

2. 合同最終評価報告書 (Report on HEDS Project Joint Final Evaluation)

NOTE OF UNDERSTANDING
OF THE JOINT FINAL EVALUATION
ON THE JAPANESE TECHNICAL COOPERATION
FOR
THE HIGHER EDUCATION DEVELOPMENT SUPPORT PROJECT

The Japanese Final Evaluation Team organized by the Japan International Cooperation Agency and headed by Professor Dr. Kazuo Tsutsumi, Toyohashi University of Technology, visited Indonesia from May 12 to 17, 2002 for the purpose of conducting the final evaluation concerning the Higher Education Development Support (hereinafter referred to as "HEDS") project in Indonesia.

The Indonesian Evaluation Team was organized by the Directorate General of Higher Education, Ministry of National Education of Indonesia and headed by Professor Dr. Sularso, Director, Graduate School, Institute of Technology Bandung.

Both the Indonesian and Japanese Evaluation Teams formed a Joint Evaluation Team and executed the final evaluation of the HEDS project during the stay of the Japanese Evaluation Team in Indonesia.

As a result of the study and a series of discussions, the Joint Evaluation Team agreed to convey the results of evaluation in the Report of the Joint Final Evaluation on the Project attached herewith to their respective authorities concerned.

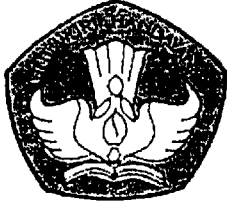
Jakarta, May 16, 2002



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Report
on
HEDS Project Joint Final Evaluation
(Higher Education Development Support)
from 12 to 17 May 2002, Jakarta

16 May 2002

Joint Final Evaluation Team

Directorate General of Higher Education (DGHE)
and
Japan International Cooperation Agency (JICA)

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- 4 Report on site visit to target universities by DGHE party for joint final evaluation of HEDS project
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1 Executive Summary

In May 2002, Indonesia-Japan Joint Evaluation Team conducted the final evaluation of the Higher Education Development Support Project (HEDS Project) extension period of August 1999 to July 2002.

The HEDS Project extension period can be evaluated to be successfully implemented and to have made good progress since its commencement.

The direction of the project is relevant to the Indonesian Government policy on higher education that prioritizes development of engineering field. The project is consistent with Japan's assistance policy that promotes engineering fields as a priority area for cooperation in human resources development.

The extension of the project was beneficial as evidenced by outcomes obtained. The quality of engineering education in Target Universities (TUs) was improved significantly and most of degree program recipients who were in progress at the beginning of the extension period were able to complete their degrees. Most of the study programs in engineering departments of TUs obtained Accreditation Grade B (good).

The principal activity of the project was to complete the degree program. During the extension period, 34 teaching staff have taken Master or Doctor degree. Only seven teaching staff are still studying in host universities at present.

The degree program was designed to meet the educational policy of the Government of Indonesia that the ratio of those having Master or Doctor degree should comprise more than 50% of the total teaching staff in Faculty of Engineering in Indonesian universities. As of May 2002, 729 teaching staff have Master or Doctor Degree, which is 58.7% of teaching staff. Among them, 35.9% owe the degree program of the HEDS project, which indicates the significant contribution of the project. Before the project started in 1990, only 17% of the staff had the higher degree.

The degree program returnees have played key roles in the improvement of education quality as well as internal management and organizations.

The termination of fresh intake in 1998 for degree program forced TUs to find other means to support their teaching staff for further education for Master or Doctor degree in Indonesia or abroad. As of May 2002, 261 teaching staff are studying in Master or Doctor course by other means.

To improve the quality of education in TUs, 94 Japanese short-term experts were dispatched to cooperate with their counterparts in research activities.

During the extension period, 489 short-term training courses were conducted, which accounts for 61.4% of the total courses in the whole period of 12-year project.

The enhancement of research activity upgrades the quality of education of TUs because the teaching quality in engineering faculty depends on the research activity. 233 Self Development Project Fund (SDPF) Category C researches and 48 Pair Researches were conducted. Non-degree program was utilized for the Pair Research during the extension period.

The administration systems of TUs were improved significantly. Now all TUs have their own homepages and are utilizing internet for their administration and publication. Rector, Dean and Working Group meetings are held periodically as a routine.

Several TUs have been successful in establishing linkages with industries and local governments in undertaking the researches and professional services, which benefit TUs as the revenue generating activities and to gain first hand experience.

Since internet facilities were introduced by HEDS project to TUs, it becomes easier for the teaching staff in TUs to contact their counter fellow of SHE-NET, IHE-NET and IC-STAR in Indonesia, ASEAN countries and Japan to exchange views and information to obtain the most advanced knowledge and technologies.

The results of interviews with industries indicated that most of the graduates of TUs are employed by industries in Sumatra and Kalimantan Islands and hold important positions. TUs have the important role in providing engineers needed by the industries in Sumatra and Kalimantan Islands.

Several recommendations were made to DGHE and TUs for soft landing of 12-year project mainly from the viewpoint of sustainability. Among the recommendations to DGHE is to maintain the function of PMU to facilitate communication among TUs, other Indonesian institutions, Japanese as well as other foreign universities and JICA. HEDS Forum should be formalized before July 31, 2002 to take over the function of HEDS-JICA PMU.

2 Outline of the Project

2-1 Background

The HEDS Project commenced in April 1990 as the joint project of JICA, USAID and GOI. JICA and USAID jointly proceeded the project implementation to improve the quality of the teaching staff and university administration at target universities (TUs) in Sumatra and Kalimantan. JICA side cooperated in the field of Engineering Education at 11 universities and USAID side cooperated in the fields of Basic Science and Business Administration at 20 universities.

The original period of JICA HEDS Project was five years but extended one year and three months to adjust the project period with USAID in 1995. In 1996, USAID concluded its project but JICA again extended its cooperation for three years up to 31 July 1999. In 1999, JICA once again extended its cooperation for another three years up to 31 July 2002 to achieve further outcomes from the project.

2-2 Project Purpose

The project purpose mentioned in the PDM (Project Design Matrix) is as follows;

The quality of teaching staff engaged in engineering education at the target universities is improved.

2-3 Outputs

The expected outputs are as follows

- The expertise of teaching staff is enhanced.
- Core laboratories are well utilized for research and student practice.
- Researches are actively conducted.
- University administration is improved.
- Textbooks in Indonesian language is developed.
- Domestic and International research networks among teaching staff are established.
- Information of the project activities is disseminated to TUs.
- Platform for self-sustainability is well developed.

2-4 Inputs

For HEDS Project extension period.

Japan	Long Term Expert	2 persons/year
	Short Term Expert	94 persons
	Local Cost	Rp 5,508,089,000

	Equipment	JPY 119,917,000
Indonesia	Budget	Rp 16,136,812,000
	Counterpart personnel (Extension Period)	
	DGHE Officer	7 person
	PMU/HEDS-DGHE staff	6 person
	Teaching Staff	1,242 persons

The detail of long term and short-term experts is as per attached.

3 Evaluation Procedure

3-1 Purpose

This evaluation study was conducted from the following purposes.

- 1) To assess the project achievement and its effects on the project objectives and goals with particular attention to the relevance and efficiency of resources allocation and activities in the project.
- 2) To elucidate the constraints which limit the achievement of the project objectives and goals.
- 3) To assess the sustainability of the project.
- 4) To make recommendation on necessary action for achieving the overall goal of the project in the future.

3-2 Member of the Joint Evaluation Team

1) DGHE members

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Japan International Cooperation Agency

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General Manager, Consulting Department,
Toyo Engineering Corporation

3-3 Evaluation method

3-3-1 Method

PCM – Project Cycle Management method was used for the final evaluation of HEDS project. The method consists of two concepts: five evaluation criteria and the narrative summary for evaluation.

The necessary data for the analysis was collected by the following ways:

- (1) Questionnaire to the engineering faculties of all TUs, and the Project Management Unit (PMU), HEDS-JICA Project.
- (2) Site visit to 11 TUs by DGHE party.
- (3) Interviews at 7 universities (USU, UNAND, UNSYIAH, UISU, UMA, UDA, UHN) by Evaluation Team member.
- (4) Data, prepared by PMU.

3-3-2 PCM

PCM is the method to manage the project cycle (see Figure 3.1), such as plan, implementation and evaluation for the development assistance project, utilizing the logical framework named PDM – Project Design Matrix.

Characteristics of the PCM Method are:

- Consistency: Whole project cycle can be managed consistently by utilizing PDM.
- Logic: Project status can be analyzed logically, for example, “Cause-Result”, “Method-Purpose” relation,
- Participatory: all the concerned can participate in the process and opinions from donors, aid recipients, stakeholders are treated equally.

Benefits of PCM Method are:

- Suitable and efficient project management.
- Project planning on real demand
- Transparency of ODA
- Utilization experiences
- Expedite communication among participants

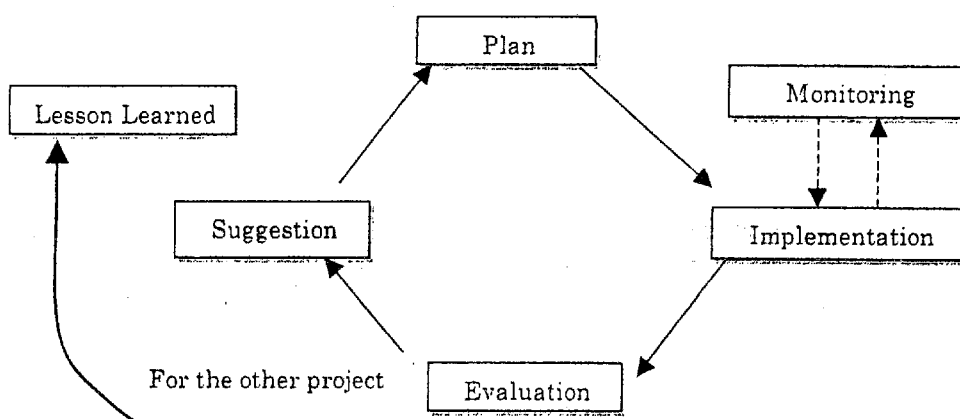


Figure 3.1 Project Cycle Evaluation

3-3-3 Following PDM – Project Design Matrix of HEDS Project were developed based on PCM method.

- 1994 PDM0 was applied to HEDS Project.
- 1996 PDM0 was utilized for final evaluation of HEDS in 1996.
- 1998 PDM1 was developed for final evaluation of HEDS in 1998.
- PDMe – Project Design Matrix for evaluation was developed and to be utilized for the final evaluation of HEDS Project during the follow-up period.

3-3-4 Final Evaluation Meeting

Based on the collected data, all members of the Joint Team discussed the achievement, impact, problems encountered and yet to be solved during the implementation stage, conditions for sustainability and the recommendations for the future action to be considered after the termination of the project. The evaluation was analyzed in terms of five evaluation criteria, namely Relevance, Effectiveness, Efficiency, Impact and Sustainability.

4 Result of Evaluation

4-1 Relevance

The relevance is defined as the degree to which the rationale or objectives of a project remains pertinent, significant and worthwhile in relation to needs and concerns. The relevance means as an overall assessment whether the overall goal and/or project goal is still in line with the donor and recipient policy as well as with local needs.

4-1-1 Government policy of Indonesia

The results of evaluation show consistency between the project and the Indonesian Government policy on higher education that prioritizes development of Engineering field in outer Islands.

According to The National Development Plan (PROPENAS) Plan (2000), the challenge of educational development is how to establish a national education system that produces qualified graduates that are independent and responsive to the progress of science and technology as well as the demand of national development. The system should take into account the need for human resources that are capable of utilizing, expanding, as well as mastering science and technology.

Government of Indonesia stressed on the importance of higher education. According to the third long-term guidelines of higher education development (1996-2005), science and technology will produce new subjects, goods, and bring about rapid changes in the practice of global economy. Mastering science and technology can help in developing the foundation of an industrial society to meet the challenges of these changes.

At present, the number of graduates in the fields of science and technology is very limited. Fortunately, the above-mentioned guidelines includes plan to increase higher education participation rate as well as proportion of enrolment in engineering and technology departments. It is planned to

increase this proportion from 16 % in 1995 to 18% in 2000, 20% in 2005, and finally 24% in 2020. The government strategy to upgrade higher engineering education and increase participation rate applies both for universities in Java and outer islands. Hence, the assistance from Japan in the form of HEDS-JICA project is very useful to the effort of accelerating the production of graduates in engineering field.

In 1997, economic crisis hit Indonesian. To cope with the situation, Indonesian government started the Social Safety Net Programs, which puts priority on availability of primary education as well as food, medical care and job opportunities. Under these circumstances, the strategy to extend the HEDS JICA Project to improve the quality of higher engineering education is very appropriate and beneficial.

4-1-2 The needs of higher engineering education in Sumatra and Kalimantan Islands.

Sumatra and Kalimantan Islands have rich natural resources, including oil, gas, coal, limestone, oil palm, aluminum, mineral, forest and water. There is a huge demand for engineers in Sumatra and Kalimantan Islands by industries. Particularly, industrial development of Batam Island in Sumatra area has started in the middle of 1990s and many foreign companies, especially Singaporean, have invested. There exists a preference by local industries to employ local graduates. Then it can be said that the needs for qualified engineering graduates in this area has been increasing.

From the interview with private companies in Medan, it was found that the graduates of target universities have shown themselves to be qualified. According to the interviews with TUs, most of their students are from Medan or other area in Sumatra, and most of the graduates found jobs in Sumatra including Batam Island. Other graduates got jobs in Java Island.

The economic crisis also have negatively affected the recruitment of fresh graduates. As a result, the graduates of TUs have had to wait for relatively long period of time before employment. However, it is anticipated that Indonesia economy is on the way to recovery. Consequently, the demand for engineers will rise.

In fact, from the result of the interviews, almost all of the universities reported the increase of the applicants to the engineering faculties. It shows that the need for engineering higher education in Sumatra and Kalimantan Islands is increasing.

4-1-3 Japanese Government Policy of Foreign Assistance

Higher engineering education has been recognized as one of the important factors for the industrial development of Indonesia. Therefore Japanese ODA through JICA has given priorities to higher engineering education since its early period. Economic crisis in 1997 gave serious negative impact on the quality of higher education because the budget of each institution was significantly decreased. Then it was really appropriate that the governments of Japan and Indonesia agreed to extend the HEDS project for three years from August 1999. The report of the fourth study on Japan's assistance to the Republic of Indonesia, which was published in 2001, states that the assistance to higher engineering education is now more important since the promotion of higher engineering education is considered the key for the economic recovery in Indonesia. In addition the paper points out that the assistance to the engineering departments of local universities is particularly significant from the viewpoint of promoting and facilitating decentralization policy which was adopted since 2001. Engineering departments of local universities are strongly expected to strengthen their researches and educational function, and contribute to the development of local industries. It can be concluded that the HEDS project met the Japan's ODA policy even in its extension period.

4-1-4 Project Implementation Process

The selection of nine universities in Sumatra Island and two universities in Kalimantan as target universities for the HEDS project was based on increasing demand for local engineers. These universities were considered to have potential engineering faculties, while no other external assistance was available at that time.

Target universities consist of both state and private ones. The degree program was effective to both state and private universities. However, core laboratory facilitation program shows some weaknesses due to several reasons such as mismatch between the objective and the implementation, the insufficient expenditure of the operation and the maintenance and lacking of suitable technician.

4-1-5 Follow-up Period

The main reason to follow up the project was to enhance the sustainability of target universities through further strengthening of research activities, networking and collaboration with industries. Furthermore, the economic crisis that hit Indonesian economy in 1997 damaged the social infrastructure, as well as the financial situation of Target Universities. Therefore the extension of the project was deemed necessary

During the follow-up period the completion of the degree program should be

supported because a certain number of teaching staff were still studying at that time. Through the follow up period, the degree program was completed successfully and the research activity was be maintained. The collaboration with industries and other universities was developed

4-2 Effectiveness

The Effectiveness is the evaluation criterion on which concerns whether the target group received the benefit as a result of the project implementation. Also it concerns whether the project purpose has been achieved in relation to the outputs produced by the project. Furthermore, it evaluates how the Important Assumption affects the Project Purpose.

4-2-1 Improvement of Educational Quality

HEDS Project started in 1990, for a period of five years and extended by one year in 1994 and another three-year extension was decided in 1996. The HEDS project follow up period started in 1999 and will continue up to the end of July 2002.

The original project purpose of HEDS Project was defined in the Project Design Matrix (PDM) as to improve the quality of teaching staff engaged in engineering education at 11 TUs so that well qualified graduates contribute to the industrial development of both Sumatra and Kalimantan islands.

