Sida Evaluation 96/12

Cooperative Environment Programme

Asian Institute of Technology – Sida 1993–1996

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Department for Democracy
and Social Development

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1993 - 1996

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Sida Evaluation 96/12
Department forDemocracy
and Social Development

Bangkok and Stockholm in May 1996

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Sida Evaluation 96/12
Commissioned by Sida, Department for Democracy and Social Development,

Printed in Stockholm, Sweden
ISBN 91-586-7363-6
ISSN 1401-0402

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EXECUTIVE SUMMARY

Asian Institute of Technology, AIT in Bangkok is an international, technical university that offers postgraduate technical education courses, on Masters and Doctors levels, to students from all over the world. Right now there are students from about 80 countries at AIT, but the majority come from South East Asia. The Institute has a strong international profile with a faculty from about forty countries. AIT is reputed for the high standard of its academic education programmes.

Swedish cooperation with AIT started in 1988 as a scholarship and English training programme, aimed at raising the knowledge of English and modern technical concepts in Vietnam and Laos. Over the years the Swedish cooperation with AIT has expanded and new areas for a long-term competence development have been added.

The present Sida-AIT programme covers such different sectors as "environment", "energy", "aquaculture" and "human resources' development" through an expanded scholarship programme. During an earlier phase, 1991-1993, AIT's environment laboratories were upgraded at a cost of 6 MSEK and an upgrading of its environment education programmes (EP) was initiated. The current agreement on a second phase of the programme started in 1993 and will end 30 June 1996. The specific objective with the Swedish support to EP is to further strengthen AIT's capacity to offer high quality environment education at postgraduate levels to students from Asia. Under the present agreement the EP consists of the following components: *faculty secondments, laboratory maintenance and training, scholarships earmarked for environment education, combined with minor research grants, and general capacity building.*

To prepare for a decision on a possible continued Swedish support for the environment component Sida appointed the Swedish consultant UCS to make an evaluation of the results of the second phase of AIT's Environment Engineering Programme, (EP). UCS consultants, Thomas Malmquist, Environment Education Specialist, and Börje Wallberg, Competence Development and Capacity Building Specialist. The Team made their evaluation in May 1996.

The Report

The budget for the EP during the second phase has amounted to about 22 MSEK. This accounts for about 40% of Swedish support to AIT. The largest part of the funds, 37%, has gone to scholarships and 25% to two seconded faculties. 12% has been spent on maintenance and upgrading of laboratories, incl. a locally employed Research Assistant.

The Team finds this distribution of costs normal for a development project of this kind. The weakest part is the lack of connection with higher, Doctors studies and the low budget for research, only 2%. Besides this small research budget there are three major projects, on sewage water at Bai Bang Pulp and Paper Mill in Vietnam, coastal contamination in Thailand and toxic waste, which have taken some 15% of the budget. These projects will finish in 1996. A minor contribution, 2%, has been given to an "AIT Awareness Programme" to support the Institute's transformation into a truly environment-oriented organisation.

The evaluation gives that, although at the time of the second agreement there were no Environment and Environment Education policies at Sida, *the Swedish support to EP falls well in lines with the policies that have now been established by Sida. In fact, the Team considers, that all projects presently supported by Sida, fit well into the present policies.*

The report claims that already during the first phase of the programme, one overriding goal, to bring water, air and soil pollution education programmes closer to each other, was never reached

because of the premature departure of one Swedish, seconded faculty. This created a two-year gap in the programme and when a new faculty was recruited, her field of study had been included in another programme, although still under the same School as EP, School of Environment and Resources Development (SERD). SERD was set up in 1993 as one of four Schools in a reorganisation of AIT to improve its educational profile and to give more emphasis to environment issues in its education programmes. *Thus, the present evaluation is more limited in its scope than the original objectives were, when the first phase of EP was started.*

The evaluation of the EP is otherwise *generally very positive:*

The objectives of the programme were, according to the evaluation realistic at the time of agreement. SIDA and AIT's management however, both underestimated the complexity of bringing the Institute's different departments together, working horizontally with a new concept as complex as "environment".

