others, Dr. Chaiyuth, Prof. Phoon as well as Prof. Wisner and Dr. Kuorinka whom I met separately last week consider that it is important to make your Bali meeting a successful scientific meeting with good, substantial results. All of us are willing to support the preparation of your meeting.

Recalling your letters to me and Dr. Chaiyuth, and taking into account the above-mentioned talks with colleagues, I would think it is useful to organise the Bali meeting with three major themes which should be addressed by invited speakers and participants' papers. Knowing your own intention to deal with problems of agriculture and small industries, I would like to propose the following three themes: (i) rural ergonomics; (ii) inter-country differences in ergonomics application; and (iii) education and training for ergonomics.

It seems that main interest of SEAES members for the moment centres around these three topics. From scientific points of view, we may be able to have good quality papers on these topics. Prof. Wisner, Dr. Kuorinka and other people also support the appropriateness of these topics as subjects for a meeting held in connection with the IEA Congress. As I am going to Bali at the end of July to participate in the small enterprise course by Mr. Kiviharju and Mr. Zayadi, I would like to discuss the themes and other preparatory work with you and your colleagues. Should you agree, perhaps two invited speakers could be

arranged for each of the above subjects.
(Depending on the programme of the meeting, a fourth topic could be addressed by one or two additional invited speakers: as such a topic, the impacts of new technologies seem appropriate.)

Financially, Prof. Wisner, Dr. Kuorinka and I have agreed in principal to raise some funds for your meeting, especially for making it realistic to have invited speakers from among SEAES members. This financial support to invited speakers would help make the meeting a well-represented scientific gathering of SEAES. My assumption at this stage is that we may be able to raise at least a few thousand US dollars (in addition to the participants' fees you will be collecting) so that people like Dr. Nag, Dr. Sen, Prof. Rubio or Dr. Malinee might be able to attend as invited speakers.

Based on the thought expressed above, it seems essential to disseminate the information about the Bali meeting widely and try to create an impression that SEAES is organising a scientifically meaningful meeting. I would even think that we should refrain from any 'touristic' advertisement about the meeting. In this way we will be able to let people know about the ergonomic achievements in Bali and South-East Asia which otherwise are known only partially amongst ergonomists of the world.

Dr. Chaiyuth and I are planning to issue the SEAES Newsletter No. 7 in August with detailed information about the Bali meeting. I am happy that I can discuss it with you during the Bali course involving you yourself.

I look forward to seeing you soon. Dr. Kuorinka joins me in sending you and your colleagues our best regards from Helsinki.

Yours sincerely

Kazutaka Kogi

cc: Dr. Chaiyuth
Prof Phoon
Prof. Wisner
Dr. Kuorinka

SOUTH EAST ASIAN ERGONOMICS SOCIETY (SEAES)

President
~~Secretary~~ : Professor A. Manuaba, ~~Secretary to Promoters~~
Jalan Serma Gede No. 18 Denpasar, Bali, Indonesia.
Phone : (0361) - 24533.

Our Ref :
Your Ref : June, 22, 1987

Denpasar, 1 July 1987

Dr. Kazutaka Kogi
ILO Regional Office for Asia and
the Pacific
P.O. Box 1759, United Nations Bldg
Rajdamern Avenue
Bangkok 10200
Thailand

Dear Dr Kogi,

Thank you for your kind letter of 22 June 1987.

And thank you very much for the support given to the coming SEAES meeting in Bali. We appreciate very much for such attention and looking forward for further collaboration, from all friends within SEAES.

In regard to three mayor themes proposed by you, we are fully in agreement and you can discuss all those matters to my colleagues in Bali, since I will be leaving for UK in July 16, for a two-weeks study visit sponsored by the British Council, I shall discuss with my colleagues before my departure, so that your meeting with them will be more fruitfull.

One thing that of essential to be considered is about participant's fee, which much be decided wisely, especially for SEAES and Indonesian Physiological Society members, if we want them to participate in this meeting. We must have two different participant's fees, one which is cheaper for members as previlige, and the other one for outsider (which can use universal rate). You can discuss this with my colleagues in Bali.

About invited speakers, as far as the financial problem can be solved, I rely it to you. The most importance is that, this meeting will have scientific value as you said in your letter.

Finally, I thank you again for attention and support to this coming SEAES meeting in 1988.