The outputs of the project on PDM was as follows;

- The expertise of teaching staff is enhanced, in order to achieve a policy of the Indonesian Government that more than 50% of teaching staff in the faculty of engineering of each university should have Master (S2) or Doctoral (S3) degrees.
- The core laboratories are well utilized for research and student practice.
- Researches are actively conducted.
- The university administration is improved.
- Textbooks in Indonesian language are developed.
- Academic and Research Networks are built inside and outside of Indonesia.

Furthermore, for HEDS project follow-up period, following output was added:

- To facilitate the platform and establish the implementation organization for self-sustainability.

The number of staff who obtained S2/S3 degree during the follow-up period was 34 and the number of staff, currently studying in the host universities, is 7. Therefore the total number of S2/S3 degree program recipients by HEDS project during the follow-up period is expected to be 41.

Table 4-2-1 summarizes the numbers of degree holders at target universities sponsored by HEDS project and other programs. As of April 2002, the total number of S2 and S3 degree holders in 11 Target Universities is 729. Since currently 190 and 78 staff are pursuing Master and Doctoral degrees, respectively, the number of total S2 and S3 degree holders in 11 Target Universities will become 919. As the total number of teaching staff of engineering faculties is 1,242 in 11 Target Universities, the ratio of the staff with S2/S3 degrees is now 58.7% and will attain about 74.0%. It means that the ratio of the staff with S2/S3 degree in target universities exceeds the target of the educational policy of the Indonesian Government.

However, as shown by Table 4-2-2, the breakdown of the academic staff qualification ratio for each TU ranges from the lowest of 32.5 % to the highest of 91.5 %. In addition, 4 Target Universities have figures lower than 50 %. Based upon the result of interview, 11 target universities are currently sending their teaching staffs for S2 or S3 degree. Therefore, the ratio of the staff with S2/S3 degree holder will increase. Considering the projected numbers, only 2 Target Universities would remain with ratio less than 50 %.

Noting that the ratio of S2/S3 degree holders in 11 Target University was only 17% in 1990 when HEDS Project started, above-mentioned achievement was substantial.

The 262 persons who obtained degree through HEDS Project degree program, account for 36 % of the total S2/S3 holders in 11 TUs. Hence, the HEDS Project contributed significantly to the increase in the ratio of S2/S3 degree holders in target universities.

Table 4-2-1 S2/S3 Degree Holder in Target Universities

Sponsor	Staff	Scholarship	Without Degree	Degree Holder			Studying	Expected Total
				S2	S3	Subtotal		
HEDS		298	29	257	5	262 (21.1%)	7	269 (22.6%)
Non HEDS				382	85	467 (37.6%)	261	728 (78) (51.4%)
Total	1242			639	90	729 (58.7%)	268	919 (74.0%)

Note: Staff is the total number of teaching staff in TUs

Table 4-2-2 Degree Holder Breakdown

University	Degree	Total		S2/S3	S2/S3
		Holder	In Progress	Holder	In Progress
UNSYIAH	S1	66	0		
	S2	81	59		
	S3	21	27		
	Total	168	86	60.7	74.0
USU	S1	107	0		

	S2	113	22		
	S3	22	15		
	Total)	242	37	55.8	61.6
UISU	S1	20	0		
	S2	18	6		
	S3	0	1		
	Total	38	7	47.4	55.6
UMA	S1	23	0		
	S2	20	1		
	S3	1	2		
	Total	44	3	47.7	51.1
UDA	S1	20	0		
	S2	14	0		
	S3	4	0		
	Total	38	0	47.4	47.4
UHN	S1	11	0		
	S2	24	1		
	S3	0	0		
	Total	35	1	68.6	69.4
UNAND	S1	19	0		
	S2	68	17		
	S3	15	14		
	Total	102	31	81.4	85.7
UNSRI	S1	57	0		
	S2	79	16		
	S3	22	5		
	Total	158	21	63.9	68.2
UNILA	S1	9	0		
	S2	97	26		
	S3	0	8		
	Total	106	34	91.5	93.6
UNLAM	S1	25	0		
	S2	54	11		
	S3	1	2		
	Total	80	13	68.8	73.1
UNTAN	S1	156	0		
	S2	71	31		
	S3	4	4		
	Total	231	35	32.5	41.4
Grand Total	S1	513	0		
	S2	639	190		
	S3	90	78		
	Total	1,242	268	58.7	74.0

The National Accreditation Body, which is the independent body of Indonesian Government, evaluates all universities in Indonesia.

In 1997, the National Accreditation Body started evaluation of the Faculty of Engineering in target universities. In 2001, the National Accreditation Body evaluated most of the Faculty of Engineering in target universities as grades B and C, while more than 50% study programs received grades C and D. The three departments in USU got C-level grades in 1997, but B-level grades in 2001. The mechanical engineering department in UDA got

a D-level grade in 1997, but a C-level grade in 2001. It proves that the quality of education of the Faculty of Engineering in target universities is improved.

Table 4-2-3 NAB Evaluation 2001 of 11 TU

University	Year	Civil	Mech.	Elect.	Chem.	Indust.	Mining	Archit.
UNSYIAH	2001	515/B	439/C		493/C			
USU	1997	464/C			449/C	459/C		
	2001	592/B	598/B	513/B	513/B	546/B		639/A
UISU	2001	468/C	470/C	479/C		505/B		
UMA	2001	568/B	495/C	547/B		530/B		494/C
UDA	1997		392/D					
	2001	463/C	497/C	416/C				
UHN	2001	472/C	448/C	511/B				
UNAND	2001	527/B	516/B					
UNSRI	2001	618/A	576/B	592/B	552/B		595/B	
UNILA	2001	480/C						
UNLAM	2001	585/B						
UNTAN	2001	502/B		444/C				

Note: A: Excellent; B: Good; C: Satisfactory; D: Unsatisfactory
 Year 2001 is from the Publication of NAB 2001
 Year 1997 is from the report of NAB
 Blank in the table; no data is available

4-2-2 Capacity Improvement of Target Universities

4-2-2-1 Improvement of teaching staff competence

From the result of interviews, many TUs pointed out that the average S1 study duration in universities became shortened from 6 - 7 years in 1990 to 5-6 years for 4-year curriculum. Some students could finish the program even within 4.5 years. It is partially because during the HEDS project period the ability of academic staff in teaching was improved by taking a higher degree and the efficiency and effectiveness in learning was also enhanced.

4-2-2-2 Enhancement of research activity

Since a number of teaching staff involve students in their research activities, students can implement experiments for the research and learn fundamental aspects of engineering. An enhanced research activity of teaching staff is closely correlated to the quality of education.

The enhancement of the capacity of teaching staff in carrying out the research enables them to absorb the increasing research fund provided by DGHE. However, as research budget is decreased due to the recession, the opportunity to obtain research fund by the staff is getting small.

4-3 Efficiency

Efficiency is the criterion to evaluate whether inputs of project is utilized efficiently from the relation between input and output. It is the criterion to check whether the input cost is equivalent to the output and/or effectiveness of the project.

4-3-1 Expertise and capability of teaching staff

4-3-1-1 Degree Program

As of April 2002, the number of S2/S3 degree holders in 11 TUs by HEDS project reached 262. At the beginning, the host university for the degree program was only ITB. However, during the extension period, other universities such as UGM and ITS also serve as host universities.

4-3-1-2 Scholarship by Ministry of Education, Science, Technology, Culture and Sports Japan (former Monbusho)

To cover the budget deficit for scholarships in Indonesia, teaching staffs were encouraged to participate for the scholarship examination by Monbusho as well as JICA long term training.

In HEDS project follow-up period, the number of teaching staff who were granted Monbusho reached 20, and JICA long term training 7.

Besides Monbusho and JICA, there are other sources of scholarship, namely ASEAN youth fellowship, JSPS, ADB, IBRD, DAAD (German fund), Malaysian fund and so on.

4-3-1-3 Short term training in Indonesia

Beside the degree program, to improve the higher engineering education, Japanese short term experts (STEs) were dispatched to 11 TUs to transfer the technology, aiming at new teaching method, utilization method of research for the education and so on. Most of the STEs have enhanced the TU teaching staff capability. The contact between STE and teaching staff have also provided opportunities for the establishment of human network. However, there were instances where the expertise of STE did not match the fields of interest of the staff at TUs. Also, several staff members felt that they were not given enough roles in the planning stage of the STE program. Involvement of the TU on the topics and area of expertise as well as types of activities of STE may be more beneficial and yield greater impact.

The short-term training (STT) programs were favorable for the teaching staff in Indonesia because the latest achievements of research in the most

advanced fields were reported and seminars of most various field were held. The short-term seminars contributed to the improvement of the quality of higher education in Indonesia through accelerating the Indonesia-Japan joint collaboration research. Since 1990, 797 courses have been held. During the HEDS project follow-up period, 489 courses were held. However, most of these were held locally to stimulate research and provide opportunities for the staff to publish and disseminate their findings. But a considerable number of participants felt that the training was too short and more should be organized.

Table 4-3-1 Number of STT in HEDS Project Follow-up Period

Description	1999	2000	2001	Total
Regional	13	1	0	14
Sub Regional	5	1	0	6
Local	48	123	298	469
Total	66	125	298	489

4-3-1-4 Non-degree program in Japan

Non-degree program in Japan is another program related to the improvement of research activities of the teaching staff at 11 TUs. Non-degree program in Japan provides the teaching staff with opportunities to be trained on topics such as school management, teaching method, operation and maintenance of laboratory in several host universities such as Tokyo Institute of Technology, Toyohashi University of Technology, Nagaoka University of Technology and so on.

Initially administrators of TUs, such as rectors, deans visited Japan under this program. However, the format of the Non-degree program gradually changed and in the later stage the participants were mostly teaching staff. The experience and the exposure to the educational systems at their respective host institutions in Japan have helped the teaching staff to improve their researches, management and teaching capabilities.

A total number of 180 was originally planned under non-degree program, but at the end the total number became 241 due to the apparent merit of the program.

Table 4-3-2 Non-Degree Program in Japan by Category

No.	Fiscal Year	90	91	92	93	94	95	96	97	98	99	00	01	Total
	Category/Plan	21	23	30	30	30	23	18	30	20	3	9	5	241
1	Higher Education Policy, Operation and Maintenance	3												3
2	University Management, Administration	18	13	5					1					37

3	In-Country Degree Program Participants			9	23	28	22	11	12	5				110
4	Senior Teaching staff education and research training	10		5	7									22
5	Specific Topics, Pair Research Training							7	15	15	3	9	5	54
6	Specific Topics, Core Laboratory Teaching Staff			11		2	1		1					15
	6-1 Production Technology			3					1					4
	6-2 Digital Control			3										3
	6-3 Foundry Technology			3										3
	6-4 Human Factor Engineering			1										1
	6-5 Material and Structure			1										1
	6-6 Highway Engineering					2								2
	6-7 Soil Mechanics					0	1							1
	Total	21	23	30	30	30	23	18	29	20	3	9	5	241

It may be seen that during the follow-up period, emphasis was given to the TUs to develop research capability through Pair Research. This opportunity has created researchers who were able to compete for and won more prestigious research grants offered by the DGHE as well as the State Ministry for Research and Technology. Unfortunately no follow-up activities related to the Core Laboratories were designed and implemented. Programs to enhance the Core Laboratories activities and its staff capabilities would serve to improve the Lab sustainability.

4-3-2 Utilization of Core Laboratory

Engineering education requires experience through laboratories. Both fundamental and practical researches are the essential activity to improve the quality of higher education.

Equipment and instruments provided by HEDS project to 11 TUs as well as core laboratories were implemented for enabling the universities to catch up the quality of undergraduate education as well as research activities. Each core laboratory has a specific research purpose, which meets the needs of each TU. Those are Digital-Control core laboratories at UNSRI, UMA, and UNTAN, Production Technology at UNAND, UDA and UNSYIAH, Foundry at UISU, Material Structure Test at UHN, Soil Mechanic at UNLAM, Human Factor Engineering at USU and Highway Engineering at UNILA.

In the HEDS project follow-up period, equipment and facilities of the total amount of ¥119,917,000 were supplied as of April 2002. According to the results of interviews and observation by the final evaluation team almost all

of the equipment and facilities have been installed, but several still need further attention for completing the missing accessories.

The aim of core laboratory establishment was enhancement of education levels at target universities through research activities. The table below shows utilization status of each core laboratory. This table implies activation of researches, because a number of thesis works by students and research works other than staff research has increased.

Table 4-3-3 Use of core laboratory since 1999

University	SDPF Project	Other Research	Number of student used
UNSYIAH	2	1	110
USU	N/A	N/A	N/A
UISU	7	3	3
UDA	-	3	6
UMA	3	25	1250
UHN	-	-	20
UNAND	1	-	300
UNSRI	3	4	36
UNILA	6	2	180
UNLAM	6	10	28
UNTAN	3	2	168

N/A: Not available (No data came from the TU.)

In HEDS project follow up period, technical assistance was focused on the self-sustainability of core laboratory activities. As the result of the interviews conducted, some of the university staff in charge of the core laboratories are confident of operation and maintenance of the core laboratories by themselves for the future.

Table 4-3-4 Problems on Core Laboratories in Target Universities

University	Problem
UNSYIAH	Shortage of technician, Maintenance cost,
USU	Some of equipment requires repair. Manual was missing. Accessories are missing
UISU	N/A
UDA	Some equipment requires repair. Ex. Monitoring display. No trained technician (RIP).
UMA	Human resources and budget of maintenance.
UHN	One of the equipment, strength gauge digital meter is not operated.
UNAND	Shortage of technician, equipment maintenance fund shortage Water supply
UNSRI	N/A
UNILA	Finance to upgrade the equipment for advanced research
UNLAM	Technician shortage New equipment is required, i.e. tri-axial apparatus
UNTAN	A/C is not enough, Short of fund to upgrade or for maintenance

The table above shows the problems on the core laboratories in TUs. Many of the universities have problems such as insufficient number of technicians,

small budget for maintenance and so on. However, in spite of the problems they are facing both management and the core laboratories staff at some universities are confident about the self-sustainability of core laboratory activities.

4-3-3 Research Activities

To activate the research activities including utilization of the core laboratories considered as one of the output of the HEDS Project. Activating research activities is an important element relating to the educational quality improvement of university. More attractive circumstances of research activities enhance the motivation of students as well as teaching staffs. It has direct effect to the economical development of local industries to commence the most advanced researches. A spin-off is expected through research activities by universities.

4-3-3-1 SDPF

The Self Development Project Funding (SDPF) is one of HEDS activities introduced in 1991, to enhance of ability of research activity of teaching staff in 11 Target Universities. Teaching staff can apply for SDPF as the budget of their research activities. Initially, only the research proposals reported in English were selected for SDPF. However, since 1995 the research proposals reported in Indonesian have also been selected.

During HEDS project follow-up period, SDPF was divided into two categories; one is Category C funded by DGHE and the other is Pair Research funded by JICA.

The Pair Research is one of the programs of HEDS project that combined the short-term expert program and non-degree program. The condition to apply for the Pair Research program is to select one advisor from the Japanese short-term experts.

Judging from the tables below, the number of proposal was more than two times of the plan, which shows the high motivation of teaching staff of TUs.

Table 4-3-5 SDPF proposal and funding

Year	Proposal					Funding				
	A	B	C	Pair	Total	A	B	C	Pair	Total
1991					34					26
1992					89					48
1993					187					84
1994					212					99
1995	22	35	170		227	9	18	76		103
1996	16	21	163		200	7	10	63		80
1997	37	35	115		187	8	3	60		71
1998	0	0	177		177			73		73

1999	229	42	271	61	18	79
2000	228	11	239	89	11	100
2001	222	19	241	88	19	107

Notes:

Category A: a growth scheme to provide the actual research scale including equipment provision aiming at grading up the research level to the international research level

Category B: a deployment scheme to provide the actual research scale including equipment provision aiming at leading and in-country research level.

Category C: a conventional scheme to provide the research opportunity for the teaching staff starting research work

Table 4-3-6 SDPF in HEDS project follow-up period

Description	Category	1999	2000	2001	2002	Total
Plan	C	60	60	60	87	267
	Pair research	25	35			60
	Total	85	95	60	87	327
Proposal	C	229	228	212		669
	Additional			10		10
	Pair research	42	11	19		72
	Total	271	239	241	0	751
Approval	C	61	89	83		233
	Additional			5		5
	Pair research	18	11	19		48
	Total	79	100	107		286

4-3-3-2 Research Activities other than SDPF

The number of researches except SDPF was also increased in the extension period. Those researches are sponsored by SPP/DPP, OPF, Mandiri, Hibah Bersaing, Kopertis, Researcher's own expense and so on.