The laboratories and the environment education courses have been upgraded. The Environment Programme is now an attractive programme, the second largest at AIT as for entrance applications, 300 on 60 vacant places per year to be compared with the biggest, School of Management, with 500 applications. The total number of students on Swedish-funded scholarships who have chosen environment-related subjects during this phase is fiftyseven. The seconded faculties have made a good job in this upgrading work. Other agencies are now financing scholarships for the EP. Among the students the Team met some faculties from Thai universities who were studying at AIT to upgrade their academic environment engineering competence. Professional staff at the Mekong River Commission also confirmed, that AIT had been identified as a "centre of excellence" for environment education.

The Environment Awareness programme is a success in a small scale. The results of the programme can be seen all over the AIT campus.

AIT's management claims that Sida has contributed in a decisive way to develop AIT to become "centre of excellence" for environment education. In a few years AIT could build a high capacity to educate "environment engineers" for the fast developing countries in South East Asia. The Team agrees to this statement. The development of AIT's Environment Engineering programmes is unique in many ways and of great strategic importance for the region. The Team finally considers the EP to be both *a cost-efficient and a cost-effective programme.*

2. Main Weaknesses of the EP - and lessons learnt

According to the evaluation, the main weaknesses of the EP can be found on a more strategic level on both sides:

-Institutional/organisational weaknesses within AIT have made it difficult to break new paths and build new modes of cooperation.

-Sida had for many reasons not been an active partner in the mutual undertaking to develop the EP. There had been at least eight Sida Programme Officers in five years. Internal Sida discussions have been going on whether EP could be finished at the end of this agreement. At the same time another Sida Department, SAREC, has entered a cooperation with AIT, supporting an environment research programme with the Institute as the focal point in the region. A consistent Sida approach is lacking.

-The absence of a holistic perspective on this academic education programme with interaction of Masters courses, research programmes and higher studies is already a hindering factor. The Team believes, that this will be even more an obstacle for the further development of the programme.

-The quality of education at AIT could still be improved:

- The Bridging Courses that were set up to introduce Lao and Vietnamese students to English and modern technology had been very successful, but were now considered insufficient for the students from Cambodia.
- Teaching techniques and the system of grading were criticised by the students and much discussed with the AIT management which did not fully agree. *The Team nevertheless believes that these issues need to be further looked into.*
- The management of research grants could be made more transparent.
- The management and maintenance of laboratories could be much improved, not the least to improve work safety.

Sustainability of the EP
On the sustainability of the EP the Team notes that *the EP funjctions well, it is still not totally sustainable*. AIT's financing of the different programmes through scholarships or students fees covers only about 70% of the total costs for the education. The remaining 30% must be found through other sources of financing, like the secondment of faculty and support to development costs like in the EP. For obvious reasons AIT management has been hesitant to raise its fees. A full coverage of all costs would raise the price per student from USD 23.000 to about USD 30.000 for the twenty months Masters Programme. *The Team finds this to be an interesting alternative but such a development can only be done with full consent with other major supporting agencies and companies.*

Recommendations
-Sida is recommended to prolong the present agreement for the EP up to 31 December 1996 not to cause any disruption. Sida could probably leave the Programme within one or two years, if necessary. The EP is so successful that AIT should not have any problem in finding another sponsor. Giving enough time for a take over by another donor agency will however be important. Looking at the EP from a strategic point of view, the Team nevertheless questions whether this is a good alternative.

-Sida's support to environment in South East Asia should be looked upon as ***one strategic programme.*** The present fragmented way of work, where different Sida Departments cooperate with different organisations within and around AIT is not efficient. Sida will need to coordinate not only its different internal departments' support programmes to AIT but also with Mekong River Commission, IUCN, UNEP and other organisations. A closer cooperation with Sida's bilateral programmes in the region should also be established. For improved coordination of all support to AIT's postgraduate environment education and research programmes Sida should consider placing them under one Department. SAREC has so far offered more of continuos dialogue and backstopping than Sida-DESO, or rather the former Education Division of the old SIDA.

-Sida should continue its support to the EP for another three years, up to the year 2000, but discuss and plan with AIT for a gradual withdrawal of its institutional support to the programme. Scholarships to environment education should continue after a possible withdrawal.

- Sida should establish a policy for all projects and programmes in the region with funds for Masters education programmes at AIT or other institutes as an integrated part of their internal training programmes. This would place funding where it best belongs, in the direct field work for competence development and capacity building.

