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September 1987

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ASSISTANCE TO THE LEMBAGA KEWIRASWASTAAN INDUSTRI (LKI)
TO STRENGTHEN ITS CAPABILITIES IN IDENTIFICATION, PREPARATION
AND EVALUATION OF MEDIUM-SCALE INDUSTRIAL PROJECTS

DP/INS/85/037

INDONESIA

Final Report of Jean-Pierre van Gansberghe
Chief Technical Adviser

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

VIENNA

This report has not been cleared with the United Nations
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necessarily share the views presented.

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I. INTRODUCTION AND BACKGROUND

This Final Report contains observations, comments, personal opinions and recommendations by the Chief Technical Adviser (CTA), J.P. van Gansberghe, who was assigned to UNIDO Project DP/INS/85/037 from September 22, 1985 until August 28, 1987 when he left his duty station at Lembaga Kewirasastaan Industri (LKI) to be debriefed at UNIDO Headquarters in Vienna.

This period covered the six last months of the 12-month Project and another six-month period which was an extension of the Project's duration needed to prepare for a possible following UNDP-funded/UNIDO-assisted project.

Generally speaking, the assistance provided by UNIDO to LKI has proved altogether very much needed and acceptably successful, despite the fact that the fieldings of the key International Experts and Consultants happened late during the Project life and that this assistance sometime lacked the desirable intensity because of too short fieldings of such international personnel.

Results in terms of institution building, which was the primary function of the Project, have been attained mainly through staff-training and assistance to the National Project Director in matters of organization. The results are encouraging.

The secondary function of the Project, i.e. direct support, also yielded good results as it allowed to attract international expertise to LKI to render services directly or indirectly related to specific investment proposals and as it made possible the funding by UNDP of certain budgetary items which could not have been completely financed by the Government contribution.

LKI's main weakness has been, from the start, its poor access to reliable information sources. Consequently, the pre-investment studies were based on scarce data and it was, therefore, often difficult to draw firm conclusions concerning the projects' true viability. This problem should be gradually overcome when the proposed industrial data-bank becomes operational at LKI. Preparations to set up the data-bank were initiated by this CTA.

The use of UNIDO Model for the Preparation of Feasibility Studies (COMFAR) has been extensive. However, the sound interpretation of COMFAR results left much to be desired until the time when the CTA and other international Experts were fielded. The common training efforts by the Financial Analyst, the Marketing Expert and this CTA fielded by UNIDO have resulted in a much more critical analysis of the model's results, with the consequence that the lending institutions now accept LKI's recommendations. Nevertheless, there is still room for improvements mainly in terms of primary and secondary data analysis and investment risk assessment.

During the latter part of this CTA's assignment, when preparations were being made for a possible successor project, there was much confusion concerning the Government's intentions for the future role of LKI. Various concepts were put forward by the Ministry of Industry and Government agencies and these concepts were not necessarily compatible with each other. A project concept drafted by UNIDO's SIDFA in consultation with the National Project Director was found to be acceptable to UNDP and the Ministry of Industry, but somehow conflicted with the views expressed in certain Government circles.

Before the Project was extended, in April 1987, a Tripartite Review Meeting was held between the Government and UNDP-UNIDO. This meeting generally accepted the views expressed in the Terminal Report prepared by this CTA and it gave both sides an opportunity to put forward or re-affirm certain ideas concerning LKI's future actions. The UNDP Resident Representative indicated that his Organization was prepared to continue the funding of assistance to LKI, but that such assistance needed to be directed at well-defined activities for which outputs and output-verifiers could be clearly stated in a Project Document. He also re-affirmed that it was not UNDP's intention to carry on financing the employment of National Experts placed on LKI's payroll as it had already been agreed, at the start of this Project, that they would be taken over by LKI at the Project's end, i.e. as on April 1, 1987.