Table 4-3-7 Number of research reports

University	1999	2000	2001	Sponsor
UNSYIAH	33	37	30	SPP/DPP/DIKS/OPF/RUT
USU	N/A	N/A	N/A	
UISU	9	3	3	Swadaya, DIK-Ruti, Mandiri
UDA	N/A	N/A	N/A	
UMA	0	1	0	Kopertis
UNH	0	11	2	UHN
UNAND	0	25	26	SPP/DPP
UNSRI	N/A	N/A	N/A	
UNILA	N/A	2	4	
UNLAM	24	22	19	Mandiri, Kororatis, SPP/DPP
UNTAN	3	8	14	DIKS

4-3-3-3 Research requested by private companies

The research requested by private companies increased. In 1990 private companies requested almost no research while the request number greatly increased in 2001. From the result of interviews, the researches requested by private companies were categorized into both fundamental and practical. The results of researches were utilized directly by private companies for their activities and contributed to their development.

Table 4-3-8 Researches requested by private companies during HEDS Project extension period

University	Quantity	Amount(Rp)	Sponsor
UNSYIAH	5	949,645,600	Dinas, Pt.Arun, PIM
USU	N/A		
UISU	16	52,211,000	Swadaya, DIK-rutin
UDA	4		N/A
UMA	4	259,000,000	ANGKASA Pura PT, Kopertis
UHN	N/A		
UNAND	5		Padang Cement
UNSRI	1	30,000,000	PT Dexa Medica
UNILA	N/A		
UNLAM	5	203,000,000	Bappeda, PT Imao, DPU
UNTAN	3	635,000,00	PT PLN, Dinas PU, PTP XII

4-3-4 Improvement of university administration

4-3-4-1 Administration system

Computer systems to improve the university administration were provided to 11 TUs in HEDS Project. During the project follow-up period technical assistance was conducted enabling TUs to operate and maintain the management systems. The administration system is well maintained and updated periodically by the staff in charge. From the results of interviews, the level of operation and maintenance of systems was found to be sufficient for the self-continuation after the HEDS Project.

However, because of the quick progress of the computer technology, the system needs continuous updating. The cost is the main concern of all TUs.

It is the global trend to utilize the internet in various fields. In 1994, HEDS project introduced the internet for the university activities. All TUs opened their own homepages and utilize them for the academic and administration purposes.

The detail of homepages is given in Table 4-3-9.

Table 4-3-9 Homepages at HEDS TUs

University	Web Site	Language
UNSYIAH	www.unsyiah.ac.id	I
USU	www.usu.ac.id	I
UISU	www.uisu.ac.id	I
UMA	www.uma.ac.id	I
UDA	www.uda.ac.id	I
UHN	www.uhn.ac.id	I
UNAND	www.unand.ac.id	I
UNSRI	www.unsri.ac.id	I
UNILA	www.unila.ac.id	I,E
UNLAM	www.unlam.ac.id	I
UNTAN	www.untan.ac.id	I

Note: E: English, I: Indonesian

The number of computer for administration systems is given in Table 4-3-10.

Table 4-3-10 Computer for Administration

University	Quantity provided by			Condition (as assessed by TUs)
	HEDS	Others	Total	
UNSYIAH	2	20	22	Good
USU				N/A
UISU	12	28	40	Poor
UMA	6	3	9	Poor
UDA	0	27	27	Poor
UNH	3	7	10	Poor
UNAND	10	25	35	Fair
UNSRI	17	7	24	Good
UNILA	10	25	35	Good/Poor
UNLAM	23	20	43	Good
UNTAN	11	35	46	Excellent

4-3-4-2 Other PC System

Several TUs obtained PCs from other organizations in addition to the administration system by HEDS project. The number of PCs, the number of staff and annual cost for operation and maintenance are reported in Table 4-3-11.

Table 4-3-11 Operation and Maintenance of Equipment

University	Number	Staff	Annual cost for O&M (Rp)
UNSYIAH	99	2	12,000,000
USU	15	2	5,000,000
UISU	28	2	3,000,000 per month
UDA	N/A	N/A	N/A

UMA	N/A	N/A	N/A
UHN	N/A	N/A	N/A
UNAND	100	5	10,000,000 per year
UNSRI	N/A	N/A	N/A
UNILA	20	2	600,000 per year
UNLAM	20	1	12,000,000 per year
UNTAN	7	3	300,000

4-3-4-3 Rector, Dean, Working Group Meetings

In order to improve university administration the Rector meeting, the Dean meeting and the seminar were periodically held.

Table 4-3-12: Rector, Dean Working Group Meetings

Year		Rector	Dean			Working Group	Total
			Engineering	Basic Science	Economy		
1999	Frequency	1		1		2	4
	Person	31	17	17	19	40	124
2000	Frequency	1		1		2	4
	Person	32	33	27	34	38	164
2001	Frequency	1		1		2	4
	Person	32	22	20	23	36	133
Total	Frequency	3		3		6	12
	Person	95	72	64	76	114	421

4-3-5 Textbook Development

4-3-5-1 Publication

In HEDS Project, as the part of educational quality improvement activities, the translation of textbooks into Indonesian, development of textbooks in Indonesian, publishing of lecture notes, laboratory manuals, safety manuals, proceedings and text materials were conducted.

In HEDS project follow-up period, 35 lecture notes in total and others were published.

Table 4-3-13 Number of publication by year

Year	Lecture Note	Lab. Manual	Safety Manual	Proceeding	Text Material	Total
1990	0	0	0	0	5	5
1991	1	0	0	0	0	1
1992	7	0	0	1	0	8
1993	11	0	12	2	0	25
1994	22	8	14	1	0	45
1995	26	22	0	2	2	52

1996	10	4	8	0	1	23
1997	12	3	0	3	0	18
1998	0	0	0	1	0	1
1999	12	0	0	1	0	13
2000	10	0	0	1	0	11
2001	0	0	0	1	0	1
2002	13	0	0	0	0	13
Total	124	37	34	13	8	216

4-3-5-2 Self-recycle system of textbooks

During the follow-up period, self-recycle system of textbooks was introduced to some of the TUs. Since students prefer to copy textbooks, the system did not work properly.

4-3-6 Establishment of Network for Researches

Establishment of domestic and international network for researches is one of the important aspects of improvement of educational quality of 11 TUs.

From the results of HEDS project activities, Core laboratory group meeting, SDPF seminar, engineering faculty seminar, working group meeting, the South East Asia regional seminar and workshop on Higher Education Network, SHE-NET and IHE-NET Indonesia were established.

4-3-6-1 Core Laboratory Group Meeting

The purpose of the meeting was to promote utilization of the core laboratories by participating user groups.

The participants were Dean, Vice Dean, Core laboratory Head and teaching staff of Faculty of Engineering in target universities.

4-3-6-2 SDPF Seminar

The purpose of the seminar was to provide the teaching staff with opportunities for presenting the result of SDPF researches. The participants consisted of the recipients of SDPF for the previous year and research trainees in Japan.

4-3-6-3 SHE-NET and IHE-NET Indonesia

The purpose of the networks was to promote cooperation among institutions and individuals in sharing resources and information for the mutual benefits. The member countries are: Indonesia, Malaysia, Singapore, Thailand, Philippines and Japan.

Table 4-3-14 Number of IHE-NET meetings

	1994	1995	1996	1997	1998	1999	2000	2001
Meeting	0	0	1	2	2	4	5	0

4-4 Impact

Impact is the criterion to evaluate the effect of the project, which is expected and/or unexpected at the initial stage of the project or the effect of long term or indirect changes, either positive or negative. The impact of the project includes both the foreseen and unforeseen consequences for society. There are positive and negative impacts. Impact can be evaluated through reviewing whether overall goal were achieved, and whether it was because of the result of the achievement of project goal.

4-4-1 Engineering Industry in Sumatra and Kalimantan Islands.

The expected overall goal is “the graduates of 11 TUs support the development of engineering industry in Sumatra and Kalimantan Islands”. The overall goal has two objectively verifiable indicators, one is “the number of graduates employed in the engineering related fields is increased” and the other is “working ability of the graduates favorably evaluated”.

Most of the graduates of TUs were employed by the industries in Sumatra and Kalimantan Islands. From the results of interviews with private companies, the graduates of TUs are receiving high reputation and having the important position in the companies.

There are two Important Assumptions between Project Goal and Overall Goal, one is that economy in Indonesia is steady and the other is that the job placement center (JPC) in 11 TUs provides students with services such as career guidance and consultation.

The financial crisis hit Indonesian economy in 1997. However, in 2002 some of the economic indicators show the commencement of recovery of Indonesian economy. The recovery in Sumatra and Kalimantan is still slow but it is not difficult for the graduates of engineering faculties of 11 TUs to find jobs in Sumatra and Kalimantan Islands comparing with students in non-engineering faculties.

The JPC plays an important role in providing services to students. The JPC was established with the support from HEDS-USAID to mediate between industries and universities by providing services to students to seek employment for major industries and to acquire more marketable know-how such as English command and computer skills.

4-4-2 Engineering Education in Indonesia

Indonesia has more than 10,000 islands and has the population of 210 millions. The national consensus of Indonesia is the unity in the diversity and the equal development of islands is one of the essential policies of the Indonesian Government from the viewpoint of national unity. This condition is important when considering the nowadays situation.

In Indonesia Java is the most developed island from the industrial, political and economic point of view. In this island, there exists the Institute of Technology Bandung (ITB), which is the outstanding educational and research institute not only in Indonesia but also in ASEAN countries. In Java island, there are several advanced universities that have engineering faculties. Their graduates are contributing to the industries in Indonesia.

The beginning of HEDS Project, the universities in islands other than Java, including 11 TUs in Sumatera and Kalimantan islands, had less teaching staff who have the S2/S3 degree and research activities were not active because the laboratory facilities were poor.

However, the experience gained through the implementation of HEDS Project, constitute valuable learning process for those involved in higher education development. Other universities could gain benefits by participation to various activities held by Target Universities. Interaction of the 11 TUs with other state and private universities including 5 universities, IKIP Medan, IKIP Padang, UNPAR, UPB, UVAYA in their region also gave positive impact such as involvement in various non-degree training and seminars conducted by the project.

DGHE is introducing "Long-term guidelines of higher education development program" and implement it since 1996 utilizing external loan. The background of the new strategy stated that the guidelines is based on the concept of the Total Quality Management that HEDS Project introduced.

4-4-3 Research requested by Private Companies

The number of the researches requested by private companies increased. There are some collaborative researches between the local industries and the core laboratories, which provide income generation opportunities to 11 TUs. The core laboratories are used for workshops or seminars for outside organizations. It can be the opportunities for TUs to have closer linkage with local society and private companies. Some teaching staff are already engaged in the research conducted by private companies as consultants.

To undertake researches requested by private companies contributes to improve the research capability of universities, and it enables the

universities to solve practical problems by using most advanced technologies.

4-5 Sustainability

Sustainability is the criterion referred as the maintenance of the program activities and project benefits after the external support has come to an end. To have a picture on the sustainability, it is needed to review the organization ability and the level of technology, considering the output, activity and input. Also, policy support, social, cultural aspect and environment factor shall be reviewed as well.

Sustainability is the most critical criterion for the final evaluation team because the project is scheduled to terminate on 31 July, 2002.

During the follow-up period of the project, "The platform toward the self-sustainability and the implementation organization is established" was added as the "Output of the Project" in PDM.

4-5-1 Policy aspects

When HEDS project started in 1990, it was Indonesian government policy to give the highest priority of engineering education in order to cope with the rapid development in science and technology. This policy is clearly stated in the third long-term higher education development frameworks (KPPTJP III, 1996 – 2005). In 2002 this policy is still effective.

This assumption was based on the stability of Indonesian economy. Because of the instability of Indonesian economy, less graduates are employed by industries. Furthermore the university management accountability became low and the number of applicants and enrollment of engineering faculties of TUs might decrease. Fortunately, after the 1997 economic crisis, Indonesian Government accepted the support and guidance of World Trade Organization, WTO, and Indonesian economy was recovering.

The Degree Program is effective only when the teaching staff who obtained S2/S3 degree remain in TUs. To keep teaching staff in TU, one of the incentives is the salary level that should not differ greatly from that of private companies.

From the results of the survey, the number of the teaching staff enrolled for degree program was 298, while only 29 of them could not complete the program. Most of them continued their career in TUs.

Degree program through HEDS Project stopped intake in 1998. However, TUs continue sending their teaching staff to obtain S2/S3 degree in Indonesia or abroad utilizing several scholarships and/or by self financing.

This means TUs are still making efforts to go on with degree program inspired by HEDS Project.

There are several sources of scholarship including Monbusho, as shown in the following list.

Table 4-5-1 List of Sponsorship

University	In study	Sponsor
UNSYIAH	86	TMPD, Monbusho, Germany, Self
USU	N/A	
UISU	4	UISU, Self
UMA	2	Monbusho, Self, Malaysia Government
UDA	N/A	
UHN	2	TMPD, Self
UNAND	64	Monbusho, DAAD, TMPD, EEDB
UNSRI	28	TMPD, Self, Monbusho, La Trobe, PPPSL
UNILA	4	ADB, WB, DAAD, Self
UNLAM	20	IBRD, TMPD, BPPS, Self
UNTAN	1	BPPS, SUDR, Monbusho, DUE,

4-5-2 Institutional and Management Aspects

Project Management Unit (PMU) was established in Jakarta and Medan to handle management of the project with JICA long-term experts. The continuation of PMU is essential to maintain project activities. After the termination of the HEDS project follow-up period, PMU will be hopefully succeeded by Indonesian side. The function of PMU Jakarta is expected to be succeeded by DGHE and PMU Medan by USU.

Total Quality Management (TQM) has been introduced to improve the university administration by Indonesian side initiative since 1993. TQM seminars have been held almost every month by ex-rectors and officials from DGHE and BAPPENAS as the instructor. Through the TQM seminars, the bottom-up approach for budget proposal has been disseminated to TUs and other universities. Moreover, TQM seminars have contributed for the TU management to understand that research activities are important to enhance the university capabilities for education and to strengthen linkages with industries. The participants of the seminars were also aware that the university should satisfy needs of students and industries. The change of the way of thinking through the TQM seminars must be sustained. Therefore TQM seminar should be continued.

4-5-3 Financial Aspects

Financial resources for the project activities have been supplied from the BAPPENAS development budget. The development budget has been utilized for necessary cost of PMU operation, short-term non-degree training

program, SDPF, and Dean meeting among the whole project activities. The amount of input by Indonesian side is larger than that of JICA. The development budget, as it is the counter fund for an external cooperation project, will not be available after the termination of HEDS project.

However, it is expected that DGHE will provide budget for researches and seminars for a certain period.

As TUs understand the importance of core laboratories and administration management system, they are ready to provide operation and maintenance budget. However, the question is the cost for updating the computer system. For core laboratory equipment, 11 TUs are ready to bear the following amount.

University	Maintenance cost (Rp)
UNSYIAH	5,000,000
USU	N/A
UISU	5,000,000 per month
UDA	10,000,000 per year
UMA	25,000,000 per year
UHN	5,000,000 per year
UNAND	20,000,000 per year
UNSRI	2,400,000 per year
UNILA	N/A
UNLAM	5,000,000 per year
UNTAN	800,000 per year

For the maintenance of computers for administration system, the following budget will be provided by universities.

University	Maintenance cost per year (Rp)
UNSYIAH	2,000,000
USU	N/A
UISU	N/A
UDA	2,000,000
UMA	2,400,000
UNH	3,000,000
UNAND	N/A
UNSRI	2,000,000
UNILA	600,000
UNLAM	12,000,000
UNTAN	1,000,000

4-5-4 Information Technology Aspects

The engineering fields covered by the HEDS project include mechanical engineering, civil engineering, electrical engineering, electronics engineering, chemical engineering and industrial engineering. To maintain developments in these fields, networking among institutions and individuals will be needed. This can be facilitated through SHE-Net, IHE-Net, IC-STAR

and so on using information technology.

5 Conclusion

5-1 Relevance

The project purpose, overall goal and outputs are still in line with the needs of Indonesian society and the target group. The direction of the project is relevant to the Indonesian Government policy on higher education. Most of the graduates from Target Universities were employed by Industries in Sumatra and Kalimantan Islands.

The project is consistent with Japan's assistance policy of promoting engineering field as a priority area for cooperation in the field of human development.

It was important to extend the project for three years, because further outputs were achieved. For example, most of the teaching staff who was in study when extension period was started could complete their degree courses.

5-2 Effectiveness

The principal activity, degree program, was successfully conducted. In the extension period, 34 teaching staffs finish their degree program and only 7 teaching staffs are still studying. As the result, total degree holders supported by HEDS project is 262 and it boosted the total number of degree holders in Engineering Faculty of Target Universities up to 729. It is the 58.7% of the total teaching staff. Since the Government target is 50%, HEDS project could assist Universities to achieve the target.