-Sida could consider increased payments for AIT scholarships, but only after consultations and agreements with other major contributors to AIT education programmes.

-Sida should consider including financing of some research and studies on Doctoral level in a next phase of the programme. Sida supports a number of programmes in South East Asia, which could be in need of some AIT research support. Instead of using expensive European consultants it could be a new Sida policy to assess first whether the demanded skills are available in the region and at AIT. In this way consultancy support could become part of a broader competence development programme to build regional capacity.

-Sida should consider a cooperation (twinning) agreement with a Swedish university or Technical Institute that could promote more active cooperation, exchange of faculties and development of mutual research and education programmes. Swedish MFS students could become part of some of the Minor Research Projects proposed below.

-AIT could attempt more aggressively to secure other research work, e.g. from business, industry and from international organisations like Mekong River Commission, Asian Development Bank, ESCAP, UNEP, IUCN and bilateral donors than Sida.

-AIT and MRC should negotiate to enter a mutual research development programme. One component could be a Minor Research Programme (MRP), like the Sida MFS scholarships, to enable students from the riparian states to make research in subjects relevant for their future professional careers. Some of these research programmes could be financed by Sida but since the cooperation idea is sound, it could be expected, that other donors would be interested to join.

-AIT could still do more to improve its environment profile in all education programmes. The report proposes that the Institute's Management take the Agenda 21 document as a point of departure for a new activity, e. g. Agenda 21 Workshops, to look into every field of study about what can still be done in this respect. Sida could contribute to this work by presenting its new policies and action plans on Environment and Environment Education.

-AIT still has to lay more emphasis on the preparation of students from Cambodia and possibly also from Laos and Vietnam, although the Bridging Courses have been of great value for this purpose. A longer preparation in their home countries is recommended. AIT Management could work for better acceptance of the Academic Support Network (ASN) in all four Schools.

-AIT teaching techniques, tutoring and examination grades and evaluations of faculties' competence and capacity could still be much improved, according to the Sida-sponsored students. AIT could deal with this by setting up a joint student/faculty commission to study the present situation and come up with proposals for improvement.

Bangkok and Stockolm in May 1996

An Evaluation of

Sida-AIT COOPERATIVE ENVIRONMENT PROGRAMME
The Second Phase 1993 - 1996

A. BACKGROUND

The first cooperation between the then SIDA and Asian Institute of Technology (AIT) was established in 1988. At that time an agreement was made that SIDA was to finance five scholarships each for Vietnam and Laos for the Institute's technical education Masters' programmes.[1]) SIDA also agreed to second an English language trainer to work mainly with English training for the SIDA-funded programmes in Laos and Vietnam.

The rationale behind this new cooperation agreement was that for many years SIDA development cooperation programmes had been greatly hampered by difficulties in language and communication. AIT had long experience of teaching English to students from Asian countries. The Institute also offered advanced technical education of a kind that was missing the two cooperation countries. From the Swedish side it was expected, that through these two new programmes at AIT, communication and mutual understanding between Swedes and their counterparts would gradually improve. Over the years this Sida-AIT cooperation has developed considerably. In 1992 a feasibility study was made which became the basis for a more coherent cooperation programme between AIT and SIDA.

One component of this programme was the second phase of an upgrading of AIT's Environmental Engineering Programme. The second phase of this programme will end 30 June 1996. To prepare for a decision as for the future of the Swedish support to the Programme Sida appointed the Consultant, UCS, to evaluate it. The terms of reference for the evaluation appear under Appendix 1 to this report. UCS consultants, Börje Wallberg, Human Resources Development Specialist, and Thomas Malmquist, Environment Specialist from the non-government organisation Håll Sverige Rent (Keep Sweden Clean/Tidy) were selected.

The Team started its work in Sweden in mid-May by studying relevant documents and visited AIT, Swedish Embassy and the Mekong River Commission during the period 4-12 May. The evaluation was made through discussions with AIT management, faculty and professional staff and in an afternoon meeting with Sida-sponsored students that worked in small groups to define the areas where they would like to see some improvements. The environment laboratories were visited and discussions were held with the laboratory staff about the working environment and the viability of the equipment. The Team's work programme appears under Appendix 2.