As a consequence of the Tripartite Review Meeting, LKI then consulted with the Ministry of Industry in order to prepare a list of activities which was to be submitted to UNDP to serve as a base for a following project. The draft project concept prepared by the SIDFA was thought to reflect these ideas and this CTA used it as a basis to draft a Project Document. But, as already explained, it became gradually apparent that other directions, other objectives, were preferred by the Government for LKI's future role in the Country's industrial development and, hence, the original project concept needed to be changed to suit the Government's views. Work on the preparation of the Project Document was therefore suspended until such time when a common governmental position would come forth for discussion with UNDP and UNIDO.

Due to prior professional commitments this CTA cannot extend his presence in Indonesia and eventually head the international team which would assist a following project. He very much regrets this situation as he would have liked to contribute further to the development of LKI. He wishes the best of success to his successor and is available to discuss and advise on matters related to his assignment would the need arise.

II. ACTIVITIES AND OUTPUTS

This CTA has been directly involved in the following main tasks at LKI :

1. advising the National Project Director on matters of organization, relations with other institutions and with the private sector, relations with LNDP/UNIDO, staff training needs and action orientation.
2. preparation of a 5-year development plan and accompanying budget.
3. assisting and advising national staff in their daily work for the preparation of pre-investment studies.
4. preparatory work for the implementation of an industrial information bank.
5. supervision of the international team
6. conducting training seminars aimed at improving LKI' staff skills in project preparation and evaluation
7. preparing analytical tools and/or computer softwares for data analysis and forecasting purposes.
8. preparation of a draft Project Document for a possible following project and accompanying job descriptions for international Experts and Consultants
9. various administrative tasks

1. Advisory role

The relations between the National Project Director and the CTA have been frank and easy and, during frequent informal meetings, views were exchanged as to the best way to tackle LKI's problems. Advises have been flowing both ways : this CTA making suggestions in the field of his own expertise in management, economics and technical matters and the National Project Director advising on local rules, customs and, more generally, on Indonesians' way of conducting business. The "Indonesian way" of reaching a consensus was the subject of much explanations by the National Project Director and proved to be very useful to allow the CTA to better understand the manner in which decisions are reached.

This CTA frequently stressed the need of having all LKI staff, including Section Heads, constantly involved in direct project work, because of the scarce human resources available to the Institute. This was well understood by the National Project Director, but the implementation proved to be difficult, probably because of the relatively high importance given to other-than-direct project work and, when it comes to senior people, because of a certain behavioural rigidity due to age and previously acquired working habits which do not necessarily fit the needs of a nascent institution.

2. Drafting of LKI's Five-Year Development Plan

This task, mentioned in the Project Document as a project output, was entrusted to the CTA upon his arrival at duty station, although it should have been the responsibility of the Organization Consultant. Nevertheless, he undertook to draft the corporate plan based on the recommendations of this expert who preceded him in Jakarta. A model of LKI's growth and expansion was designed to compute inputs required to meet the objectives set forth by the Organization Consultant's report. Numerous versions of this development plan were prepared, each of them based on a different set of assumptions picturing various development alternatives for the Institute.

The most important result produced by this exercise was to show that, if LKI was to grow along the recommended pattern and stay with its current objective of helping entrepreneurs by providing them with pre-investment studies of good standing, the Institute would need many more professionals of the proper caliber. This evidently means larger financial resources and it was thought that they would be made available from sources other than the Ministry of Industry budget:

This planning exercise came to an abrupt halt early December 1986 when it was learned that LKI would have to live with a decreased budget allotment for its next fiscal year and, more importantly, that the conclusions reached by the Organization Consultant were no more really in line with the Ministry of Industry own perception of the future role to be assigned to the Institute. The drafting of a corporate development plan for LKI was therefore temporarily foresaken, awaiting a new definition by the Government of LKI's expected part to play in the Country's industrial development and of the amount of financial resources which would be obtained to accomplish the related tasks. At this time this information is not yet available and no corporate plan can thus be drafted. However, the spreadsheet model designed originally to compute LKI's outputs and related needs in terms of personnel and budget can easily be adapted to other input/output situations in so far that the basic LKI role remains unchanged. Otherwise, new functions will have to be built into the model to replace the ones relating the number of completed studies to the number of professional staff.