The research activities during the extension period had played major role in creating conducive the academic atmosphere in Target Universities.

Most of the study program in Engineering faculties of Target Universities obtained Accreditation Grade B (good) while more than 50% of universities' study programs obtained grade C (satisfactory) and D (unsatisfactory). HEDS project has contributed to the improvement of the quality of education at Target Universities.

5-3 Efficiency

In addition to ITB, UGM and ITS became the host universities during the extension period and it made the Degree Program more productive. Since, HEDS project stopped the intake of teaching staff due to termination of OECF fund, teaching staffs were encouraged to strive for the Monbusho

scholarship as well as JICA long term training.

To improve the quality of the education of the higher engineering education in Target Universities, Japanese short-term experts were dispatched to conduct short-term training in Indonesia. During the extension period of 3 years, total 489 training were conducted, which accounts for 61.4 % of total short-term training in Indonesia of whole project period. It means, short-term training in extension period was implemented very efficiently.

Non-Degree program was utilized especially for the Pair Research Training during the extension period. It was a good selection to adopt their target, competition base fund.

SDPF Category A and B were changed to the Pair Research, funded by JICA while Category C was remained to be funded by DGHE. During the extension period, the number of Category C research conducted was 233 and pair research 48. DGHE and JICA, each played a role in researches in efficiently.

Thanks to the computer systems introduced by HEDS Project, the administration system of Target Universities was improved significantly during extension period. Now all Target Universities are utilizing Internet for their administration and publication. Rector, Dean and Working Group meetings are periodically held as a routine and their operation was fairly efficient.

During the extension period, 35 lecture notes were published through the fund of HEDS Project. Since 1998, most of the written media was replaced by the digital media and dissemination of the information more efficiently because of the introduction of HEDS homepage.

The number of staff involved in the project was 2 long-term experts and 13 Indonesia staffs. In addition, Project finance was limited. The quantity of the activities and number of outcomes of the extension period indicates the efficiency of operation of the project.

5-4 Impact

The academic atmosphere imposed among Target Universities by conducting researches.

The formation of the Job Placement Center, during extension period enabled Target Universities to establish network with regional government, public and private companies for training and recruiting. This contribution was one of the impacts.

By facilitating the core laboratory equipment and enhancing the ability of

research, made the relation with industries became stronger by undertaking the researches and conducting the joint research.

Introduction of TQM effected the improvement of administration at faculties other than Engineering Faculties.

5-5 Sustainability

The Indonesian Government policy in placing priority on engineering education still remains. It was appropriate to extend the project from 1999 to 2002 for assisting sustainability of the project since Indonesian economy suffered from the recession during this period. However, economy crisis effected to capability of government support. Therefore, Government of Indonesia approved three-years period to sustain the project.

For the degree program, the termination of fresh intake in 1998 forced the TUs to find the other means of funding to send their staff for the S2/S3 degree program in Indonesia or abroad. An increase in the number of S2/S3 degree holders is expected.

For core laboratories and computer system, most Target Universities have committed the allocation of budget for the operation and maintenance. The amount is sufficient enough to maintain core laboratory activities and administration system. However, for the upgrading of the system to the most modern one, Target Universities may face the problem of finance.

Thanks to the development of information technology, it is not difficult for the teaching staff in Target Universities to contact their counter fellow in Japan and Indonesia to exchange views, report and obtain the most advanced knowledge and technologies. Based on information technologies, established network, such as SHE-NET, IHE-NET, IC-Star could be operated very smoothly.

6 Recommendations and Lessons Learned

6.1 Recommendations

To DGHE:

1. DGHE should maintain the function of the Project Management Unit (PMU) to facilitate communication among TUs, other Indonesian institutions, Japanese as well as other foreign universities and JICA. HEDS Forum should be formalized before July 31, 2002 to take over the function of HEDS-JICA PMU in coordinating joint effort for further development, among target and resource universities, DGHE and JICA.
2. Post Evaluation by DGHE-JICA should be conducted in 2004 or 2005 to monitor the outcomes of HEDS project.
3. Equipment supplied by HEDS that does not match the needs of a laboratory of specific university should be reallocated to a more appropriate laboratory at other target university.
4. DGHE should promote a national standard on quality assurance for higher education.
5. DGHE should develop a policy on empowerment of universities by facilitating and providing competitive grants.

To Target Universities:

1. TUs should continue the efforts for institution building in a systematic manner by formulating a solid and clear vision and mission statement and develop a comprehensive strategy to achieve it. In this regard, TUs should have a strategy to develop leadership, human resources, academic facility and a supporting funds for maintaining the well being of the institution.
2. TUs should continue to improve academic staff qualification to enhance research and educational capabilities. For example academic staff with S2 degree should be encouraged to pursue Doctoral Degree.
3. TUs should establish or maintain linkages with other higher education institutions, industries and local governments for promoting revenue generation and gaining first hand experience.
4. International Center for Science, Technology, and Art (IC-STAR) should be authorized as a kind of UPT in USU in the near future.

5. TUs should implement an internal quality assurance system.
6. TUs should improve access to and provision of information through establishment of information infrastructure and networking, for example, establishing local area network for academic and administrative purposes, and digital library facilities including maintenance of the web site. Data Bank should be created from database of TUs'.
7. TUs should establish a competitive reward and remuneration system to foster a conducive academic atmosphere.
8. The technology developed by TUs should be registered for the property rights.

6.2 Lessons Learned

Now that the project comes to the end, it is wise to make general observations and learn the lessons. The project, in fact any project, has to come to its end, because the project is instituted not to support the operation of TUs. Its main purpose is to provide support that makes TUs more self-supporting, capable to move forward, and becoming a solid and respected educational institution to serve the community and the nation.

Five criteria of JICA are used to evaluate the impact of the project, on the basis of the performance of the TUs in transforming the project inputs to the TUs into measurable and quantifiable outputs. The project is a DGHE activity in cooperation with JICA, but the termination of the HEDS project should not terminate the TUs activity to find ways and means to formulate better strategies to meet the challenges of the era.

In this respect, the overall impact of the project can only be observed in some distant future, especially in educational projects. Sustainability of the project objectives depends very much on the strong commitment of the university top management. Solid and clear vision and mission statement and the stated strategy to realize it, shall become solid and full commitment of every member of the academic community.

The age of abundance is over, the new era of scarce resources is now coming. This is true for any fund allocation from DGHE. TUs shall make itself more self-reliant. Performance is to be the basis of any evaluation to award funds. Quality Assurance is to be built internally within the university system to assure stability to grow.

The HEDS project input has been dedicated to eliminate strategic weaknesses, i.e. human resource through degree and non-degree programs, core lab facilities, facilitating training and research and university management. Many of the weaknesses remain to be recognized. Some may

come from the inability to make coordinative efforts, some may not to be easily overcome since they are rooted in the socio-cultural setting.

Noting that human resource development always requires long time to really show productive results, weakness shall be identified at the earliest time, thus to become the key factors for successful efforts.

The following items are respectfully submitted for consideration for other future projects:

1. The educational project should be characterized as long-term one more than five years. In particular, the degree program needs long period to accomplish its purpose and its intake should be continued to the final stage of the project. Even there remain some of recipients at the termination, their care must be replaced by other means whatever they are. The most important reason of successful outcomes of HEDS project must be its rather long duration of twelve years.
2. Sustainability of the project outcomes should be taken into consideration, even at the early stage of the project implementation. Continuity in leadership and management is also a prerequisite to sustainability.
3. Monitoring is a necessary measure for efficient and effective project. It could become an important means for a built-in self-evaluation for TUs after the project termination.
4. Recipient universities in an educational project shall be invited to draw their long-range plan, taking into consideration the unique vision and mission of the university. If expertise is not available yet, efforts shall be made to organize such a group as soon as possible.
5. Board of advisors with vision and long experience is to be appointed and functioning at the early stage of project planning in the recipient country.
6. Degree program is of important role to promote intellectual maturity of the teaching staff, both individually and collectively. As such all parties involved in the project shall take it into consideration, not only in the planning and in the selection of the personnel, but also in the execution of degree program as well.
7. In a higher education project, components of research activities should be involved. Education must be closely related to the research, especially in the field of engineering and technology.
8. Infrastructure shall be developed in conformity to the university long-range plan. Sustainability of the facility shall be seriously considered because of the technical problems of getting the equipment, its parts and replacements.
9. Leader is born, not made. As early as possible the TUs should identify those for appointment in the future leadership. Leadership, consequently, shall be of special concern to everybody in the top management.

APPENDIX

1. Input by Both Indonesia and Japan for Follow up 3 Years
2. Itinerary & Schedule of HEDS Joint Final Evaluation
3. Analysis on the Institution Development Status in Management, Human Resource, Equipment and Research by DGHE Party
4. Report of the Site Visit to Target Universities By DGHE Party for Joint Final Evaluation of HEDS Project
5. PDMe

Input by the both Indonesia and Japan for Follow up 3 years

05-Apr-02

	UNIT 単位	インドネシア側投入 (by DGHE)				日本側投入 (by JICA)			
		FY99	FY00	FY01	Total 合計	FY99	FY00	FY01	Total 合計
1. 専門家派遣(Dispatch Experts)									
1) 長期専門家(LTE)	Person					2	2	2	6
2) 短期専門家(STE)	Person					35	31	28	94
2. 研修(Training)									
1) 長期研修(LTT Japan)	Person					2	2	1	5
2) 短期研修(STT Japan)	Person					3	9	7	19
3) 国内研修(In country)	Person	60	112	277	449	6	6	4	16
4) 海外研修(3rd country)	Person					5	4	3	12
3. ローカルコスト(Budget)									
1) 経常経費(General)	1,000Rp	1,720,285	2,361,525	3,514,500	7,596,310	220,857	390,333	349,462	960,652
	1,000¥	24,084	35,423	45,689	105,195	3,092	5,855	4,543	13,490
2) プロジェクト経費(Project)	1,000Rp	3,354,395	2,601,392	2,584,715	8,540,502	1,594,786	1,456,267	1,496,385	4,547,437
	1,000¥	46,962	39,021	33,601	119,584	22,327	21,844	19,453	63,624
4. 施設・機材整備(Facilities & Equipment)									
1) 機材整備(Equipment)	1,000Rp								
	1,000¥					29,683	51,197	16,154	97,034
2) 携行機材(HCE)	1,000Rp								
	1,000¥					8,738	8,923	5,222	22,883
3) 施設建設(Facilities)	1,000Rp								
	1,000¥								
5. 学位取得(Degree Program)									
1) 国内留学(In-country)	Person	7	13	1	21				
2) 日本留学(Monbusyou)	Person								
3) 日本留学(JICA LTT)	Person					2	2	1	5
4) 日本留学(Others)	Person					7	5	10	22
5) 第3国留学(3rd-country)	Person								
6. プログラム支援計画(Program support)									
1) ワーキンググループ(WG)	Q'ty	0	2	1		2	2	1	
	1,000Rp	0	19,448	6,195		73,023	54,683	31,401	159,107
2) 大学運営管理(TQM)									
3) 現地研究(Research)	Q'ty	61	89	83	233	19	11	19	49
	1,000Rp	255,264	357,741	339,570	952,575	312,446	140,049	352,648	805,143
4) テキスト開発(Text development)	1,000Rp					274,153	0	120,000	394,153
5) 自立支援活動(Sustainability)	1,000¥					¥5,326	¥1,860	¥797	¥7,983

1. Input List

2. Itinerary & Session Schedule

Itinerary & Session Schedule of HEDS Joint Final Evaluation

Date	Day	Itinerary	Time	Activities / Contents	Participant	Hotel
1	7-May Tue.	NRT-JKT	1120-1605 JL725	Arrive Jakarta (Mr. Watanabe)		
		PMU/JKT	1800-2100	Internal Meeting w/ LTE	Mr. Watanabe	Kempinski
2	8-May Wed	PMU/JKT	0800-2100	Data Collection & Input	Mr. Watanabe	Kempinski
3	9-May Thu	PMU/JKT	0800-1600	Analyze Data	Mr. Watanabe, Mr. Tokumaru	
Site Visits in Medan by Mr. Watanabe						
		JKT-MES	1800-2010 GA188	Trip to Medan		Grand Angkasa
4	10-May Fri	PMU/MES	0830-0900	Interview Rector USU		
			0900-1000	JPC (Job Placement Center)		
			1000-1200	Interview USU, Dean, TS's		
			1300-1630	Interview Private Sector	Mr. Watanabe, Mr. Tokumaru	Grand Angkasa
			1630-1730	Interview UNAND, Dean		
			1730-1830	Interview UNSYIAH, Dean, TS's		
		Hotel	1830-2100	Adjust & Analyze Data		
5	11-May Sat	PMU/MES	0900-1200	Interview 4 Private Univ	Mr. Watanabe, Mr. Tokumaru	
		MES-JKT	1450-1700 GA185	Trip to Jakarta		Hotel Bumi Karsa
		PMU/JKT	1800-2100	Meeting w/LTE	Mr. Watanabe, HEDS	
6	12-May Sun	NRT-JKT	1120-1605 JL725	Arrive Jakarta (Dr. Tsutsumi, Dr. Irisawa, Dr. Takagi, Mr. Sakuma)		
		PMU/JKT	0800-1700	Data collection & analysis	Mr. Watanabe	Hotel Bumi Karsa
		"Sakana" in MP	1800-2100	Meeting (JICA Team and HEDS LTE)	(Pak Kirman)	
7	13-May Mon	PMU/JKT	0830-1000	PMU Meeting w/ Dr. Margono, Dr. Jajat, Mr. Yaoi	PMU staff members	
		Hotel	0900-1100	Setting up meeting room (PC, Printer, Name Plate, etc.)	Ms. Dewi & staff	
		Embassy of Japan	1030-1100	JICA Team: Meeting w/ Mr. Hasegawa	JICA team members	
		JICA Office	1130-1330	JICA Team: Meeting w/ Mr. Kanda and his staff (at Benkei in Hotel President)	JICA team members	
		YOG - JKT	1130-1230 GA205	Arrive Jakarta (Dr. Soesianto, Dr. Purnomo)	(by Pak Wagino at CGK)	
		BDO - JKT	1600-1630 DRY517	Arrive Jakarta (Dr. Sularso, Dr. Tati, Dr. Andi)	(by Pak Kirman at Halim)	
Session Schedule					(Chair Person)	
		1430-1700	Session-1. Preparatory Work			
		(1430-1700)	1. Preparatory works by JICA team (all members and PMU staff)		Mr. Sakuma	
		(1430-1700)	2. Preparatory works by DGHE team (Dr. Soesianto, Dr. Purnomo, PMU staff)		Dr. Jajat Jachia	Hotel Bumi Karsa
		1730-1830	Session-2. Plenary			
		(1730-1740)	1. Welcome address by Dr. Margono Slamet		Dr. Jajat Jachia	

Date	Day	Itinerary	Time	Activities / Contents	Participant	Hotel
				2. Briefing of itinerary and session schedule	Ms. Wiwi	
				3. Introduction of the members (JICA Team, DGHE Team & PMU)	by self	
		(1740-1800)		4. Report on DGHE progress	Dr. Sularso	
		(1800-2000)		<i>Dinner</i>		
		(2000-2020)		5. Report on JICA progress	Dr. Tsutsumi	
		(2020-2130)		6. Discussion and confirmation of JFE frameworks	Mr. Sakuma	
				1) Policy, evaluation method and tool, report making and etc.		
				2) Work sharing and pair member formulation		
				3) Work schedule and supporting work by PMU		
8	14-May	Tue	(0600-0800)	<i>Breakfast</i>		Hotel Bumi Karsa

Session Schedule

(Chair Person)

0800-1000	Session-3. Pair Work	<u>Ms. Ratna</u>
	Pair-1	Pair work member
	Pair-2	Pair work member
	Pair-3	Pair work member
(0900-1000)	Interview with Dr. Margono Slamet, Executive Director. HEDS Proje by JICA Team	
(1000-1030)	<i>Tea Break</i>	
1030-1200	Continue	<u>Ms. Ratna</u>
(1200-1330)	<i>Lunch Break</i>	
1330-1440	Continue	<u>Ms. Ratna</u>
(1440-1500)	<i>Tea Break</i>	
1500-1800	Session-4. Plenary	<u>Ms. Wiwi</u>
(1600-1700)	Report the drafts by Pair-1, -2, and -3	All members
(1700-1830)	Discussion on draft report	All members
(1830-2000)	<i>Dinner</i>	

9	15-May	Wed	(0600-0800)	<i>Breakfast</i>		
	DGHE	0900-1000	Courtesy Call DGHE • Submission of Drafts of Final Report and M/M	JFE team members HEDS: Dr. Margono, Dr. Jajat, Mr. Yaoi, Mr. Tokumaru		Hotel Bumi Karsa

Session Schedule

(Chair Person)

0830-2200	Session-5. Pair Work	<u>Ms. Ati</u>
(0830-1000)	Reviewing the draft report and revising to draft final	Each pair work member
(1000-1030)	<i>Tea Break</i>	
(1030-1200)	Reviewing the draft report and revising to draft final	All members

Date	Day	Itinerary	Time	Activities / Contents	Participant	Hotel
		(1330-1530)		Reviewing the draft report and revising to draft final	All members	
		(1530-1600)		<i>Tea Break</i>		
		(1600-1800)			<u>Ms. Eka</u>	
		(1800-2000)		<i>Dinner</i>		
		(2000-2200)		Reviewing the draft report and revising to draft final	All members	
10	16-May	Thu	(0600-0800)	<i>Breakfast</i>		Hotel Bumi Karsa

Session Schedule

		0800-1200		Session-6. Plenary	<u>Ms. Wiwi</u>	
		(0800-1000)		Wrap up draft final	All members	
		(1000-1030)		<i>Tea Break</i>		
		(1030-1200)		Wrap up draft final	All members	
		(1200-1300)		<i>Lunch Break</i>		
		(1300-1600)		Finalizaation of the document	All members	
		(1600-1615)		Signing of NOU (Note of Understanding)		
		1730		Signing of M/D (Minutes of Discussion) at DGHE	All members	
		(1800-2000)		<i>Reception hosted by Japanese Team</i>		
11	17-May	Fri		0900-1030	Internal Discussion	JFE team members HEDS: Dr. Margono, Dr. Jajat, Mr. Yaoi, Mr. Tokumaru
			PMU	1200-1330	Wrap-up Lunch Meeting	
			Embassy of Japan	1400-1430	Report	
			JICA Office	1500-1600	Report	
			JKT-NRT	2235- JL726	Leave for TYO	JICA team members
			JKT-KIX	2325- JL714	Leave for Osaka	
12	18-May	Sat	JKT-NRT	NRT -0640	Arrive at NRT	
			JKT-KIX	Osaka -0805	Arrive at KIX	

3 . Analysis on dirusion status of target universities

Analysis on the Institution Development Status In Management, Human Resource, Equipment and Research By DGHE Party

In this analysis, weakness and strength to sustain development in the future of the target Faculties/Departments in management, human resource, equipment and research are evaluated.