In this respect the Team would like to express its sincere gratitude to all those who offered us their hospitality, patiently allowed us to ask all kinds of questions and managed to give us so much valuable information in such a short time.

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[1]) In this report we have chosen to use the English spelling of "programme" except for when describing the different "Schools" and "education programs" at AIT in chapter 2.

1. Environment Education Support - First Phase And The Transition To The Second

To give the reader a more coherent picture of the present Sida support to AIT's Environment Engineering Programme we have opted to give a brief description below of how the programme was established during its first phase and of the transition into the second. We find it rather complicated.

In 1989 AIT approached SIDA with a request for support to upgrade its environment laboratory. The laboratory had been established with support from the British aid organisation ODA around 1960. Since then little had been done to upgrade, neither the premises, nor the laboratory equipment. The premises were therefore unsuitable for their purpose, e. g. the laboratory ventilation system was insufficient and much important equipment, necessary for modern environment education, was missing.

SIDA employed a consultant to make a feasibility study of the request. In his study the consultant pointed out, that an upgrading of the laboratory facilities would further impart an upgrading of the education programmes, their curricula, syllabi and training materials, and indeed also of the faculty. The report also included a project proposal.

SIDA made an appraisal of the project proposal and accepted the broader ideas given. Environment issues were at that time becoming an increasingly big part of SIDA's agenda. AIT had a good reputation in the region for its advanced level of technical education. It was considered, that an environmentally stronger Institute could become a centre of excellence also in this respect. As such it could contribute to greater awareness and competence as regard these issues in the South East Asian region. An agreement with AIT was concluded informally in the end of 1990, but formally not until 1991. This agreement consisted largely of three parts:

-Funds for the upgrading of AIT Environment Laboratory;

-Technical assistance to Environmental Engineering and to the upgrading of training programmes within Environmental Engineering Division and the then Interdisciplinary Natural Resources Development and Management Programme (INRDM).

- An allocation of 1.3 MSEK for scholarships to ensure that the new education programmes would receive students from SIDA's programme countries. In difference with the first ten untied, general scholarships that were earmarked for students from Laos and Vietnam these new scholarships were open also for students from SIDA programme countries on the Indian sub-continent. With an AIT fee of about USD 23.000 per 20 months the budget was calculated to give about five scholarships for each programme, or a total of ten per year for the whole Cooperative Environment Programme (CEP) over the two years, 1993/94 and 1994/95.

An institutional consultant, CENTEK, the international branch of Luleå University, was employed to manage the programme. Operations started in May 1991 with the arrival of two experts, Dr Lars Reutergårdh and Dr Bengt-Erik Bengtsson. Dr Reutergårdh, an expert in chemistry, was assigned to work with the upgrading of the laboratory facilities and the Environment Engineering curricula. Dr Bengtsson, an eco-toxicologist, was to upgrade eco-toxicology subjects in the INRDM programme. The ultimate aim of the Swedish support was to establish strong links between the environment engineering and the national resources' management programmes to strengthen the environmental profile of AIT's education. Because of this planned linkage between the two fields of study the whole programme was called CEP, (Cooperative Environment Programme).

During this first phase of the programme the AIT environment laboratory was upgraded at a cost of 6 MSEK.

1.1. The transition to the second phase - a partially lost scope of development
Early, however, the Swedish support to INRDM met with some serious drawbacks. In August 1992, Dr Bengtsson had to leave his long-term position at AIT for family reasons and almost simultaneously an important Canadian support to this programme was gradually withdrawn. After this time Dr Bengtsson could only make some short-term assignments to the Institute. This created a vacancy in INRDM for almost two years.

Only in May 1994 a new faculty, a Thai toxicologist with US education was employed on SIDA-funds. Because of this long period of vacancy, the intended organisatory cooperation between the two fields of study had not been properly established. Since then her part of the INRDM Programme has been included as a field of study in the Space Technology Applications and Research Programme (STAR). On a personal basis the cooperation between the two Sida-funded faculties was said to function well, but the original intentions to link the two departments into a closer cooperation for a stronger environment profile of AIT remains to be fulfilled, although since 1993 they are both under the School Of Environment Resources And Development, (SERD, see chapter 2.2.)