3. Assistance to LKI staff for Project Preparation

This assistance covered work directly related to the preparation of pre-investment studies. It was extended as part of the "on-the-job" training activity of the Project and included :

- discussions of the general objectives of the studies
- explanation of the methodologies to be followed to prepare studies
- critical analysis of the basic data available as inputs for the studies
- detailed review of, and comments on, studies having reached preliminary and final reporting stages
- final approval of studies to be submitted to entrepreneurs, sponsors and banks.

The studies reviewed by this CTA covered the following subjects :

- cocoa butter production (pre-feasibility)
- identification of entrepreneur groups in Medan (sub-contract)
- production of activated carbon from coconut shells (sub-contracted marketing study)
- production of fruit juice and concentrates (pre-feasibility)
- manufacturing of rattan furniture (pre-feasibility)
- establishment of engineering workshops (pre-feasibility)
- establishment of cold storage facilities (feasibility)
- establishment of a tuna canning plant (opportunity)
- production of aluminium holloware (opportunity)
- establishment of an iron foundry (market study)
- production of dessicated coconut (opportunity)

In addition this CTA contributed to the preparation of Terms of Reference for the two above sub-contracted studies and for another one which deals with the identification of entrepreneur groups in Samarinda.

The findings of these reviews are dealt with in a separate section of this final report.

4. Preparation Work for the Implementation of an Industrial Information Bank

As mentioned earlier in this report, the main constraint faced by LKI when preparing pre-investment studies, is the insufficiency in data quantity and quality. This is particularly true for market and technical information.

In order to improve this situation it has been recommended that LKI builds and operates an industrial information system and obtains data either by tapping existing local or foreign data-bases or by getting data from other less-structured information sources. This requires numerous efforts to design an efficient system and large expenses to acquire hardware, software and data. These tasks are proposed to be included among the major objectives of a possible following UNDP-financed project.

In order to lay the groundwork for the building of this information system, the CTA has undertaken to design simple processing modules which can be accommodated by the hardware available at LKI. The objective is not so much to build a prototype system which could be used for actual study inputs, but, more so, to test a system in real conditions so as to allow a better definition of the Institute's actual information needs. Tests have been conducted with industrial indicators used either directly or as proxy data to simulate the economic viability assessed by the break-even point (BEP) or the Manufacturing Value Added (MVA) methods. The intention was to design a simple processing method to test project ideas against a set of acceptable criteria and make a first definition of the type and quality levels of the data needed to support the full-scale system.

In addition and in order to prepare LKI staff to handle raw data obtained from outside sources, the CTA developed methodologies to be used to appraise, among others, the quality of the information. More details are given in the paragraph dealing with training.

5. Supervision of the International Team

Acting as the international team-leader assigned to the Project, this CTA supervised the work of Experts and short-term Consultants fielded by UNIDO.

Generally speaking, it was a rather easy task because only a limited number of international personnel was with the Project at any particular time and supervision could therefore be concentrated on a small number of specific matters related to on-going studies,

The team-leader role is, however, more time-consuming when international experts and consultants find themselves discouraged or disappointed by unexpected difficulties encountered while performing their assignments. Only a few such cases occurred during this CTA's presence at LKI and, often, seemingly unsurmountable problems could be solved by just discussing them in details and "depassionating" certain apparent impediments.

6. Staff Training Seminars

Although formal (class-room) training was not particularly stressed in the Project Document, it became nevertheless rapidly clear that LKI staff needed to acquire basic knowledges which could not possibly be conveyed through purely on-the-job training. The need for more formal training became even more acute when new employees were recruited in the course of the Project.

On the occasion of staff training seminars, the responsibilities were shared between the Financial Analyst, the Marketing Expert and the CTA.

For the two first seminars, the CTA covered following subjects :

- introduction to the general concept of industrial development, conditions and objectives
- concept of Manufacturing Value Added (MVA)
- use of capital in industrial ventures
- exchange and inflation rates' impact on project viability
- methodology for pre-investment studies
- selection of appropriate technologies
- introduction to common production processes
- cost-size functions
- mass and energy balances
- installation costs
- appraisal of assumptions in forecasting
- report writing rules

These subjects have been embodied in two Manuals under the title of "General References for Project Analysts", Part I and II.