1. Management

1.1 Leadership who formulate policy and program, and direct operation and relationship with environment.

Leadership plays detrimental role in all levels of the organization, from university management down to department and laboratory level, in carrying out strategic planning and its implementation in day to day operation. Weaknesses had been observed in general from the absence of clear vision and mission shared by leaders as well as the academic community. Planning capability in general has been developing. However some faculties are still lacking in responsiveness to the rapid change in their environment.

Notwithstanding the weaknesses, progresses had been observed through continuous improvement efforts. This is due to human development through degree and short term training programs assisted by HEDS project and others such as EEDP. Potential leaders are existing and they need to be identified and given the opportunities for self development.

1.2 Policy on development and operation.

Inconsistencies between objectives and implementations or outcomes of some programs observed during site visit could be traced back from the assumptions made during formulation of the guiding policies of the project. As an example, the underutilization of core labs could originate from inappropriateness of the policy behind their establishment. At university or faculty level inappropriate policies could prevent optimal utilization of the inputs from the project and hamper the development or sustainability of the target organization.

Some universities and faculties however had indicated positive response to the project inputs by developing policies to stimulate and facilitate initiatives from staff and lower level unit of organization. Such empowering policies should be further develop to strengthen bottom-up approach.

1.3 Program for development and operation.

Inputs had been given to target faculties by HEDS project through various management trainings. The EEDP (Engineering Education Development Project) had been providing opportunities to engineering staff to join workshops on Curriculum Development and Quality Assurance. Hence, capabilities in planning and

programming is there and it had been practiced to carry out self-evaluation, curriculum review, and study program development.

With the changing environment due to globalization, the advent of information and communication age, changing role of central and regional government, national economic condition, etc., wider horizon in planning is needed. It means that more planning factors should be taken into considerations. One of the aspects mostly forgotten was the economics of higher education. Such a weakness should be addresses in planning for sustainability.

1.4 Resource: financial, physical, human, technological, and information.

HEDS and other projects had been supporting universities through development of human resource, technology, and management. Those are essential to enhance academic capacity and quality. However, when question is raised on sustainability, then financial aspect become main concern. This is one problem where development programs had not been addressing the economic issues related to the survival of the university. Such a shortcoming need to be responded by providing the management some means to deal with questions on financial or economic viability of the institution.

1.5 Internal structure and process for operation and maintenance.

Future universities had to deal with survival in a competitive environment. It means that the structure should enable the university to operate as a sound institution, academically and economically. Therefore teaching, research, and consultancy should be carried out productively to cater the need and to obtain support from the society. In this situation, marketing (in a broader sense) of the programs and competence of the resources will be part of the university operation. Such a new situation will require a change in structure and culture of the organization.

2. Human resource

2.1 Capacity of academic staff.

The academic staffs at target universities have received support from HEDS project through: degree and non-degree programs, short-term experts, research promotion and support. While many have benefited greatly from such programs, several weaknesses remain, among them are:

- Lack of self-confidence to initiate linkage programs
- Relatively low research capability
- Lack of ability to publish research results and develop course notes
- Lack of current information, i.e. recent books, journals and access to cyberspace.
- Very few have doctoral qualification.

Without past experience it seems very hard for the staff to take initiative to initiate linkage programs even though they may have the potential, i.e. expertise and equipment or facilities. Non-existent incentive for research activities from the University contributed to the low numbers of research conducted, and consequently

opportunity to publish also diminishes. Lack of information have made most staffs feel inferior and do not have the confidence to compete for competitive grants.

On the positive side, the HEDS project programs have strengthened the target universities and improved the capability of its academic staff. The strength of the academic staff may be listed as follows:

- Many have Master qualification
- Improved ability to teach and interact with students due to exposure to academic environment at their respective host institutions
- Ability to establish network and linkages
- Awareness of the needs for institutional development
- Several have the capability to compete for research grant from HEDS as well as other projects.

It is interesting to note that the returning staffs have brought about many improvements in teaching and learning process. This should improve the academic atmosphere at respective institution. The existence of networking also provided many positive side effects. The network acts as a channel for obtaining scholarship to pursue Ph.D. degree as well as Master degree for younger staff members. It also opens the opportunity to propose and conduct collaborative (pair) research that may lead to establishment of new laboratory or at least provision of new equipment. Several of these pair research have led to research activity in a larger scope, such as RUT and DCRG-URGE.

In general, at the state universities such as UNSYIAH, USU, and UNAND where many staffs have had the opportunity to earn Ph.D. degrees and have been exposed to educational system elsewhere, the capacity of academic staff is relatively higher. This enable them to better utilize the support provided by HEDS project through a more focused proposal and activities. Furthermore, these institutions also have developed linkages with local industry and government agencies.

At the other end of the spectrum are the private universities that depended mainly on HEDS project for institutional and human resource development. At these institutions, difficulty in maintaining Laboratory and its equipments as well as sustaining programs are more noticeable. They do not feel confident enough to promote their expertise and facilities in order to establish linkages.

2.2 Capacity of personnel in administrative task.

In general the Deans, Vice Deans and Heads of Department are persons with high capability. Many have attended workshop or seminar on quality in higher education. Naturally, some are less capable than others in providing guidance and direction to the subordinates. The complaints from academic staff that the Department, Faculty and University do not provide support indicate the lack of leadership and the vision toward quality education. Without a clear idea about the vision, mission and objectives of the institution, it would be very difficult for them to guide others toward a common goal. This contributes to the low enthusiasm of staffs in performing their academic duties. In the future, the personnel assigned to administrative task should have the capability to set goals and devise strategy to achieve them.

However, as many programs (accreditation, competitive grant such DUE, TPSDP and others) now require a study program or institution to perform a Self-Evaluation. This exercise have *forced the* administration to define or redefine their mission and plan future activities. Most of the target universities have performed this self-evaluation exercise, be it for accreditation purposes or submission of proposal for competitive grants.

2.3 Utilization, maintenance, and development of human resource.

As previously mentioned, many of the returnees (degree program recipient) feel they are not optimally utilized by the Faculty / Department. Many returnees came back with very high motivation, but a lack of direction and commitment from the institutional leadership (Department, Faculty and University) has discouraged them. Cases of unsuitable assignment of staffs were found. The degree program participants may found that they have no laboratory upon return to the home institution. While it should be part of their responsibility to develop laboratory, they may lack the experience to carry out the task. The problem is further compounded by the lack of support by the institution. A well designed human resource development plan is needed to ensure optimal utilization. For example, recruitment of an academic staff should be based upon the planned development of a study program.

Many degree programs recipient are assigned to structural/administrative duty due to the lack of capable administrative personnel or relatively low numbers of staff. While the individuals involve may gain valuable experience, the drawback is at the same time it hinders the progress of academic activities. Instead of developing body of knowledge, they are forced to deal with the grind of administrative chores.

The maintenance of the human resources closely related to the facilities provided. In many target universities, the limited facilities and equipments have hinders the growth of the human resources capability.

No grand scheme for human resource development is evident. But, again state universities that received support from other projects have shown a better plan for human resource development. For, example support from another DGHE project (EEDP) to UNAND and UNILA includes fellowship for degree programs. In addition, many target universities are eligible to compete for grant from yet another DGHE project (TPSDP), but only the state universities submitted the proposal and succeeded in passing the evaluation stages and were visited as part of the final proposal evaluation.

3. Equipment and research

Aside from human resources, there are facilities that have to be provided by a university. Those are laboratories and libraries. Many important activities in a university depend on the availability of the facilities. The facilities cannot be considered as supporting facilities only, because their existence in a university is mandatory. For most Indonesian universities, both state and private universities, the facilities are considered very expensive. This is why the development of the facilities

is usually slow and often difficult to keep up with the advancement of technology. In order to alleviate the problems, universities within a small area share the facilities. For instance, in Yogyakarta most private universities share laboratories owned by Gadjah Mada University. However, part of the problems of accessing information can be solved with Internet. The network makes information gathering and communication easier.

Being fully aware of the importance of the facilities, in the process of developing a university the provision of the facilities should be considered thoroughly. In the case of fund limitation, alternative ways should be provided.

3.1 Availability, capacity, condition, and utilization of laboratory, equipment, library and ICT.

For state universities, equipment provision had been launched through several projects such as Buyer's Credit, OECF, DUE and EEDP. Therefore, the universities has been ready in accepting the equipment and familiar with providing proposal for laboratory development. A totally different situation is experienced by most of private universities. Equipment provision is more likely based on the amount of fund available at that time. Thorough development planning is seldom made. Probably this is why the staff development and laboratory development at several universities do not go in the same direction. It should be noted that laboratory development should be linked to human resources development. By doing so, the utilization of the laboratory will be more efficient. The low utilization of the laboratories found at the TU's may be caused by

1. The lack of support from the institution
2. The inability to create collaboration with industries and universities
3. The lack of supporting facilities such as laboratories and libraries
4. The dysfunction of the core laboratories

Efficient utilization of the laboratories is also depend on the policy laid by the management. The policy should encourage and support the staffs in utilizing the laboratories in many forms of activities such as researches, student practices and collaborations. Problems may arise when university regulation hampers the activities. For instance, HKBP Nommensen do not allow the laboratories to be used for activities other than student practice. A good example is what was done by UNSYIAH. The top management at the university is able to establish collaboration with the local government that result in research fund and fellowship.

The establishments of the core laboratories were intended to avoid equipment duplications among universities. The core laboratories do not fully function as planned. Researchers do not conduct their researches at the core laboratories, because additional fund should be provided for traveling, staying and conducting research at the core laboratories.

The capacity of a laboratory depends on the number of equipment received by the laboratory, but in general most the equipment recipients are satisfied with the equipment. With the equipment provision, many important activities can be facilitated. Researches can be initiated, and student practices can be activated. The activities led

to better academic atmosphere. In few cases, recipients are disappointed because of incomplete equipment, damage and missing parts.

Technical books were also provided by HEDS, either for host universities or target universities. The capacity, condition and utilization of the books were not recorded. However, a comment can be made based on conditions that exist at Indonesian Universities. Few universities can afford a large number of textbooks. In order university staffs to have access to the information at minimum cost, an information center can be established. The idea is similar to the core laboratories. Universities within a specified area have an information center. Journals, proceeding and other information are stored in the form of CD's. The members of the center can access and download information through internet.

The TU's also have local are network (LAN). The network is utilized mostly for departmental communication and student registration. Communication and information gathering through internet are very limited due to limited fund owned by the universities. Individually, the staffs access the internet at computer rentals that provide access to internet.

3.1 Capacity and activity of research and professional services.

HEDS has improved research capacity and activity were improved by providing equipments and sending staffs abroad for pursuing degrees. The program has motivated the staffs to conduct researches and improved the ability of the staff to design experiments. These trends appear at most of the TU's, but the degrees of improvements vary from one university to the other even from one department to the other in a university.

Few laboratories succeeded in establishing professional services. Problems may arise either from external or internal causes. Universities that are located in less industrialized area may have problems in the establishment of the collaboration with industries. In other cases, the laboratories need additional equipment if such collaboration is to be established. Many types of equipment received by laboratories are intended for student practices only. University or department support is also needed for successful professional services, e.g. collaboration with local government that established by UNSYIAH.

4. Report of the site visit

REPORT OF THE SITE VISIT TO TARGET UNIVERSITIES BY DGHE PARTY FOR JOINT FINAL EVALUATION OF HEDS PROJECT

1. Objectives of site visit

The site visit is intended to obtain a picture on the level of utilization of the HEDS project inputs by the target universities to produce the expected outcomes, and to assess the impact of the project on the target Faculties and Departments. The impact will be observed in the following aspects :

- (1) Relevance of (i) the project inputs to the intended outcomes, and (ii) the developed programs and resources of the Faculties / Departments to the needs of the society to be served through education, research, and community services.
- (2) Academic atmosphere related to learning, research, and engagement to society.
- (3) Internal management and organization, covering all levels of Faculty and Department structure.
- (4) Sustainability of the system to maintain the achieved progress and to develop further.
- (5) Efficiency and effectiveness of education, research, and professional services as well as academic administration in general.

2. Organization of the team and method of information gathering

To deal with the entire program of the project, it is necessary to organize the team in three problem areas, namely (1) Management (Dr. Sularso), (2) Human Resource Development (Dr. F. Susianto and Dr. Andi Isra Mahyudin), and (3) Equipment and Research (Dr. Tati Mengko and Dr. Purnomo).

In order to cover the eleven target universities in Sumatra and Kalimantan, the team was divided into two groups; each group visited 5 to 6 universities. One full day was made available to cover each university.

Information were gathered through (i) meetings (comprising presentation, interview, and discussion) with management, staff and students of the Faculties and Departments, (ii) observation of labs and equipment, and (iii) analysis of questionnaires and reports.

3. Results of site visit

The excerpts from the meetings, lab observations, questionnaire analysis, and the findings from each target university are presented below.

3.1 UNIVERSITAS SYIAHKUALA (UNSYIAH)

Venue and date: USU Medan, 10 April 2002.

Agenda: Meeting with Dean of Engineering; Head of CE, ME, EE, ChE, and Arch, of UNSYLAH. No visit was carried out to the campus of UNSYIAH due to situational reason.

DGHE Team: Dr. Sularso, Dr. Purnomo, Dr. Andi Isra M.
Reported by : Dr. Sularso.

Inputs from the participants of the meeting

Dean of Engineering Faculty

The HEDS Program has improved the quality of the staffs as shown by the increase of the number of staffs who hold master degree (S2 qualification). He agreed that the HEDS Project accelerated the progress of the faculty. The number of research has also increased significantly.

The impact of HEDS project is obvious in enhancing quality and capacity of engineering education at Unsyah. The first important contribution of the project was in the academic staff who earned S2 qualification from in-

country degree program. Since the return of the first batch of S2 graduates to Unsyah in 1993 - 1996, improvement in teaching and learning has been occurring continuously. Better understanding on academic culture and proper higher education practices, enhanced knowledge on subject matter, and considerable research experience obtained by staff with S2 degrees from the degree programs, had created changes towards better academic atmosphere. This was felt in the improvement of interaction between staff and student. The impact on the efficiency and effectiveness in teaching is observed particularly in the reduction of the average S1 study duration, namely from 7 years in 1990 to 6 years presently, for 4-year curriculum. The increase of the average 'index prestasi' has indicated improvement on learning effectiveness as well.

Chances for the academic staff to win competitive research funds and opportunities to pursue S3 education in-country as well as abroad were opened more widely. With those backgrounds they are also in a better position professionally to get involved in engineering consulting work for industry and regional government. Thus, degree trainings followed by provision of appropriate equipment and availability of research funds were considered to be the most relevant set of programs to create significant impact on the process of institution building.