My best personal regards,

Yours sincerely


A. Manuaba

cc. Dr Chaiyuth
Prof Phoon
Prof Wisner, *best personal regards*
Dr Kuorinka
from



SEAES

NEWS LETTER

South-East Asian Ergonomics Society

SECRETARIAT: NATIONAL INSTITUTE FOR THE IMPROVEMENT OF WORKING CONDITIONS AND ENVIRONMENT (NICE)

PHRA PINKLAD-NAKORN CHAISRI HIGHWAY, THALING CHAN, BANGKOK 10170, THAILAND. Tel. 424-3690

We have 92 members

The number of SEAES members is gradually and steadily increasing. As of April 1987, we have 92 members. These members have been confirmed on the basis of payment of membership fees for 1986.

The distribution by country is as follows:

<u>ASEAN</u>		<u>Others</u>	
Brunei	1	Australia	2
Indonesia	29	Bangladesh	2
Malaysia	4	Canada	1
Philippines	7	Finland	1
Singapore	3	Hong Kong	2
Thailand	30	India	5
		Sweden	2
		Switzerland	1

Some more members will join us since we have been contacted by several colleagues in these and other countries including Japan and the U.S.A. Let us benefit from active exchange of information and experience among ourselves.

(The list of members is found overleaf. Some important members may be missing as the list is made using our financial records. It is appreciated if the names of missing members are made known to the secretariat.)

Please send your 1987 membership fees

If you have not yet sent your membership fee of US\$5 for 1987, please send it at your earliest convenience. The best way is to send a bankdraft made payable to SEAES (Account No. 021742-1 Saving Bank, Thaling Chan Branch, Bangkok, Thailand). Please note that circulars, Newsletters and in particular the Journal of Human Ergology are sent only to subscribing members.

SEAES Newsletter No. 6, April 1987

SEAES Workshop on Ergonomics Manila, November 1987

The next SEAES meeting will be held in Manila next November. It was originally planned for September 1987, but postponed until the end of November.

The meeting will discuss application of ergonomics to small and medium-scale industries and cottage industries. Participation of SEAES members and non-members is most welcome. For more information, please contact:
Mrs. S. Tiong-Aquino
Institute of Small-Scale Industries
University of the Philippines
Diliman, Quezon City
Philippines.

SEAES Meeting in Bali, 1988

The major event of SEAES in 1988 will be the SEAES Meeting in Denpasar, Bali, 27-29 July 1988. The General Meeting of SEAES will also be held during the meeting. The venue will be Hotel Bali Beach.

The meeting will be supported by the Indonesian Physiological Society and the Department of Physiology, Udayana University School of Medicine.

The tentative topics of the meeting will include ergonomics in agriculture, tourism and small-cottage industries.

The meeting will be organised in connection with the 1988 Congress of the International Ergonomics Association (IEA) in Sydney, 1-5 August 1988. More information about the Bali meeting will be given in our next Newsletter. The contact point is:
Prof. A. Manuaba
Department of Physiology
Udayana University
Jalan Serma Gede 18
Denpasar, Bali, Indonesia
Phone (0361)-24533

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Prof. Wai-On Phoon in Sydney

Our Vice President, Prof. Wai-on Phoon is now Professor of Occupational Health at the University of Sydney. Concurrently, he is also Acting Director of the National Institute of Occupational Health and Safety of Australia

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H. Shahnavaz

Switzerland

J. Takala

- There are about ten affiliated members who support us financially.

Journal of Human Ergology
Vol. 15, No. 2, December 1986

The second joint issue of the JHE appeared at the end of 1986. This issue includes:

- A. Manuaba: Research for development as a priority
- A. De and R.N. Sen: Ergonomic evaluation of ploughing process of paddy cultivation in India
- M. Rahman: Performance, stress and strains in self-paced repetitive work
- D. Koh, C.N. Ong and W.O. Phoon: Psychophysiological profile of taxi drivers in Singapore and seven other papers.

**SOUT-EAST ASIAN ERGONOMICS SOCIETY
(S E A E S)**

CERTIFICATE OF ATTENDANCE

presented to

A L A I N W I S N E R

for having participated as

C H A I R M A N

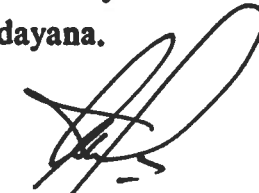
in the Second Conference of
South-East Asian Ergonomics Society,
held between 27 th - 29 th July, 1988
in Denpasar - Bali, Indonesia

organized by

SEAES with the co-operation of
the Indonesian Physiological Society

and

the Department of Physiology Faculty of Medicine
University of Udayana.