Because time was too short to organize yet another staff training seminar, certain additional topics could not be covered, mainly in the fields of data analysis and methodologies for cost and revenue projections. However, this CTA has prepared the necessary training materials to be handed over to the next team-leader if one is fielded in time.

7. Development of Analytical Tools and/or Softwares for Data Analysis and Forecasting Purposes

When he started his assignment at LKI, this CTA noticed that the Institute's staff had a tendency to use the scarce data available without any serious analysis of its quality and characteristics. In addition, the cost and revenue projections were prepared in a simplistic way, ignoring such factors as inflation, exchange rate fluctuations, productivity improvement factors, market saturation, product obsolescence, etc. This resulted in large distortions introduced in the COMFAR Model and unrealistic assumptions for the future evolution of markets in terms of volume and prices. The consequence was generally that studies showed misleading viability indicators and, understandably so, when these studies were submitted to the lending institutions in order to obtain long and short term loans, they were rejected for being inadequately researched and poorly documented. Possibly, one of the most disturbing factor was the inadequate evaluation of short-term cash needs during the first production years to meet the conjunction of low market penetration and high production costs during the starting phase.

Again, time was too short to dispense formal training on these all-important matters. Therefore, the CTA developed simple methodologies and the related softwares which can be used to improve substantially the accuracy of inputs in pre-investment studies and the quality of projections. These analytical tools include :

- Analysis of data homogeneity and coherence with special emphasis on the saturation phase
- trend analysis by the least square method for linear, quadratic and evolution patterns of higher order
- exponentially weighted means as used in Holt's equation
- logistic and similar evolution curves
- forecasting model for additional capital needs during the early production years.

Because of heavy use of the computer at the end of the Project, it was not possible to type these programmes and store them on disk. However, all programme-listings have been written in compatible MBASIC and preably tested on another computer. Programme listings have been left with LKI so that they can be retyped and used when the computer workload will allow it.

8. Preparatory Work on a Project Document for the next UNDP-funded Project

Starting early May 1987, this CTA has devoted considerable time to prepare a draft Project Document for the possible continuation of UNDP/UNIDO assistance to LKI. This work was based on the project concept drafted by the SIDFA in consultation with the National Project Director. When the fourth version of this document was completed it appeared that the original project concept could no longer be used as a basis for LKI's future action because the main objectives set forth in the project concept were somehow diverging from the Government's own views concerning the role that LKI was expected to play for the Country's industrial development. It became unclear if this role was to be mainly of the promotional type (new industries) or of the technical type (restructuring of existing industrial sectors or rehabilitation of existing plants). The work on a draft Project Document was consequently suspended early July 1987 when the Government - mainly the Ministry of Industry and BAPPENAS - started a series of consultations in order to define exactly what LKI was supposed to do in the drive towards industrialization. At the time when this Final Report was written (week of 10 August 1987) there were not yet indications of the Government position.

9. Administrative Tasks

This CTA, acting as international Team-Leader, was involved in a number of administration tasks which, in his views, took too much of his time when time was already scarce because of his late fielding.

These tasks included the monitoring and reporting of Project expenses, reconciliation of figures recorded at LKI, Headquarters and UNDP Finance Section, preparation and update of workplans, preparation of sundry reports for Headquarters and UNDP/UNIDO Jakarta, preparation of the TPR meeting and the like.

This does not mean that these tasks are not serving a useful purpose, but merely indicates that for short projects they are burdensome and tend to interfere with more direct and urgent needs of the Project. Anyhow, these tasks were accomplished as best as the CTA could do and it is hoped that he does leave behind a sufficiently orderly situation.