Improvement in the internal management has been felt in the capacity to handle increased student enrollment and laboratory utilization. Capability to do systematic planning for academic development as well as quality improvement is there. Inputs for the enhancement of quality management has been obtained through short term trainings, workshops, expert provisions, etc. by HEDS as well as EED Project.

Sustainability of the progress and the capability to further develop will be a problem in the future if support from HEDS project is terminated. With the existing capacity of academic staff and equipment, consultancy and research collaboration with industries has been a common practice. Presently there are 10 R&D units within the Faculty to serve the community. However, considering that the region around the university is not so much industrialized, opportunities for getting contracts or assistance from industries will also be limited. Such a situation will be eased if significant allocation and contracts from the regional government budget for education and economic development can be realized. This source of funding will also be needed to provide counterpart funds for assistances from DGHE projects (e.g. TPSDP) or other agencies.

Head of Civil Engineering Department

Judging from the implemented programs, the level of effectiveness of the inputs of the HEDS project for the development of Civil Engineering Department is about 75 %. Weaknesses are identified particularly in the equipment supply. Some equipment did not match the specification as ordered. Certain equipment is still idle due to missing items in the supply. It is observed as well that the contracted prices of the equipments are 2 to 4 times higher than those offered in the local market.

On the other side, the positive impact of the project is observable. Tracer study shows that waiting time for the graduates to get jobs had been reduced from 6 month in 1994 to 3,5 months in 2000. Average score of the students has been increasing. Final project completion time of the last year students has been shortened from 2 to 1 year. Some students are able to finish S1 within 4,5 to 5 years. This among others is due to high utilization of labs for exercise and research. (In the past when equipment was not available, lab practices and final projects were conducted outside the campus). Some activities were actually conducted until 11.00 pm. when security was not a problem. These all means that academic atmosphere has been significantly improving.

Introduction of TQM through HEDS program has stimulated the establishment of a 'peer group' to deal with institutional development, teaching improvement, research, and cooperation with industry. Presently cooperation with Department. of Public Work, Department. of Transportation, PT Arun, etc. has been materialized in contracted jobs and scholarships. This will continue as part of efforts to ensure sustainability.

The existence of Core-lab for Highway Engineering at Lampung University has been helpful in establishing network among Highway Engineering and Transportation groups from HEDS target universities and their partners at ITB and UGM.

Due to price change, the number of equipments were less than what were proposed. Manuals were incomplete. The staffs faced a problem to learn how to operate the equipment. One of the equipments, the asphalt extractor, has never been operated. This equipment needed a poisonous liquid and one of its accessories was missing. A new laboratory emerged: the Highway Laboratory. Students were also used the laboratories for practice, and participation in research conducted by the staffs (SDPF). The student's GPA was improved and their study was shorter, but HEDS certainly could not claim that the improvement was solely the result of the project. The laboratories had collaboration with industries and government institutions.

Head of Mechanical Engineering Department

The HEDS project has been playing important role in the development of ME Department at UNSYAH. When the ME Department was established in 1977 and some years afterwards until 1994, academic staff and equipment for

S1 teaching are minimal. Gradual improvements were occurring after HEDS project was implemented. Higher qualifications of staff and availability of lab equipment made implementation of core curriculum possible. Better grades obtained by the students and shortening of final project completion time were among the improvements achieved in the learning process. Information on waiting time for job after graduation still to be evaluated from tracer study.

Most of the staff with S2 qualifications came from HEDS degree program. All of them were involved in research activities funded by SDPF from HEDS, Competitive Grants from DGHE, or Competitive Research from Minister of R & T. They are highly motivated to take S3 degree and most of them joined this program. Consequently for the time being the capacity of the Department in teaching will be lowered.

For participation in pair research program the constraint had been in the limited availability of Japanese professors to be involved. It will be helpful if professors from in-country universities like ITB and UGM could be included in the program.

The establishment of core lab for Production Technology by HEDS project has been useful to support curricular activities and research. However there will be problems for maintenance due to lack of funds available from the government budget. It is expected that closer cooperation with industry in the utilization of the lab will be helpful to sustain the operation and maintenance needs of the equipment. Collaboration with PT Semen Andalas in Banda Aceh utilizing the core-lab had been a good learning experience to be continued.

The department received a core laboratory: Machining Center. Collaboration with Semen Andalas was made and utilized the core laboratory. The expertise of the Japanese experts who came to assist the staffs were inappropriate. Handouts and textbooks were inadequate. There was an indication that the expert only developed laboratories and research he liked, not what the faculty needed. The motivation of the staffs to write handouts or textbook was quite low.

Head of Chemical Engineering Department

Equipment obtained from HEDS project, particularly through research programs, were in general relevant to the specific needs. In most cases the project supplied the main part of the system and the accessories should be provided by the users.

Pair research had been enhancing research activities and qualities leading to international recognition, such as the one granted by The Toray Foundation. However as professors involved were so few, such valuable experiences had not been acquired by most of the staff. Notwithstanding, collaboration with industry had been growing, among others in waste treatment, trainings for chemical industry personnel (e.g. Asean Fertilizer), etc.

Opportunities provided by the HEDS project in degree programs as well as through short and long terms training had been intensively utilized. Enhancement of quality and capacity of teaching and research had been taking place as result also from knowledge on good practices gained from other universities. It indicated that academic atmosphere had been continuously improving, which was observable as well from routinely conducted academic staff meeting and participations in national and international seminars. Collaborations with academicians from other universities were also developing. These progresses had been achieved mainly due to HEDS programs.

Judging from past experience, the capability of the academic staff to conduct research and obtain funding in a competitive manner will be the most valuable asset to be maintained and developed. The question then is whether in the future there will be similar opportunities as those created by HEDS programs in the past.

Teaching and learning improvement had been achieved through better monitoring of classes, coordination among lecturers (in team teaching), distribution of teaching loads, and disciplinary measures to the lecturers. To overcome the lack of books and references for students in the library, photocopying of those materials from the lecturers' collections had been common practices. An ICT infrastructure of reasonable capacity will help this situation but presently it is unavailable in the campus. It had always been a wish that HEDS project could help the development of an ICT system for UNSYAH.

The local area network was very useful, especially for communicating with the experts and accessing internet. The later has not been done maximally due to the lack of fund.

Head of Electrical Engineering Department

The Electrical Engineering Department, opened in 1997, was assisted by OECF program. Contribution from HEDS project was limited to S2 degree for 4 staff, some non-degree training, and 5 research topics. No equipment was provided by HEDS project.

The student body was large compared to the existing number of academic staff. Consequently the average teaching load was high, particularly in Telecommunication course due to large number of student interested. (On the other hand, the Electrical Power Engineering course did not attract many students.) This situation limited the time available for research and paper writing. Limited number of books and journals in the library gave additional constraints for staff and students to develop academic atmosphere.

Limited ICT development of the campus internal network had been supported by HEDS and OECF project. It is expected that PT Telkom and USAID will help the development of campus backbone and external links through satellite system.

Considering the present status of development, sustainability of the Department is questionable if no further input is given.

Head of Architecture Department

The Department of Architecture had been able to take advantage of HEDS' degree and research program to train 5 staff towards S2 qualification and to obtain grant for research. No equipment was supplied by HEDS project. The only available equipment was drafting boards. However, teaching and learning activities had been very good. Considerable number of research proposals had been submitted to HEDS and other projects. This indicated high motivation of staff to conduct research. However, very few were granted.

As substantial equipment did not exist, activities were mostly conducted in the area of social sciences. This might explain why so few research proposals were granted.

Comments from DGHE Team

A general conclusion from the above meeting can be summarized as follows.

The HEDS project had been giving significant impact to the Engineering Faculty and Department of UNSYAH. The degree program leading to S2 qualification had been an important initial step detrimental to the effectiveness of other inputs towards successful development. Equipment input complimented with technical and management trainings as well as research program support, had been creating prospective academic atmosphere.

It was realized that weaknesses were encountered in the implementation of the project. However, some implementation problems could originate from the planning process or even from policy formulation. This issue should be addressed in the analysis of the project as a whole.

3.2 UNIVERSITAS SUMATERA UTARA (USU)

Venue and Date : USU Medan, 8 April 2002.

Agenda: Meeting with the Rector, Dean and Vice Deans of Engineering Faculty, Head of Departments, Head of IC-Star. Survey ME Lab, EE Lab.

DGHE Team: Dr. Sularso, Dr. Tati Mengko and Dr. Soesianto
Reported by : Dr. Soesianto.

Inputs from the Faculty of Engineering

USU Faculty of Engineering is the North Sumatran public higher education institution of 257 TSs (99 of which are golongan IV – 3 TSs are full professors and 23 TSs have S3 degree from abroad) offering 6 study programs serving a student body of roughly 2800 students. Since its founding in 1967 it has contributed roughly 6500 graduates into the national job market.

The HEDS Project also gives substantial support to develop TS of USU, as indicated by the Project records. In the lifetime of the HEDS Project, 32 TSs obtained their S2 degrees (one TS got also PhD), 30 TSs participated in non-degree programs in Japan, and 194 SPDF titles were also awarded. In addition to that very large number of textbook development activities was supported. Human factors core lab is established aimed at increasing the teaching and research capability of the TSs.

Although it cannot be claimed as a direct benefit of the HEDS Project, substantial improvement in the duration of study to complete S1 degree is reported in the last 3 years, from 6-7 year average to roughly 5 year average. Many

students could even now finish the program a little over 4 year time. Generally, a considerably high level academic atmosphere is indicated, both in teaching and in research oriented activities. Networking among researchers and institutions are already established through the campus computing facility. A network of environment research involving USU, UNSIYAH, UNSRI, UGM and Toyohashi University is already established and meets regularly to discuss matters of importance. Industrial chromatography equipment is expected to arrive soon to enhance the quality of research service. Papers of international quality are produced and presented regularly in international forum by some TSs. Short term expert visit is claimed by many staff members to be not very effective and in the future it is expected to be improved in its scope, planning and implementation. The formations of ICT and IC STAR at USU strongly indicate that USU Faculty of Engineering could well assume greater role at national and regional level.

Comments from the DGHE Team

On the basis of the RAISE, the DGHE Team agrees to give a vote of confidence on the impact and sustainability of the HEDS Project at USU. A stronger vote of confidence could be given if and when the Faculty of Engineering manage to optimize its human resources so that it becomes a solid institution to face the challenges of the new era, considering the multicultural setting and the socio-economic background of the greater region it is expected to serve.

Two items are worthy to be mentioned. Networking is synonym with interdisciplinary activity. While cooperation with institutions outside USU is being promoted, there is this question whether there is strong linkage and cooperation among Departments within the Faculty. For instance, it would be wiser if ME, ChE, EE and IE develop an interdepartmental program closely related to the demand of the North Sumatran industry.

The other item has to do with the formation of IT-related education program. The establishment of such program should also be considered in the context of interdisciplinary activity and what resources could be committed to form a solid information technology program, instead of information science or computing science. The EE Department shall be reorganised.

3.3 UNIVERSITAS DHARMA AGUNG (UDA)

Venue and Date : UDA Medan, 9 April 2002

Agenda : (1) Meeting with Rector, Dean of Faculty Engineering, Head of Departments (Mechanical Engineering, Electrical Engineering, Civil Engineering). (2) Laboratory survey

DGHE Team : Dr. Soesianto, Dr. Tati Mengko

Reported by : Dr. Tati Mengko

Inputs from the meeting

After a courtesy visit to the Rector, a meeting was organized at the Faculty of Engineering. The Dean of the Faculty introduced the Head of Mechanical, Electrical, Civil Engineering, and some faculty members. A very brief introduction was presented followed by presentations from each faculty. Most of the S2 graduates resulted from HEDS project hold a structural position due to the limited number of staffs. According to the brief overview from the Deans, this campus have experienced a decreasing number of students entering the university, but an improvement is indicated in the last 2 years. An 'unmatch' competence of the visiting short term experts was expressed by a number of lecturers during the discussions. A lack of supporting technicians at the production technology core laboratory was also mentioned. Number of publications as well as research activities are very limited due to a number of infrastructure and supporting aspects. It seems that the vision and mission of the university are not well socialized and not fully understood by the academic community. However a number of individuals have expressed their motivations to improve their capability.

The opening of a new institute (Institute Technology Medan) by the same foundation that owns UDA seems to be the main reason for the demotivation of the academic atmosphere.

Comments from DGHE Team

Although the quality of staffs was improved in the last 3 years, a number of managerial problems occur due to the change of top level executives and shift of policies from the owner. An unclear top management direction followed by a weak staff incentive scheme bring most of the staff activities loosing their focus. Efforts are still needed to

improve lecturer motivations in re-shaping the faculty activities. Most of laboratory equipments are still under utilized. A revision of the faculty plan and target is extremely needed prior to establishing cooperation with external parties. However this university still have the chance to play an important role in the region of North Sumatra.

Comments from DGHE Team

Although staff development have been improved in the last 3 years, seems that a number of problem occurs due to several reasons as the change of top level executive, different policy from the boards, incentive scheme for staffs, etc. Effort are still needed to be given for improving the lecturer motivation in shaping the faculty activities. Most of Lab equipments are still under utilized. A revision of faculty plan and target is extremely needed prior to establishing cooperation with external parties. How ever this university still can have a chance to participate and play in important role in certain area of interest in the region of North Sumatra.

3.4 UNIVERSITAS HKBP NOMENSEN (UHN)

Venue and Date: UHN Medan, 9 April 2002

Agenda: (1) Meeting with Dean of Engineering Faculty, Head of CE, ME, and EE Department, Academic staff, and students of UHN, and (2) Lab survey.

DGHE Team: Dr. Sularso, Dr. Andi Isra, Dr. Purnomo.
Repórted by : Dr. Sularso.

Inputs from the meeting

Dean of Engineering Faculty

The Faculty of Engineering presently consists of Civil, Mechanical, and Electrical Engineering Department. For the development of Faculty and Departments, support had been given by the UHN Foundation and assistances from Church organization, in country and abroad, and the GOI, mainly through HEDS project.

The contribution from HEDS project had been playing important role in staff development through in-country degree program, in particular for S2 qualification. In-country S3 program however took longer time to finish and the university needed to provide additional support for tuition. Therefore overseas scholarships such as the one provided by Monbusho were preferable. Short term trainings in technical as well as administration matters had been particularly helpful. Application of the self-evaluation procedures had given understanding on the weaknesses of the system.

Problems had been encountered in equipment provision, among others due to unfinished installation, missing parts, and absence of instruction manuals necessary for installation and trouble-shooting. Consequently some new equipment remained idle.

Equipment maintenance had been a problem since the economic crises of the country. The computers supplied by HEDS project were becoming obsolete and replacement had been limited by available funds.

Financial weakness of the university had prevented the Faculty of Engineering to provide counterpart funds necessary to obtain grant from HEDS project for development. Considering this situation, further strengthening of academic resources is a must to achieve better capabilities towards self sustaining faculty. Therefore, opportunities similar to those provided by HEDS project are still needed in the near future.

The grant was considered very useful. It boosted the development of the Engineering Faculty in various aspects. The Engineering Faculty received audiovisual equipments and Local Area network. The LAN has not utilized well because the faculty did not have enough fund for accessing internet. The dean reported that there was equipment that had not been operated since it was accepted. A Japanese expert has come to check the equipment but the problem persist and he did not solved it thoroughly. The sustainability of the activity was the main concern. The faculty doe not know how to get fund after the HEDS Project ends.

Head of Civil Engineering Department

The core lab for concrete developed by HEDS project is well equipped compared to the other three of the Civil Engineering Department. The purpose core lab was to provide good facility for education and research in

Concrete Engineering for UHN and surrounding universities. Practically however, utilization was limited to UHN staff and students. Use of the facility for outside jobs was not justified by the university. On the other hands UHN staff or student had not been taking advantage of the core labs under other HEDS target universities.

Degree program for staff development had been helpful in the improvement of teaching. However, lack of books and journals in the library had limited the capacity of the Department to enhance the academic atmosphere. Provision of journals by HEDS project in USU library had not been utilized by UHN staff or students.

The department got a core laboratory: the concrete laboratory. The equipment are satisfactory and has been used for student practice. The university regulation forbid the utilization of the equipment by "outsiders". Handouts and textbooks has not been produced by the department.

Head of the Mechanical Engineering Department

Training for learning material and syllabus development had been helpful in teaching improvement. Curriculum review need to be carried out in the near future. To support this work, training in curriculum development and writing of the guidance for its implementation is necessary.

The mechanical engineering labs needed better equipment, particularly in material testing. It was proposed therefore that a core lab for metallurgy could be established.