A. Manuaba

President of SEAES.

**SOUT-EAST ASIAN ERGONOMICS SOCIETY
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University of Udayana.



A. Manuaba
President of SEAES.

By:

Nyoman Adiputra

(Lab. of Physiology, School of Medicine, Udayana Univ.).

Abstract.

Since there is no information concerning body composition and somatotype of Balinese dancers, this study intended to establish a new information on the matter.

Fifty Balinese dancers, 18 males and 32 females, age ranged from 19-23 years, were joined the study voluntarily. Heath-Carter technique of somatotyping was performed and some anthropometrics measurements including weight, height, skinfolds, circumferences and bone widths were conducted. Body density, percent of body fat were counted using the regression equation and Siri's equation. The results found are as follows: 1). The mean somatotype of male and female Balinese dancers is 1.3 - 3.5 - 3.7 and 2.8 - 3.7 - 2.4, respectively. 2). Male Balinese dancers less endomorphic, more ectomorphic compared with the female dancers. 3). The mean value of body fat is 8.3 % for male and 9.3 % for female dancers. 4). Body density is 1.0801 g/cm³ for male and 1.0779 g/cm³ for female dancers.

Comparing with the data of somatotype of Western dancers, the Balinese dancers are less endomorphic. Mean value of mesomorphy and ectomorphy of Balinese dancers are similar with the mesomorphy and ectomorphy of Western dancers. It seems to be that less fat and more muscular are essential in Balinese dancing activities.

9.3 % for females is even lower,
than 8.3% for males

Udayana Medical Journal. No. 59, January 1988: 14-18.

Introduction .

Many studies, particularly during the past 20 years, have revealed a positive relationship between body build and performance, in which topclass sportmen have a high muscular component (Carter, 1970;1985; Lewis,1966; Sinning et al,1978). Similar studies have been published related to physique, particularly somatotype and performance of athletes (Sinning et al, 1978; Carter,1967; Bale,1981; Lowdon,1980; Rose et al, 1977). The first review of the somatotypes of female athletes was made by Carter (1970) and the samples consisted of 5 sport groups, two samples of dancers and two of physical education majors. Since then, many studies on somatotype of dancers have been published (Johnson,1969; Farnosi,1978; Folgener et al,1979; Carter,1982; Lavoie and Lebe Neron,1982; Mc. Cohen et al,1985).

Considering that Balinese dancing is dynamic in character, involving all muscle groups of the body (Soedarsono,1974;Bandem, 1985), it seems that the same principal in sports could also be applied in dancing. Tirtayasa (1983) found that VO₂ max. of dancers was significantly increased after practicing Balinese dancing in one semester. And in fact, since it is not easy for every body to become a good dancer, it is hypothesised that in Balinese dancing a somatotype could also be a selective factor. Although during the past decades, increased interest in athletes and dancers has resulted in a number of studies using somatotyping, but no adequate synthesis has been made for Balinese dancer. Therefore, the purpose of this paper is to establish and provide new information on the somatotype and body composition of Balinese dancer.

MATERIAL AND METHOD

Subject.

Fifty Balinese consisting of 18 males and 32 females, were participated in this study. All of them are dancers, graduated from the senior High School of Dancing at Denpasar, after four years of training. Their ages ranged from 19 - 23 years. They joined the study voluntarily and informed consent was obtained.

Method.

Anthropometric measurements such as weight, height, skinfolds circumferences and bone widths were used to estimate somatotype and body composition. Anthropometric set (Sterilux Ramsay Surgical Ltd. Melbourne, Hobart) was used for the measurements. The somatotype was assessed using the Heath-Carter technique (Carter, 1970).

Body density, percent fat, absolute fat and lean body mass were calculated from the triceps, axillar and chest skinfolds for male, and for female from the triceps and suprailiac skinfolds, using the regression equation (cited in K. Cooper, 1978) as follows: for male: $1.088468 - (.0007132 X) - (.0004834 Y) - (.0005513Z)$ for female: $1.0764 - (.00081 X) + (.00088 Y)$. Percent fat then estimated from body density using the Siri's equation (Siri, 1956)

$$\left(\frac{4.95}{D} - 4.5 \right) \times 100 \%$$

The equations are considered by their authors to have a high reliability and accurately estimate body composition when compared with direct methods such as body volumetry, hydrostatic weighing or body potassium analysis (cited in Carter, 1981).