In some interviews during our evaluation mission, the STAR Programme was given to be more focussed on technical education components, as e g the French supported Remote Sensing and GIS (geographical information systems). Others held a different opinion and claimed that due to the flexibility of the two programmes, students could select subjects from both fields of study. This can naturally be debated. Looking at the different courses offered within the STAR programme, the Team has nevertheless found, that there is at least as many environment-related fields of study in this programme as there are within the more technical, analytical Environment Engineering Programme. Still, we believe that more could have been done to establish closer links between the two subjects.

Thus, the Team thinks that already during the first phase, one of the original goals of the SIDA-AIT environment programme was not reached. The present Environment Programme (EP) is more restricted in its scope than were the original intentions in the first agreement between SIDA and AIT. This makes the Team's evaluation more limited and as the Terms of Reference for this Team give, focussed on the Environment Engineering Programme. This has however <u>not</u> simplified our evaluation.

For the Team this separation between different programmes has been somewhat confusing. We tend to look at the four elements, soil, water, air and fire as one entity. The Sida support to Environment Engineering is focussed on water and sanitation. Other subjects in this field of study are waste treatment and air pollution. Since the departure of a qualified faculty on air pollution this latter subject was said to have become less advanced and AIT is now looking for a possible new international secondment to improve the situation. As already stated above, "soil" is under the STAR Programme.

The Sida supported Aquaculture Programme, although it is in the same school, SERD, has little cooperation with the Environment Engineering Programme with some exceptions, e. g. a major project on "coastal contamination", that will be finished this year. In our interview with the Coordinator of the Aquaculture Programme he advocated, that the small scale ponds, which are built within this programme have no or very small environment effects and he saw little reason to establish any closer cooperation. We cannot comment on this, since we do not have any real insight into this programme.

The Sida supported Electric Power Systems Management Programme (EPSM) has so far had very little cooperation. The only area where a possible cooperation could be envisaged was said to be regarding emissions and air pollution.

Our conclusion of the above situation is, that the AIT education programmes on the four elements in environment education are still not sufficiently tied together in an ecosystem concept, although they are all under the SERD. Nor has the EP had any real "spillover" effect on other programmes.

We are aware of the fact, that the transformation of a technical, educational institution like AIT to a more environment-oriented Institute is a long process, but our many interviews have convinced us, that it is now time for AIT management to take new initiatives to ensure that the noticeable, positive work for development so far, will be continued.

The above described situation is also a strong indication of the necessity of long-term, well-conceived commitments regarding any donor support to institutional and educational development between the partners. Although in many respects, AIT has a leading position in the region, it has nevertheless a limited number of faculty and other resources. Therefore, to a large extent, the Institute is and will certainly also continue to be dependant of different kinds of external resources for its further development.

2. The Second Phase Of The SIDA-AIT Cooperation Programme (EP), 1993 To 1996

As stated above in chapter 1, in 1993 SIDA decided to enter a direct cooperation agreement with AIT in all areas, including the support Environment Education. Because of this direct agreement the CENTEK contract was ended. AIT took over the management of both SIDA funds and seconded personnel. A Development/Programme Officer for the SIDA support to AIT was employed and placed within the office of the Vice President for Development.

The original agreement for the years 1993/94 and 1994/95 amounted to 34 MSEK. The components of the second phase of the programme remained essentially the same as under the first phase, technical assistance, laboratory upgrading and competence development and scholarships, but the number of scholarships was increased to 15 per year. This agreement was later given a one year extension, to 30 June 1996 with an additional Swedish allocation of 17 MSEK. This means that the present agreement will finish 30 June 1996, unless Sida takes a decision to prolong the agreement with AIT!

The present agreement covers five projects:

1. *Environment Education Programme (EP),* managed by Sida-DESO

2. *Human Resources Development (HRD)* 5 scholarships each for Cambodia, Laos and Vietnam, managed by AIT.