Head of the Electrical Engineering Department

HEDS project had contributed 8 out of 11 Masters staffing the EE Department. Short trainings had been helpful in creating continuous improvements in teaching as well as administration. The SDPF program had stimulated research activity and enhanced academic atmosphere in the Department. Difficulties had been encountered with new equipment supplied by HEDS project, among others due to missing manuals.

To sustain the present achievement and continue improvement of the EE Department, assistance similar to HEDS project will still be needed.

The department reported that the research activity was unsatisfactory though several proposals have been written. The complaint was about the SDPF. The fund was always late, therefore they do not have much time left to finish the research. Although the student did not know much about the HEDS Project, they felt that the teaching quality had been improved. The students did not used the computer facility, they went to computer rentals instead.

Academic Staff

HEDS project had given substantial contribution to the human resource development. The in-country scholarship had exhibited direct impact in teaching and research capabilities of the staff. New courses such as Control Engineering, had been developed after staff returned from graduate education.

Short term trainings had been very useful. However, opportunities were only available for a small number of participants. Short term expert had been helpful as well, notwithstanding their limited availability.

Collaboration with industry had been difficult to realize due to the policy of the university. Without strong commitment from the University Foundation to provide financial support to the Faculty, this situation could hamper its sustainability in the ever increasing competition among universities.

Assistance from HEDS project will still be needed in the future, not only to stimulate improvements of the institution but also to help the staff to keep up with development in science and technology.

Students

Assistance from HEDS project had been heard by some students, but no direct contact was experienced.

A computer lab was existing in the faculty, but presently the students could not utilize it due to obsolescence. For programming they had to find computers by themselves.

Unavailability or damage of essential lab equipment and scarcity of books and journals, had been hampering the completion of courses and final project work. It was the wish of the students that if HEDS project could be extended, these shortcoming should be given prior attention.

Comments from the DGHE Team

Assistance from HEDS project had been producing significant improvements in staff qualification which in turn enhanced the education and research activities in the Faculty of Engineering in general. The provision of core lab for Concrete Engineering had been helpful for teaching and research in that specific area at UHN. But HEDS project assistance to UHN was relatively small to fill the need of equipment of all labs to a minimum standard. On the other hands the University could not provide the needed counterpart funds to obtain substantial assistance from HEDS project. In this situation the Departments would remain weak and the chance to obtain competitive funding would be questionable.

3.5 UNIVERSITAS ISLAM SUMATERA UTARA (UISU)

Venue and Date : Faculty of Engineering, UISU , Medan – 8 April 2002

Agenda: (1) Meeting with Dean, Vice Dean for Academic Affairs, Heads of Departments, and students (2) Lab Survey

Participants of the meeting:

DGHE: Dr. Purnomo, Dr. Andi Isra Mahyuddin

UISU: Dean of Engineering Faculty, Vice Dean for Academic Affairs, Heads of Civil, Mechanical, Electrical, and Industrial Departments, academic staffs and students (*please see attendance list*).

Reported by: Dr. Andi Isra and Dr Poernomo.

Inputs received

Dean of Engineering Faculty

The HEDS project have contributed significantly to the development of the Faculty of Engineering, UISU. Most notable are the staff development through degree program, where 28 staffs participated in degree program to obtain master degrees from ITB. Unfortunately, 9 of the recipients for unknown reason did not return to UISU. The staff academic qualification improvement is 100 % supported by HEDS. Until now, no staffs have been sent for further study with support from other sources, the Foundation or other agencies. However, in the future the University plan to allocate development fund from *uang pembangunan* for research and staff development. The target is sending 5 staffs for Ph.D. annually. The returning staffs have brought changes resulting in higher GPA.

Civil Engineering Department

Although the staffs considered the project beneficial, they thought that the university did not support the project with complimentary activities. Therefore, the benefit realized was not optimal. There were instances where someone is sent to participate in a workshop on topics outside his area of expertise. Also, several staffs sent for further degrees are assigned to structural/administrative position (Vice Dean, Department Secretary, and other).

The experience at the host university provided the staffs with motivation to make improvement at their departments through more effective teaching and learning activities. However, student counselling did not work well due to the lack of separate rooms for each staff for the student to have private *audience* with the academic staff.

The staffs do not feel confidence to initiate contact to establish collaboration with industry. The Concrete and Soil Mechanics Laboratories are mainly utilized for undergraduate research. However, there is research fund obtained from HEDS through SDPF and Kopertis.

Mechanical Engineering Department

A core laboratory: the Foundry Laboratory has been built at Mechanical Engineering department. The Staffs have used the laboratory but not the students. Although research activity existed (e.g. PRF from EEDP and industry sponsored activity), unfortunately no papers were published in scientific journals.

Trainings for foundry were conducted for employees of the foundry industry in and around Medan. It should be noted that there are about 186 foundries that were spread out around Medan. But, none of this industry is willing to support the research significantly. This may attributed to the fact that several key equipment, such as spectrometer is non-existent. Some of the items were not suitable for activities to support operation and maintenance.

Even though there is an improvement in teaching & learning process, the lack of staffs individual room for *private* consultation impedes the growth of a conducive academic atmosphere. Handouts provided by the staff were still limited in number.

Electrical Engineering Department

The Department has 15 academic staffs, 6 of them with master qualification. Many of the degree program recipients did not return.

The HEDS research funds (SDPF) granted are usually for topics related to Core Lab. It is then difficult for an academic staff in different field to win the competition for grant. The training and seminar topics are at times repetitious.

Industrial Engineering Department

The returning degree program participants initially have high motivation and willingness to perform and work hard. However, a lack of commitment from the institutional leadership (Department, Faculty and University) has discouraged them.

The staffs with Master qualification have yet to be fully utilized by the Department and Faculty.

Comments from DGHE Team

The Faculty of Engineering, UISU in the past was very dependent on HEDS project for its staff development. All master degree holders were supported through HEDS program.

Employments of part-time lecturers have resulted in low academic staff load (on the average, an academic staff is teaching only 3 credit hours). This inefficiency should be address by the institution. Especially, in light of that the revenue mainly comes from student tuition and fees plus the new students contribution (*uang pembangunan*).

The existence of so many foundries in and around Medan should be seen as an opportunity to develop foundry technology that are appropriate and applicable for those industries. Information on better technology and industrial management should be conveyed to encourage them to change and ready to face future challenges and compete. Ability to influence the industry would be very beneficial to the development and sustainability of the Foundry Laboratory and staffs activities.

3.6 UNIVERSITAS MEDAN AREA (UMA)

Venue and Date: UMA, Medan , 10 April 2002.

Agenda: (1) Meeting with Dean and ViceDean of Engineering Faculty. (2) Lab survey.

Participants of the meeting

DGHE : Dr. Tati Mengko and Dr. Soesianto

UMA : Dean of the Faculty, Associate Deans, Heads of Departments

Reported by : Dr. Soesianto

Inputs from the Faculty of Engineering

UMA Faculty of Engineering is one of the seven Faculties of a private university established in 1983. It has 5 study programs (CE, EE, ME, IE and Arch.) with student body of approximately 800 students, and has contributed some 2300 alumni into the job market. Presently it consists of 40 faculty members, 16 of which receive their S2 degree and 12 TSs participated in the non-degree program in Japan under the HEDS project. Also, 29 SPDF titles submitted by TSs were sponsored. In terms of the faculty size the HEDS obviously provides considerable input to UMA, which UMA leadership proudly acknowledge of.

UMA is also provided with a core lab on digital control, which is used as required lab practice for EE, ME and IE students. The core lab capability is being planned to support its cooperation activities with the Angkasapura and other local industry. Changes in the lab management are being introduced for efficient use of resources.

Some of the equipments which were received, however, could not be used to full advantage because of the shortage problem of electrical power supply. Some equipments, notably old PCs, are obsolete, and, upon approval, UMA would like to purge and swap them.

UMA indicates that that it could not participate in short course programs properly, not because of the usual short notice, but more importantly because it could not see the grand strategy behind them.

Comments from the DGHE Team

The direct impact of the HEDS Project to UMA could well be described by trying to answer the key question: what happen if UMA did not receive supports from the Project at all? The greatest impact of the Project could be derived from its participation in academic manpower development, thus introduces new perspectives and ideas to UMA, so that it could, at least, become an important university for the local community. In this respect, continuity and sustainability of the Project input would very much depend on the University to manage their strategic resources to meet challenges of new era.

3.7 UNIVERSITAS SRIWIJAYA (UNSRI)

Venue and Date: Faculty of Engineering, UNSRI, Indralaya – 12 April 2002

Agenda: (1) Meeting with Dean, Vice Dean for Academic Affairs, Heads of Departments. (2) Lab Survey

Participants of the meeting:

DGHE: Dr. Purnomo, Dr. Andi Isra Mahyuddin

UNSRI: Dean of Engineering Faculty, Vice Dean for Academic Affairs, Heads of Civil, Mechanical, Electrical, Chemical, Mining, Architecture Departments and academic staff.

Reported by: Dr. Andi Isra and Dr. Purnomo

Inputs received

Dean of Engineering Faculty

The Faculty of Engineering consists of Civil, Mining, Mechanical, Electrical, Chemical, and Architectural Engineering Departments. The last was established recently. In general, the programs have benefited the Engineering Faculty of UNSRI. The human resource development through degree and non-degree programs provided by the HEDS-JICA, have increased the academic qualification as well as capabilities of the teaching staff. At present, more than 50 % of the staff hold master or doctorate degrees. The increased in the students average GPA and number of graduates as well as shortened study time may be attributed to better academic atmosphere resulted in better productivity and efficiency due to improved qualification of academic staff. Furthermore, activities such as SDPF, SRS, Workshop on TQM have been utilized by the academic staff to enhance their skills and experience. Introduction of Local Area Network (LAN) via Information and Communication Technology (ICT) enable a better communication, even though at the moment the network is limited to *Dekanat* and Departments, not yet University wide.

Beyond HEDS-JICA, the Faculty of Engineering puts emphasis on continuous quality improvement through self-evaluation, collaboration with external stakeholders to improve the relevance of its academic programs. In addition, the creation of HEDS Forum should provide an avenue to discuss many educational and quality issues. The Dean also suggested that the HEDS-JICA type future support program should accommodate a more bottom-up approach in designing their activities.

Head of Civil Engineering Dept

The Short Term Expert (STE) arrived in 1998 brought information on graduate (doctoral) programs at Japan Universities. Several pair researches, in the areas of Soil Mechanics and Transportation have been carried out. However, the Core Laboratory utilization is limited to local staff only. No staffs from other target universities conducted research at the Core Laboratory.

While the degree program have provided tremendous improvement in academic staff qualification, proposal to conduct HEDS supported programs in *Structure* have yet to be responded. There is a feeling that the HEDS-JICA project concentrates only in certain areas, e.g. Transportation and Soil Mechanics, but not in other areas such as remote sensing and structure.

Head of Mechanical Engineering Department

The Japanese experts tend to focus only in the development of specific fields that corresponded to their expertise. However the head of the department commented that the project has successfully brought the engineering faculty to a higher level. The staffs are satisfied with the equipments provided by HEDS project.

The degree program from HEDS mostly cover only Master level, several staffs pursued doctoral degrees with the support from ADB. For non-degree program, the benefit was questioned, due to an occurrence where a non-degree program participant is assigned to a Laboratory in a different Department. They were placed in the activity that is totally different from their expertise, so the program did not give much benefit.

The equipments provided for the Metallurgy Lab, while relevant to the needs at the moment, is deemed inadequate for providing good service to industry. The development of research laboratory have led to the establishment of the Numerical Analysis Center.

Head of Electrical Engineering Department

The HEDS project has contributed significantly to the improvement of academic staff qualification and departmental development. But, so far the ideas about the relevance of the HEDS Project, the academic atmosphere and the sustainability have yet to be understood by the academic staff in general.

The department has a core laboratory: the Digital Control Laboratory. At present, it is difficult to operate the equipment due to the lack of understanding of Japanese language (the manual is written in Japanese) coupled with the fact that the staff trained to operate has already quit the job. Hence, the utilization is limited to undergraduate final projects. The High Voltage laboratory equipments were obtained through HEDS and ADB projects.

Head of Mining Engineering Department

Several staffs of Mining Engineering have received research support (SDPF category C and B). Without the HEDS project the progress in research development would be very slow. There is a hope that in the future the research topics should be related to the regional needs and potential, such as research in coal beneficiation and CPO processing.

HEDS program have impact as quality improvement accelerator for involved individuals. However, there is a need for synergy within the Faculty to obtain optimal results.

Head of Chemical Engineering Department

The fellowship and laboratory development were very useful to the department, but the staffs felt that the progress was much slower than what they expected. The institutional benefit was still low. The staffs were those who received much benefit.

The Department received support for waste-water treatment laboratory. The area is deemed less relevance to the needs of UNSRI and the surrounding area. The shift to a more bottom-up approach in formulating future activities is suggested.

Problems encountered in operating the equipment, among others is the electrical power supply. In addition, several equipments do not meet the specified requirements and incomplete. The technician (STE) sent was not able to solve the problems.

Comments from DGHE team

From input received, it may be concluded that in general the HEDS project have significant impact on the Faculty of Engineering. The HEDS programs have played major role in the improvement in relevance, academic atmosphere as well as sustainability. However, the Faculty seems to have problem in creating a conducive academic atmosphere due to the distant location of its campus, i.e. 37 km from Palembang.

The Faculty of Engineering should devise a policy to optimally utilize the better qualified and more skilled academic staffs. A strong leadership and institutional commitment is needed in order to create a healthy working environment for staffs and students alike.

Idea to develop program via a bottom-up approach has merit and should be considered for future programs. Also, the visiting Japanese expert should be mreo considerate on the needs of the University.

3.8 UNIVERSITAS ANDALAS (UNAND)

Venue and date : UNAND Padang, 11-12 April 2002

Agenda: (1) Meeting with Dean, Vice Dean and former Dean of Engineering Faculty, Head of CE, EE, IE, Env.E Dept., and Academic staff. (2) Lab Survey.

DGHE Team : Dr. Sularso, Dr. Soesianto, Dr. Tati Mengko

Reported by: Dr. Tati Mengko.

Input from the participants of the meeting

Dean of Engineering Faculty

The new campus, 35 km from Padang considered as an ideal place to study. More than 30 University busses use mostly as a students transportation, soon they plan to increase this number to improve the transport services to campus.

The faculty of Engineering consists of several Departments as Mechanical Engineering and Civil Engineering (85, formally in 93), later established Electrical Engineering (96), Industrial and Environment Engineering (97). With the grant from HEDS (and others as ADB, EEDP, etc), they start to improve their capabilities, as Human Resources, buildings, labs, curriculum and programs. Most of staff with S2 qualifications came from HEDS degree program and a number of them has earned their Doctoral Degree program mostly from abroad. With their capacity and strong leadership, the faculty may goes to the right direction, broader their networks, collaborate with other institution as well as industry to sustain their program. 'Semen Padang' is one of their counterpart to develop research activities. They focus their future program to have an ICT system in campus to introduce an open system for faculty administration and finance, better communication between faculty members, give more access to the students.

The existence of core lab as well as another labs, especially in Mechanical Engineering has been very helpful to gain opportunity in the future. But at the moment a small problem occur concerning the CNC machine at core lab.(still placed at the old campus in Padang city). Hopefully it will solved soon with the financial help partially from the local government. Another problem to be solved from Civil Eng. is to completed geoscience labs. It should be proposed in the next term aids. The faculty is also plan to establish a graduate program via GRASE project.

Comments from DGHE Team

From two days site visit, discussing with academic staff and visiting labs, it maybe concluded that HEDS project had been giving significant impact to the Engineering Faculty and Departments in UNAND. With a strong leadership and direction, they can play a significant role to develop the capability of West Sumatra region, the local government as well as the industries. The most important things to point out is the policy from top management (Rector) to establish regulations due to advance program in the faculty.

3.9 UNIVERSITAS LAMPUNG (UNILA)

Venue and Date: Faculty of Engineering, UNILA – 25 April 2002.

Agenda: Meeting with Vice Dean of Academic Affairs and academic staffs & Lab survey - visit to Core Laboratory.

Participants of the meeting

DGHE : Dr. Purnomo, Dr. Andi Isra Mahyuddin

UNILA: Vice Dean for Academic Affairs, Heads of Civil, Mechanical, and academic staff.

Reported by: Dr. Andi Isra and Dr. Purnomo.