Analysis.

In calculating the mean and standard deviation of the data obtained, a scientific calculator Cashio fx-31 was used. For the

comparison between data of somatotype, a student t-test was applied (Batson, 1956).

RESULTS AND DISCUSSIONS

The mean scores and standard deviations of the anthropometric measurements and the somatotype of Balinese dancers are presented in table I and II. In addition, the distribution of somatotypes is illustrated in the somatochart (fig.1).

Height, weight and the mean scores of body composition are presented in table III and IV. In table V. is presented a comparison of somatotypes of some different groups of dancers. It is clearly shown that Balinese dancer for both sexes are less endomorphic than the others.

The somatotypes of Balinese dancers (table II) indicate that they are less endomorphic and more mesomorphic either for males or females. The mean somatotype of male and female Balinese dancers is 1.3-3.5-3.7 and 2.8-3.7-2.4, respectively. Male Balinese dancers less endomorphic but more ectomorphic compared to females dancers.

As a group, the Balinese dancers have a mean percent fat of 8,3% and 9,25 % for male and females (table IV), which is less than medical students reported by Adiputra et al (1984) and ballet dancers by Bale (1981).

The body density of 1.0801 and 1.0779 g/cm³ and absolute body fat of 4.85 and 4.23 kg for male and female dancers (table IV), are closely similar to Balinese athletes and Balinese farmers as measured by Adiputra et al (1984;1985). The Balinese athletes and farmers are also engaged in high level daily activities.

Absolute data of Balinese dancers' body fat are lower in compare to data reported by Bale (1981) about 9.03 - 14.98 kg in sport women and non-athletes in Britain; and also to data found by Slaughter et al (1981) was about 19,5 - 25,3% fat among 63 members of the University of Illinois women's athletic teams.

The water content is closely connected with the specific gravity. If we

assume a linear dependence between the specific gravity and fat content of the body, a 10 % increase of the fat content would result in a decrease of specific gravity by 0.02. As stated by Eiben (1981) that the fat content of the body of a normal fed men would be 18-20 %, and his specific gravity would be about 1.06. It seems this is the reason, why Balinese dancers are having higher specific gravity, due to their lower fat content. Unfortunately, it is not possible to compare with the somatotype of Balinese non-athletes, non-dancers, since no data available. But it is a fact that Balinese dancers are less endomorphic than British athletes (Bale,1981), and five groups females basket ball players (Carter,1981).

From table I and III it can be seen, that male Balinese dancers are higher and heavier then the females, while female Balinese dancers are much lighter and shorter compared to western ones (Carter, 1970; Lowdon, 1980).

From table V one can see that the endomorphy of male Balinese dancers are significantly different compared with the Grossmont Recreational Dancer ($P < 0.05$); San Diego Ballet Company ($P < 0.05$); San Diego Modern Dancers ($P < 0.05$); SDSU non-Dancers ($P < 0.01$); Montreal Recreational Dancer ($P < 0.01$); and Hungarian Folk Dancers ($P < 0.01$).

There is no significant differences found among the mesomorphy and ectomorphy of male Balinese dancers compared with other dancers.

To summarise, it appears that Balinese dancers are generally less fat and more muscular and such value are essential in Balinese dances. It is suggested that success in dancing is due to in part, the significant positive relationship of mesomorphy and less endomorphy to physical performance.

From the above discussion the following conclusions could be drawn :

1. The male Balinese dancers are heavier and taller than the female dancers, at the same age.
2. The Balinese dancers are very lean, however male Balinese dan

- cers are less endomorphic and more ectomorphic than the female.
3. Balinese dancers are less endomorphic compared with other world female dancers and athletes.
 4. The very low fat percentage could be in part, due to unbalance energy input and output during dancing, beside ethnic factor as well.

ACKNOWLEDGEMENTS

The author wishes to thank Professor Ida Bagus Adnyana Manuaba, Head of Physiology Laboratory, School of Medicine, Udayana University, for his guidances and criticism throughout the study.

