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### Factors to be Taken into Account in Designs and Constructions in Developing Countries

Facteurs à prendre en considération pour des projets et des constructions dans les pays en voie de développement

Was in Entwicklungsländern beim Entwerfen von Bauten und deren Ausführung beachtet werden muss

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Since 1967, Indonesia has opened its doors to foreign capital and foreign expertise. Before that, in the period of 1945 to 1967, it can be said that Indonesia has isolated itself. In this period, the domestic difficulties have created an unfavourable situation to conduct economic planning. However, we should not forget that before 1945 Indonesia was colonized by the Netherlands and at that time Indonesia already had a regular Dutch administration. This means that in Indonesia a generation already existed which worked according to an administration which at that time could be regarded as up-to-date.

At present, 35 years later, there are still some left of this generation who are still active and involved in construction activities, naturally not a great number anymore.

Between 1941 - 1960, the education of young people was rather erratic and this has caused a generation gap, so that the consequences are still felt at present. However, it would be quite wrong to regard Indonesia as a country which is 100 % "illiterate" in all respects. An example: East-Java in the Dutch colonial era was the most advanced province, and at that time it was already very progressive in irrigation matters and at present it can still manage irrigation conducted for 100 % by Indonesians.

In various disciplines, including Civil Engineering, Indonesian technicians have already rendered many services. Hereunder we list the disciplines which can be conducted for 100 % by Indonesian consultants:

1. Structural engineering on buildings, bridges, highways.
2. Soil mechanics, foundation calculations, road-building.



3. Earthquake engineering control, dynamic analysis calculations.
4. Town planning and habitat affairs.
5. Drinking water provision.

The above are disciplines included in engineering.

In the sectors of consultancy, feasibility studies, industrial-, banking-, hotel management and computerization, it should be admitted that our experience is still insufficient. At present, Associations of Professionals have already been established:

- a) In the Engineering sector: The Indonesian Construction Techniques Consultants Association (P.K.T.P.I.)
- b) In the General Consultancy sector: The Indonesian Consultants Association (IKINDO).

These two associations will merge within short and we shall strive to achieve progress and to obtain as many projects as possible.

The question arises whether there is still a place for foreign consultants. The answer is positively: yes. We need consultants in disciplines which are still vacuum, but there is a requirement/condition, and this requirement/condition is the transfer of know-how.

There is another matter that we wish to stress: Do not send manpower fresh from the universities who wish to learn in our country; likewise, do not send adventurers and brokers. Within a relatively short period, namely since 1967, we have had bitter experiences in consultancy and contracting matters. The Indonesian people have become critical and in a young and developing country there are still many aspirations toward Nationalism.

I, as Chairman of the Association of Consultants, am always prepared to extend information for mutual benefit. In a developing country which is still lacking in research laboratories, experiences in various sectors are not adequate, and we, as Indonesian consultants, are sufficiently realistic.