III. EXTENSION PHASE (April 1 - August 31, 1987)

At the Tripartite Review Meeting, held on 2 April 1987, the UNDP Resident Representative accepted to extend the Project until 31 August 1987 to give sufficient time to prepare for a possible continuation of UNDP/UNIDO assistance to LKI. LKI was put in charge of preparing proposals to be discussed with UNDP and UNIDO for later inclusion in a Project Document.

During this extension phase, most of the time at LKI was spent on following activities :

1. completion of on-going studies :

- production of cocoa butter and powder
- tuna canning
- fish freezing
- manufacturing of rattan furniture

2. preparation of promotional materials (opportunity studies) for the UNIDO-supported Investor Forum

3. preparatory work for a possible next UNDP-funded project

This CTA participated in these tasks by :

- reviewing the on-going pre-investment studies
- reviewing most of the promotional materials
- writing drafts of the Project Document

For this last task, however, as explained earlier, he stopped producing drafts when it became clear that the original project concept was found to deviate from BAPPENAS' ideas concerning the future role of LKI.

During the extension phase, the activity was somewhat slowed down because of lack of funds as there was no Government counter-budget to match the UNDP contribution. Therefore, LKI staff could not travel to the provinces to collect data and meet with local entrepreneurs.

IV. FINDINGS

1. Organization of LKI

The STEERING COMMITTEE duties, as described in the Ministerial Decree establishing LKI, were to be of vital importance for the Institute management as they were aimed at giving directions and guidance concerning policies and priorities for LKI's activities. Because the Members of the Steering Committee represent the main sectors involved in the Country's efforts towards industrial development, their deliberations should have resulted in clear-cut directives as to what to undertake first and as to how to achieve the expected results. It was also envisaged that the Steering Committee would play a significant part in obtaining the necessary means to attain LKI's objectives.

In reality, however, this has not been so because full-meeting of the Committee did not take place often enough, with the result that guidance to management was not always reflecting the views of all parties represented at this policy-making body.

Whatever LKI's future mission will finally be, there is a need for a more active role for the Steering Committee to make sure that the Institute progresses in the desirable direction and that its budget is commensurate with the Government and the private sector expectations in terms of sufficiently verifiable results.

The basic organizational structure of LKI has been determined by the same Ministerial Decree. This structure was defined to fit the long term objectives assigned to the Institute. However, these objectives will probably change either in nature or in relative importance. Therefore, the existing organigramme may need to be adapted accordingly. It is the opinion of this CTA that the present organic structure fits the needs of a professional service institution preparing pre-investment studies for potential and existing entrepreneurs, although it would be more suitable for a larger organization.

Indeed, LKI will probably remain a small institution in the foreseeable future - small in terms of number of professional staff on the Institute payroll - and the present departmentalization, with one Director and four Section Heads supervizing a total of five professional employees, is, evidently, totally inadequate and unnecessarily costly. It is nevertheless understood that people in supervisory capacities should not be removed from the organigramme and, hence, the best way of improving LKI's output, at least quantitatively, is to involve the chiefs in more direct project work, that is to say, putting them in charge of writing entire studies more so than just contributing to the preparation of certain study chapters. LKI needs all the manhours that it can get and this is probably the cheapest way to get them because they are already paid for.

In this sense, organizational and other administrative tasks

should give way to more directly productive work, i.e. the preparation of studies for private entrepreneurs.

One of the findings of this CTA is that not everybody in the organization is able - or willing - to accept further training. Sometime, the participation in training sessions, whether "on-the-job" or during seminars, has been rather disappointing. Certain members of the Institute probably feel that their past experience give them sufficient knowledge to fulfill their assignment. This is not, however, shown in the quality of their work. The acquisition of knowledge is a never-ending process as are the advances in all sectors of industry. University degrees and past experience are best accepted as a starting point, not as an end in itself. Ideally, LKI payroll should only include people eager to improve their basic skills if one wants to draw all the benefits from multilateral or bilateral technical assistance.