The author also appreciates so much for the assistances of the colleagues in Physiology Laboratory, as well as Drs: Ketut Karna, Alex Pangkahila, Suyasning and Dewa Putu Sucana. Thanks are also extended to Director of Senior High School of Dancing Denpasar, for his kind helps in selecting Balinese dancers for subject of this study. To all of Balinese dancers many thanks are addressed for their cooperations during the measurements.

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Table I. The Anthropometric Measures of Balinese Dancers.

Sex	Height cm	Weight Kg	Skinfolds, mm						Condyles, cm		Girths, cm	
			Triceps	Chest	Axilla	Suprai- liac	Subs- capular	Calf	Humerus	Femur	Biceps	Calf
Male (n=18)												
X	165.43	52.97	4.4	4.1	5.2	3.8	6.7	4.3	6.55	7.99	26.11	33.05
S.D	6.1040	5.5166	0.4599	0.4164	1.3157	0.4534	0.8968	0.9373	0.3932	0.3714	0.9867	1.8564
Female (n=32)												
X	153.04	47.65	8.8	-	-	7.7	11.2	9.6	5.86	7.71	23.05	31.37
S.D	4.2470	5.0471	1.5062	-	-	1.5401	2.5932	2.1061	0.3446	0.4080	1.6813	2.0925

Table II. The Somatotype of Balinese Dancers

Sex	n	Endomorphy	Mesomorphy	Ectomorphy
Males	18	1.3 ± 0.2955	3.5 ± 0.8149	3.7 ± 0.8744
Females	32	2.8 ± 0.5555	3.7 ± 0.8713	2.4 ± 0.9499

Table III. Height and Weight of Balinese Dancers.

Sex	n	Height (cm)	Range - Range	Weight (kg)	Range
Males	18	165.43	153.7 - 173.0	52.97	39.0 - 64.5
Females	32	153.04	143.8 - 160.0	47.65	37.0 - 62.4

Table IV. Body Composition Measurements of Balinese Dancers.

Sex	n	Density	% Fat	Absolute Fat	Lean Body Mass
Male	18	1.0801±.0013	8.30±0.5873	4.39±0.5268	48.57±4.9347
Females	32	1.0779±.0013	9.22±0.5646	4.39±0.5255	43.26±4.6067

Table V. Somatotype of Some Different Group of Dancers.

Group	N	Endomorphy	Mesomorphy	Ectomorphy
1. Grossmont Recreational Dancer (Mc Cohen, 1985).	11	4.7 + 0.6	3.1 ± 0.57	2.8 ± 0.55
2. San Diego Ballet Company	15	2.7 ± 0.55	3.0 ± 0.54	3.8 ± 0.61
San Diego Modern Dancers	23	3.2 ± 0.77	3.1 ± 0.70	3.3 ± 0.64
SDSU Non Dancers (Johnson, 1969)	31	4.6 ± 1.06	3.6 ± 0.9	2.9 ± 0.96
3. Montreal Recreational Dancer	17	5.0 ± 1.24		
Montreal Professional Dancer (Lovoie, 1982).	6	3.1 ± 1.22	3.5 ± 0.82 2.4 ± 0.49	2.4 ± 1.24 4.4 ± 0.98
4. Hungarian Ballet Dancers	18	3.0 ± 0.80		
Hungarian Folk Dancers (Farmosi, 1978)	18	4.7 ± 0.92	3.2 ± 0.64 4.1 ± 0.66	4.0 ± 0.24 2.7 ± 0.87
5. Balinese Dancers				
- Male	18	1.3 ± 0.2955	3.5 ± 0.8149	3.7 ± 0.8744
- Female (Adiputra; 1988)	32	2.8 ± 0.5555	3.7 ± 0.8713	2.4 ± 0.9499