Inputs received

Vice Dean for Academic Affairs

The Faculty of Engineering, UNILA as a target of the HEDS-JICA project have benefit greatly from programs such as degree & non-degree training, development of core laboratory, SDPF, Pair Research and others. In addition, participants of workshop conducted within HEDS-JICA activities have actively involve in local seminar to develop courses and department. Most of the departments within the Faculty are very young (Mechanical and Electrical in 1998 and Chemical in 1999). Hence, most of the HEDS-JICA activities have been primarily for the development of Civil Engineering Department. In total, the HEDS contribution was only 10 % of the total support received by the Faculty for degree program. The majority of the support were provided by the Engineering Education Development Project (EEDP) – DGHE, 70 % and DUE project accounts for the remaining 20 %. The experience in running the DUE and EEDP programs have prepared the Faculty to better utilize the HEDS Project. The laboratory development proposals were made by the staffs, therefore the development match the need of the laboratories. It seems that the HEDS run smoothly at UNILA, but its impact is very difficult to be separated from those of the DUE and EEDP. Nevertheless, the sentiment is that these support programs have positively complemented each other. The improved staff qualification is also deemed to contribute to the success of the Engineering Faculty in obtaining competitive grants provided by DGHE such as TPSDP that, among others, support laboratory and staff development.

In general, the programs supported by HEDS-JICA were relevance to the needs of the Engineering Faculty development as well as its stakeholders. In addition, the Dean realized the needs for sustainability and instructed the laboratories to find ways to generate revenues to compensate operating and maintenance (O&M) cost. Highway, Concrete, Soil Mechanics Laboratories at Civil Engineering and Production Laboratory at Mechanical Engineering are among Laboratories that are currently able to conduct *revenue generating activities* better than others.

As a result of interactions with the HEDS Short-Term Experts (STEs), the Faculty of Engineering now have a U to U collaboration with Toyohashi University of Technology (TUT) in the field of Chemical, Mechanical and Electrical Engineering.

Civil Engineering Department

The Highway (Jalan Raya) core laboratory at Civil Engineering Department has been actively utilized for student practice, services to industries and local government institutions. The staffs do not have any complaint regarding the equipments, the manuals and the invited technicians (STE). Furthermore, since it has equipments that are rarely found in Indonesia, several Master students from Institut Teknologi Bandung have performed their research at this core lab. However, the staffs from other HEDS-JICA target universities have yet to conduct their research at the laboratory. Activities performed at the Lab. Include Pair Research that involve students as well as for research grant obtained from DGHE (DUE, Young Academics, etc.). The existence of the Lab and its equipment have promoted the Highway to students and in the last several years have become the favourite facility to conduct undergraduate research.

Mechanical Engineering

At present, most of the academic staffs have at least or currently are pursuing master degrees. Better teaching & learning process are attributed to improvement in academic qualifications. A change in the *attitude* of the staff toward teaching and learning process is also noted. This may be due to the exposure of the staffs to systems at other higher education institutions where they obtained their degrees or had their non-degree training.

The staffs now are better equipped in planning and designing courses as well as implementing them. However, it should be noted that the staff development is also supported by other DGHE project, e.g. EEDP for Mechanical

and Electrical. For instance, in the case of Mechanical Engineering (ME) Department, of 32 staffs 70 % obtained their master degrees through support from EEDP and 20 % were supported by DUE.

The Department, being very young, do not directly receive equipment and laboratory facility from HEDS project, but have benefited greatly from other programs, such as curriculum development program supported by both HEDS and EEDP.

Electrical Engineering Department

The Electrical Engineering Department, also did not receive many support from HEDS since it was established in 1998. However, as with ME Department, the majority of the support comes from EEDP, and it has received support from HEDS in Curriculum Development and individual participation of staff in SDPF.

The EE staff also involve in developing ICT infrastructure for the University. The current Dean have played important role in establishing UNILA Net

Chemical Engineering Department

The youngest Department within the Faculty received equipment for undergraduate student practice. Other program, is the request for the Short Term Expert was granted and the Department was also included in the Curriculum development activities along with EE and ME Departments.

Comments from DGHE Team

From above observations, it may be concluded that in general the HEDS project have significant impact on the Faculty of Engineering. While it would be very hard to pinpoint which part is HEDS project contribution, the HEDS programs have played major role in the improvement in relevance, academic atmosphere as well as sustainability. The staffs feel that the overall responses from the HEDS project were very good.

The HEDS project programs have been relevance to the needs of the Faculty of Engineering. Human resource and facilities developments obtained via other projects were deemed as contributing factors. Hence, the Faculty is more ready to receive the HEDS project support and able to formulate their needs and subsequent proposal.

Improvement in teaching and learning process and involvement of students in staffs research projects have greatly enhance the academic atmosphere. Computational and communication facilities such as Student Service Center also played positive roles in encouraging student to have a better learning habit. The initiative to promote the existing facilities and expertise outside the University provides an avenue to develop linkages that would ensure the sustainability of programs developed.

Final remarks:

- The visiting DGHE team did not meet as many academic staffs due to a *breakdown* in communication. For unknown reason (maybe due to the absence of reminder from HEDS-PMU?), the site visit was not scheduled in the Faculty of Engineering activities. Hence, the team only spent several hours at UNILA. In addition, the Dean – who may have provided more insight into HEDS project and its impact on the Faculty - was absence due to health reasons.
- The limited interaction may have contributed to a somewhat biased input received, i.e. the visiting team only heard the good and benefits of the HEDS project.

3.10 UNIVERSITAS LAMBUNG MANGKURAT (UNLAM)

Venue and Date: Faculty of Engineering UNLAM, Banjar Baru, 25 April 2002.

Agenda: (1) Meeting with Dean and Vice Dean of Engineering Faculty, Head of CE Dept. and staff. (2) Lab. Survey.

Participants of the meeting
DGHE : Dr. Sularso, Dr. Tati Mengko and Dr. Soesianto
UNLAM : Dean of Engineering, Heads of CE and Arch.

Reported by: Dr. Soesianto.

Inputs from the Faculty of Engineering

The UNLAM Faculty of Engineering consists of 67 TSs (57 in CE), serving some 1700 students. As of the end of April 2002, 37 TSs have S2 degree, from which 37 TSs are ITB graduates under HEDS Project. This represents a substantial HEDS Project contribution to the Faculty to enhance the capacity and quality of education at UNLAM. Improvement in the teaching and learning process is observed. There is also remarkable tendency now that TS prefers to spend time and energy to work in campus teaching in the extension or diploma program, rather than doing private consultation outside the campus. Although the real impact of the HEDS project to the Faculty performance remains to be seen in the future, the indications are already there.

The Engineering Faculty is looking for the opportunity to send its staff to do S3 abroad. The arrival of the DGHE approval for the opening of S2 program in CE at UNLAM is regarded in a new challenge to make a break-through. The relation with local institution and government is to be made stronger. Compared to the University of Palangkaraya, UNLAM obviously should be in a better position.

The UNLAM Engineering curriculum concentrates on engineering structures on wetland environment. The choice of Soil Mechanics as the core lab is well made in order to really support the Faculty activities. However in order to facilitate spin-off the core lab still requires triaxial testing equipment. With the termination of the HEDS project the Faculty expresses its pessimism on the prospect of getting new equipments with electronic measuring and calibration capability, – something which is very much needed in order to be able to offer real competitive services to the community.

Comments from the DGHE Team

The DGHE Team notes that the real impact of the HEDS project is that UNLAM realizes the existence of new challenges facing UNLAM Engineering today to become a highly accredited institution. Changes and reorganisation is very much needed here and there, but more importantly it should be done with a clear vision and leadership. The two labs which function similarly should be integrated into one unit. Two items which require particular attention and support are computing facility to improve on education and research quality, and the establishment of (at least) D3 program in electrical and mechanical engineering so that maintenance of equipment capability could be developed in the region.

3.11 UNIVERSITAS TANJUNGPURA (UNTAN)

Venue and Date: Faculty of Engineering, UNTAN, Pontianak – 23 April 2002

Agenda: (1) Meeting with Dean, Vice Dean for Academic Affairs, Vice Dean for Student Affairs, Heads of Departments, and academic staff. (2) Lab Survey

Participants of the meeting:

DGHE: Dr. Purnomo, Dr. Andi Isra Mahyuddin

UNTAN: Dean of Engineering Faculty, Vice Dean for Academic Affairs, Vice Dean for Student Affairs, Heads of Departments, and academic staffs and students (*please see attendance list*).

Reported by : Dr. Andi Isra and Purnomo.

Inputs received

Dean of Engineering Faculty

The impact of HEDS project is similar to that of other target universities. The programs are deemed relevant since they improved academic staff qualification and empower staff and laboratory. The capability of the staffs in teaching and research is improved appreciably. Their teaching method is getting better due to good experiences

they acquired during the training or study abroad. However, the improvement of the academic atmosphere is still slow and unsatisfactory. This may be attributed to unresponsive management system.

The participations of Heads of Laboratories in non-degree program have helped the management of laboratory and improved scheduling of laboratory activities.

The role of the core laboratory as a common facility is inadequate. The laboratory that was designed to be used by all target universities has not been used efficiently. So far, the users of the laboratory are the staffs of the host university only. Utilization of the core laboratory by UNTAN staffs is quite high. Time and fund are probably the main reason why the mechanism does not work as planned.

Civil Engineering Department

HEDS has activated research in this department. The staffs received research grant through the SDPF. The project is considered successful in developing the personal capabilities, but not in improving the institution. The teaching and learning process have improved and a monitoring and evaluation system is enforced. Several staff provide teaching material (handout and course notes). As a result of staff improved qualification, the Department is currently awaiting results of site visit evaluation of TPSDP grant. This potential grant would be very useful in improving the quality of the Department and its graduates.

Several training and seminar programs were considered unsatisfactory because the training materials did not meet the need of the department. The department also found that the pair research was not managed properly. Several staffs feel that analytical researches not directly involving core laboratory were not funded through SDPF. This provide barrier for development. Also, since the fund for SDPF category C is limited, it is very hard to conduct good research with results worthy of publication.

Effort to develop collaboration with local government and agencies have been initiated through formation of a working group.

Electrical Engineering Department

The department received a digital control laboratory consisting of: the electrical parts and the mechanical parts. Since the department does not have any staff that has expertise in mechanical control, the equipments do not fully utilized. The laboratory is also used for student practice.

The High-Voltage Laboratory managed to complement the equipments provided by the HEDS project with measurement system funded from other source.

One of the staffs is responsible for ICT. The hardware provided by HEDS in 2000 (4 computers, 1 server, LAN & Hub) have been used for training and rented for Internet connection.

Comments from DGHE Team

Many staffs *interviewed* (including even the Dean) did not seem to really know the HEDS project activities. They always refer to previous Dean and mentioned that she was the one in charge of the programs. Unfortunately, the DGHE team did not have the opportunity to meet her. In addition, several heads of laboratories are no longer with UNTAN and moved elsewhere. Heads of Department also do not know in detail the HEDS activity, and therefore not quite able to comment and provide accurate input to the team.

Individually the academic staff of UNTAN seems to be capable and have the expertise in their respective fields. However, there is a noted lack of synergy between them. Given a good leadership, management and governance that enable them to work as a team, the Faculty have the potential to grow and prosper. Ability to work together also would create a conducive academic atmosphere and improved the quality of academic activities.

5. PDMe

PDMe

Project: Higher Education Development Support Project, Indonesia

Location: Sumatra, Kalimantan Islands

Target Group: Teaching Staff in 11 Target Universities

Duration: 1.1.2004 - 31.7.2007

Author: JICA Evaluation Team

Date: 31 April 2007

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumption
<p>Overall Goal The graduates of IITUs fulfill the manpower demand in the development of engineering industries in Sumatra and Kalimantan Islands</p>	<p>Working ability and attitude of the graduates employed in the engineering companies are favorably reviewed</p>	<p>Report of Interviews to companies (sampling survey in Medan & Jakarta)</p>	<p>Government policy to improve engineering education at universities is maintained</p>
<p>Project purpose The quality of teaching staff employed in engineering education at the target universities is improved</p>	<p>1 The way of teaching, contents of lectures and communication of IITUs teaching staff toward students are improved 2 The percentage of degree holder of teaching staff in IITUs surpluses 50%, which is the target of Indonesian Government</p>	<p>Report of interviews to deans, teaching staff and students HEDS/JICA Project report</p>	<p>1 Education in Indonesia is steady 2 The job placement centers in IITUs provide the students with services such as career guidance and consultation (UNAFI) support 3 The graduates of IITUs were employed in Sumatra or Kalimantan</p>
<p>Changes 1 The expertise of teaching staff is enhanced 2 Core laboratories are well utilized for research and students' practice 3 Researches are actively conducted 4 University administration is improved 5 Textbooks etc. in Indonesian language are developed 6 Domestic and international networks of research among teaching staff are established 7 Information of the project activities is disseminated to the TU, etc. 8 Infrastructure for self-sustainability is well developed and implementation body is established</p>	<p>1-1 Total number and % of higher degree holders in a TU 1-2 Total number of participants in training in Japan program 1-3 Total number of short-term seminars held and participants 1-4 Total number of staff who receives MHE Scholarship 2-1 Core Lab (CL) is facilitated and operated in all TUs 2-2 Number of users (teaching staff) of CL 2-3 Hours of usage of CL for students' practice 3-1 Number of SDPF research conducted 3-2 Number of participants of SDPF research seminars 3-3 Number of Post Research Teaching Staff Program 3-4 Number of Research Collaborations 4-1 Utilized software for administration are well utilized 4-2 Internet was introduced and well utilized 4-3 Number of meetings/seminars held for improvement of administration/management 5-1 Number of textbooks etc. translated into Indonesian 5-2 Number of textbooks etc. developed by teaching staff in TU 6-1 Number of IAC meeting held 6-2 Number of participants in south-east Asia regional seminars 6-3 Number of countries participated in south-east Asia regional seminars 6-4 Number of collaborative research with universities outside of Indonesia, private companies etc. 6-5 Number of technical exchange with non-TU institutions 6-6 Alumni meetings are periodically held 7-1 Newsletters and other publications are issued as planned 8-1 Number of self-evaluation report and education plan 8-2 Number of income generation activity program</p>	<p>Reports of Questionnaire survey and interviews to TU Report of interviews to TU Report of interviews to TU HEDS/JICA Project report Reports of Questionnaire survey and interviews to TU Report of interviews to TU Report of interviews to TU HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report HEDS/JICA Project report</p>	<p>1 The quality of teaching staff in basic science at IITUs is improved 2 Teaching staff who received training stay at IITUs 3 The salary gap between private sector and universities does not get wider 4 Indonesian government supports the research activities in universities</p>
<p>Activities 1 The expertise of teaching staff is enhanced 1-1 Degree program 1-2 Explain and introduce the program at TU 2) Proceed the entrance of teaching staff to host university 3) Provide scholarship for the teaching staff 4) Monitor the progress of the teaching staff 1-2 Non Degree (short-term) program 1) Plan the program 2) Select the participants 3) Conduct the seminar 4) Monitor the results of the seminars 2 Core laboratories are well utilized for research and students' practice 1) Facilitate research equipment 2) Train core laboratory staff 3) Operate the core laboratories 4) Maintain the core laboratories 3 Researches are actively conducted 1) Prepare budget and procedures for SDPF 2) Select research proposals and discuss the fund 3) Monitor research activities 4) Present research results in SDPF seminars 4 University administration is improved 1) Develop software appropriate to university administration 2) Organize seminars regarding software utilization 3) Organize meetings and seminars for managers and administrative personnel 4) Introduce internet 5) Organize use visa issue 5 The textbooks are prepared in Indonesian 1) Select the textbooks to be translated 2) Translate the textbooks 3) Print the textbooks 4) Distribute the textbooks 6 Domestic and international networks of research among teaching staff are established 1) Hold Medan Academic Committee meetings 2) Organize HEDS Alumni 3) Organize south east Asia regional seminars 4) Invite researchers from outside Indonesia and exchange the results of research 5) Conduct collaborative research with universities outside Indonesia 7 Information of the project activities is disseminated to the public 1) Issue HEDS news letters etc. 2) Distribute the news letters etc. 8 Development of infrastructure for self-sustainability and establishment of implementation body 1) Operation of Job Placement Center 2) Establishment of SHE & IHE Network 3) Establishment of IC-STAR 4) Establishment of environment network 5) Implementation of Total Quality Management Activities 6) Establishment of self-evaluation program 7) Establishment of income generation activity program</p>	<p>INPUT [Japan] Long term experts Chief advisor Project Coordinator Engineering Education Short Term Experts Training in Japan program Equipment Equipment for Core Laboratories Equipment for other research Computer for administration Vehicles Others Local Cost</p>	<p>[Indonesia] Personnel Executive Director Program coordinator Administrative officer Secretary Facilities Project Office Branch Office Training Facilities Local cost Project operational and management cost</p>	<p>Pre-Conditions 1 Proper amount of scholarship per person is to be provided for degree program 2 IITUs have enough number of candidates who are qualified for the degree 3 The Japanese supporting committee backs up the training in Japan program</p>