Another point worth considering to improve the Institute efficiency is the building of a true accounting system to record, with the proper degree of accuracy, expenses chargeable to Government and other budgets. This is not the case presently and it was found that, many times, amounts recorded at LKI were simply irreconcilable with those of UNDP-Jakarta and/or UNIDO-Vienna. The LKI accountant should also keep records of such things as work performance (per study and per staff), office inventories, vehicle use, maintenance of assets, personnel punctuality and he should help develop standards for each of LKI main tasks plus the accompanying monitoring system.

Finally, it is this CTA's opinion that supporting personnel should be more closely and more strictly supervised, possibly by a qualified administrative assistant to the Project Director. It would probably show that LKI could function more efficiently and less expensively with a smaller number of such employees.

2. Studies

When this CTA joined the Project, late September 1986, he started by making an "audit" of the studies prepared until that time. This exercise revealed several weaknesses :

- Marketing chapter :
 - . no real attempts were made to get meaningful data on which to base forecasts
 - . no considerations of price fluctuations, price structure and impact of inflation and exchange rates
 - . no consideration of distribution channels, mainly for export-oriented projects
 - . future market assumptions based on a mere linear projection of the historical trend and extending over the whole life of the project without due consideration of the likely market saturation, introduction of new products, new competitors, product obsolescence and the like.

- technical chapter

- . every study assumed that the plant would operate at 100 % capacity for the whole life of the project even when figures indicated that there was already over-capacity in the Country. Full capacity operation was considered normal even if this is unattainable in practical situations and indeed not desirable taking into account equipment life and production disruptions.
- . maintenance and major repair costs and downtimes were either underestimated or simply ignored
- . investment in machinery was calculated without due consideration of installation costs
- . mass and energy balances were not prepared, thus leaving the question of economy of scale, among others, unanswered
- . quality control, rejects, waste handling, etc. were not taken into account when calculating production costs
- . no serious analysis was made for the level of technology best suited for the project's intended purposes

- organization chapter

- . in most cases, proposed staffing was highly "top-heavy"
- . no indications were given concerning the tasks to be administered by different levels of the organizational structure and the inherent cost of administration in general
- . general procedures to administer and monitor production costs were not mentioned

- financial chapter

- . COMFAR results were accepted ad-facies, without any serious attempt to analyze their true meaning
- . sensitivity analyses were conducted with assumptions which were not warranted by the probable occurrence of factors affecting costs and revenues
- . investment risks factors were not identified and assessed
- . working capital requirements were calculated without proper consideration of the additional needs during the start-up phase

Not surprisingly the sum of these shortcomings lead to studies of an unacceptable standard and the results of these analyses were indeed not accepted by the major banks.

A concerted effort by the Financial Analyst, the Marketing Expert and this CTA succeeded in correcting most of the above weaknesses, but this should be a continuing process and, if the stress on more in-depth analyses and more accurate projections would become less strict, for instance in the case of a temporary halt in multilateral assistance, it is to be feared that these progresses will be short-lived.

Finally, it was found that in quite a number of cases industrial projects with good prospects for the Indonesian economic

development were nevertheless not sufficiently viable because of the exaggerated financial burden resulting from the cost of capital. Evidently, when medium-term loans bear 18 % interest and short-term credit is charged at 27 %, many projects, however good, fail to pass the economic feasibility test. This is an unfortunate situation as it prevents the establishment of much-needed industries and discourages potential entrepreneurs who get better returns from investing in non-industrial ventures.

Studies undertaken during the life-span of the Project were "tailor-made", i.e. prepared at the request of particular entrepreneurs wishing to find out about the economic viability of their project ideas. It gave LKI a good opportunity to analyze a broad variety of industrial situations. However, it somewhat diluted the staff ability to become entirely familiar with all the important factors of specific industrial sub-sectors and, evidently, made the delivery of studies rather slow. In most cases, the preparation of a feasibility study takes about five months, but there are example of studies which took much longer than that to attain the desirable level of completeness and quality. The remedy is obvious : more professionals, more staff specialization and more information. If LKI is to remain in the field of project evaluation, it will inevitably have to count on a larger crew, with excellent practical qualifications (shopfloor experience e.g.) and a much improved access to data sources. In the future, people need to be recruited based on their individual achievements in matters having a direct relation with the Institute's activities, whatever these may be. There may still be a need for a few "generalists", in financial and marketing matters for instance, but the bulk of the staff should be made of people having gained experience in actual industrial situations. It will make technical assistance much more efficient as it will be concentrated on specifics and state-of-the-art techniques rather than on starting with the basics of a particular trade as is the case currently. One example of the present situation can be found in marketing : LKI employs people having a certain experience in the commercialization of goods and products in the domestic market. When these employees are asked to project sales of different products to foreign markets, they are understandably not equipped with the necessary experience to deliver credible forecasts.