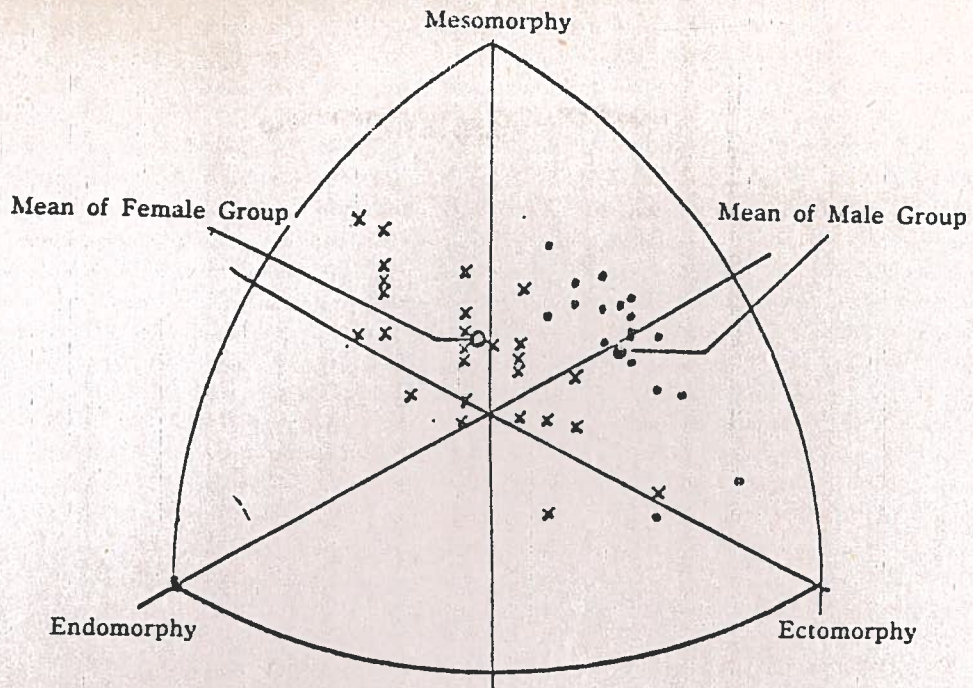


Fig. 1. Distribution of Somatotype of Female and Male Balinese Dancers.
 ● = Male (18); x = Female (32).

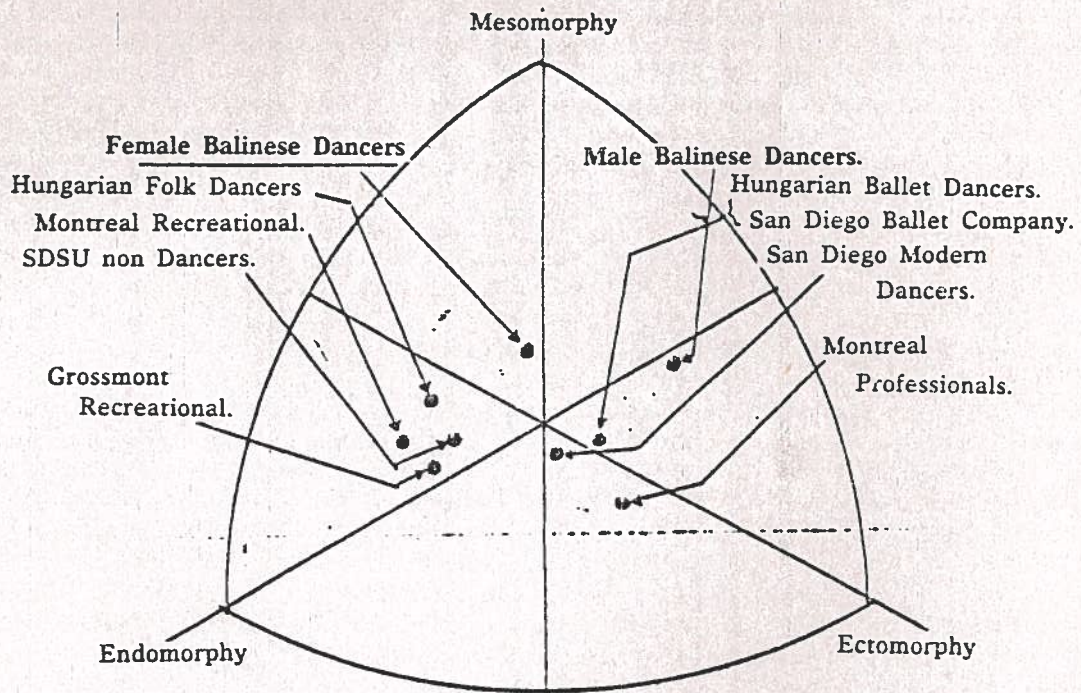


Fig. 2. Mean Somatoplots of Female Dancers (by group) and Balinese Dancers.