Another point worth mentioning is the handling of statistical data to prepare pre-investment studies. As indicated earlier in this report, these data tend to be scarce and, if used indiscriminately, they rapidly become of very little value to make any serious analysis of past events and, much more so, to forecast the evolution of an economic phenomenon. Data should always be analyzed thoroughly before they are used for projections. Until now, this has not been the case at LKI but it is hoped that with the establishment of the data-bank and using some of the softwares and methodologies prepared by this CTA, the situation will be improved. Evidently, this statement is made assuming that LKI's future assignment will require the use of data to prepare pre-investment studies.

3. Short-Term Consultants and Experts

The way short-term consultants and experts are recruited for a particular assistance project should be improved if one expects to field the people who can really contribute plainly to the project's objectives. It should be remembered that the CTA is the only person who knows exactly what the project requires in terms of technical assistance and he should have a chance to actively participate in the assessment of the value of candidates for the project he is leading, even if that means that he should return to Headquarters for this purpose. It may be an additional burden but it will surely greatly improve the adequation of the experts' skills to the needs of the project.

It is this CTA's opinion that the best job description is merely an indication of the project actual requirements and that, because these requirements may change with time, the job description may rapidly become unapplicable. On the other hand, as anyone knows, curriculum vitae's tend to give a somewhat distorted picture of the candidates' true qualifications.

4. Associate Experts

Associate Experts can be a real constraint or a positive contribution to the the Project. They are mostly well-educated young professionals with little or no practical experience. This CTA is not in favour of having Associate Experts doing direct project work as it decreases the opportunities of having national staff trained on-the-job for such work. However, Associate Experts should be more involved in developing methodologies and procedures, under the supervision of more senior experts, to make the work of the national staff more easy and more efficient. In this sense, it is very desirable that a possible next project would see the fielding of one or two Associate Experts able to design and implement simple computer-based routines, for instance to simplify forecasting activities.

The Associate Experts who were fielded during Project DP/INS/85/037 made a good contribution to the work of LKI. In addition to project work entrusted to them by the National Project Director, they also performed tasks under the direct supervision of the CTA. Such tasks included :

- preparatory work for the future information system
- draft of training schemes for a possible next project
- various analyses, data compilations and bibliographic researches.

5. SIDFA

This CTA is grateful to the SIDFA and his team for all the assistance received during his fielding. This assistance covered many aspects of his assignment, including advises on technical and administrative matters and many opportunities to discuss at length various policy subjects having to do with the preparation of a possible next project.

6. Backstopping Section

The CTA maintained a constant flow of information about the Project progresses and problems to the backstopping Feasibility Study Section at Headquarters. For his part, the backstopping Officer, Mr. MIMURA, kept the CTA well informed of developments relevant to the Project. Much technical information was provided by the backstopping section in the form of UNIDO and other sources publications and materials such as microfiches.

Upon leaving his duty station, the CTA returned part of this material to the SIDFA's Office and left the remainder at LKI to serve as a base for a future reference library.

V. RECOMMENDATIONS

Based on his findings, this CTA wishes to make the following recommendations, assuming again that LKI's future role will still be to generate new industrial investments in the medium-scale range :

1. It is necessary that LKI develops closer co-ordination and joins forces with other Government Agencies and/or Departments to ensure that the objectives of industrial development are completely covered but that no duplication of efforts occurs. BKPM and NAFED should be regularly consulted and informed about LKI's actions and these agencies should in turn inform LKI of their findings and proposed actions.
2. LKI is probably the best organization now to evaluate the true viability of industrial project proposals and should therefore be put in charge of preparing project profiles and opportunity studies to be used for promotion purposes. Hence BKPM should seek LKI's assistance and bear the cost of it.
3. More project ideas should be submitted to LKI by development institutions, particularly banks, as these institutions have all the necessary connections in the provinces. LKI would produce the economic viability analyses for these projects, while the banks would provide the purely financial assessments. Again, institutions resorting to LKI's assistance should bear the related costs. This co-operation could come under the existing working group, where LKI and the development banks work together, and proper viability criteria should be defined for use in economic and financial evaluations.
4. If no Government agency can produce well-researched analyses of foreign market potentials, then LKI should develop the corresponding in-house capability and link its data-bank with the information sources able to provide the necessary inputs for such studies. LKI's marketing specialists should be given more opportunities to meet personally the foreign importers of products turned out by projects for which the Institute is expected to assess the economic viability.
5. LKI staff should be commensurate in quantity and skills with the tasks assigned to the Institute. Most of the manhours available need to be spent on actual project work and administration duties should be left to an administrative assistant to the National Project Director.
6. More analytical tools should be available to LKI, particularly in the fields of statistical data and forecasting. This will require that the EDP facilities be expanded accordingly. It is understood that the UNIDO Feasibility Study Section is working on an add-on module to COMFAR which would provide such analytical

tools or at least most of them. When ready this module should be made available to LKI.

7. An industrial data-bank needs to be established and carefully maintained to provide all of LKI's information requirements both for its own studies and to answer queries from other parties. Whenever Experts, national and international, are assigned to or sub-contracted by the Institute, they should contribute generously to the data-bank.

8. Indonesia's private consultants and academic institutions (faculties of economics) should be encouraged to seek LKI co-operation and support to produce feasibility and other supporting studies of good standing. UNIDO's methodologies, including COMFAR, should be promoted as a means of preparing thorough analyses of the viability of industrial projects. LKI should be put in charge of organizing training seminars in Jakarta for the benefit of these consultants and UNIDO should delegate a small team of specialists, having a good knowledge of the Indonesian professional environment, to assist the Institute with the task of training outsiders.

9. UNIDO-fielded consultants should stay not less than six weeks at LKI. The experience with one-month fieldings shows that, taking into account jet-lag, time to settle down and learn about the project requirements, time spent on administrative matters and for the preparation of a final report, travel, briefing and debriefing, etc. leaves too few days to complete the main assignment, let alone to provide adequate training to Indonesian counterparts and to contribute to the data-bank. Again, it is desirable that the CTA determines the duration of these assignments.

10. This CTA has some reservations about the Ministry of Industry's approach to the identification of industrial projects. The so-called "industrial product tree" may be a handy way of checking that certain sub-sectors are or are not represented in the Country's industrial structure and it undoubtedly may serve as a guide for sectoral planning. But in place of surveying the supply side, it would be more efficient in every respect to get first a clear picture of the volume and the quality of the demand. In this sense, it is this CTA's recommendation that LKI should co-operate as directly as possible with Commercial and Industrial Attaché's posted in Indonesian Embassies established in important foreign markets. Similar relations with foreign embassies established in Jakarta would also produce valuable information concerning market potentials and availability of technologies.

11. The Steering Committee should function more efficiently and meet at regular - not too distant - intervals. All sectors of the Country's economic activity having to do with industry should always attend the meetings and, when the need arises, non-members should be invited to express their views.

12. Finally, because LKI can easily become a major component of the Country's apparatus driving towards industrialization, this CTA wishes to stress, once again, the importance of giving the Institute the necessary means to operate and that is : professional staff of the proper qualification plus the commensurate supporting budget. Multilateral and bilateral assistances will only yield satisfactory results if enough people can be trained. Otherwise, it is to be feared that, when this type of assistance will come to an end, Indonesia will still lack most of the expertise which it needs to carry on with further industrial development.

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