3. *Language and Training for Indochina,* including the bridging training for students from Cambodia, Laos and Vietnam, managed by Sida-DESO

4. *AIT Aquaculture Outreach Project,* managed by Sida-Natural Resources Department

5. *Electric Power Systems Management (EPSM), managed by Sida-INEC*

2.1. AIT Academic Programmes during the second phase

In 1993, more or less just when the second phase of the EP was initiated, AIT was reorganised in four Schools. This meant great changes in its organisatory structures. The AIT Management's intention was to restructure the Institute's education programmes as well. The Team considers these changes of AIT structures and education programmes to be very important for the evaluation of the Swedish support to the Environment Programme.

AIT's Mission Statement, authorized by its Board of Trustees in January 1993, reads as follows:

"AIT will take a leadership role in the promotion of technological change and its management for sustainable development in the Asia and Pacific Region. Through high-level education, research and outreach activities which integrate technology, planning and management. The focus of the Institute's is in technology with special emphasis on the interdisciplinary interface among the above three fields, and will include attention to environmental and socio-economic considerations."

The Institute's regular, academic and professional education is offered, since 1 July 1993, by its four Schools through programmes, fields of study and/or areas:

-School of Environment, Resources and Development, SERD;
The larger part of the Swedish support to AIT goes to this School. Only some of the original, untied scholarships under the HRD Programme have been awarded to students in the other three schools.

-School of Advanced Technologies;

-School of Civil Engineering;

-School of Management;

Specialised and service activities are undertaken by the Institute's Academic Centers:

-Center for Language and Educational Technology, CLET, which offers English language training programmes and a special bridging programmes for students from Cambodia, Laos and Vietnam.

-Center for Library and Information Resources

-Regional Computer Center

2.2. School of Environment, Resources and Development (SERD)
SERD is the most complex School as to subjects taught and number of courses offered. The current fields of study within this school are:

Agricultural & Aquatic Systems Program
Agricultural Systems
Aquaculture*)
*) This programme is supported by Sida- Natural Resources Management Department.

Agriculture & Food Engineering Program
Agricultural Machinery & Management
Postharvest & Food Process Engineering

Bioprocess Technology Program

Energy Program
Electric Power System Management*)
Energy Planning and Policy
Energy Technology
*) This programme is supported by Sida-INEC.

Environmental Engineering Program)*

Environmental Technology & Management
Water & Waste Water Engineering

*)This is where the bulk of the Swedish support under EP, including Swedish secondment and other technical assistance, is to be found.

Human Settlements Development Program
Regional & Rural Development Planning
Urban Planning, Land & Housing Development

Joint AIT-Chulabhorn Research Institute Program in Environmental Toxicology)*

**) Indirectly the Sida Environment Programme has contributed to this cooperation and the Swedish Principal Investigator and the Eco-toxicologist are now actively participating in the establishment of a research cooperation programme on environment technology.*

Pulp & Paper Technology Program
Paper & Board Technology
Pulping Technology

Space Technology Applications & Research Program
Natural Resource Conservation*)
Remote Sensing & Geographic Information System

*) This is where is where the Sida-funded, Thai toxicologist is placed in the organisation.

Gender & Development Studies Center

Geographical Information System Applications Center

Habitech Center

Two other centres are presently in the process of being set up:

-Information Technology Center for Sustainable Human Settlements
-Urban Environmental Center

2.3. Times for study programmes, costs, number of students on Swedish scholarships
The AIT Masters' studies cover 20 months over five terms. Doctoral studies, which take nine terms, were not included in the 1993-95 agreement.

In support of students from Cambodia, Laos and Vietnam there is in the Sida scholarship programme a possibility of getting an introductory *Bridging Course* of four months with special training in English, computer science and technology. This preparatory training, managed by AIT's Center for Language and Educational Technology, uses as teachers/tutors Doctorate students who are paid an hourly fee for their work. Since the Bridging Courses were set up in 1994, about 80 students have been given preparatory training to enable them to start their regular Masters' education programmes.

Totally, since the first agreement in 1990, 44 students on full Swedish scholarships and one student on partial scholarship have taken their Masters exams. In addition one Vietnamese student under the Australian scholarship programme has received research funds from the Environmental Programme for the Doctoral Degree. Her research has dealt with "Environmental Impact Assessment of the Bai Bang Integrated Pulp and Paper Mill". It is consequently closely linked to an environmental rehabilitation process of the former Swedish aid industry project.

The Team considers that this kind of research is a very positive way of linking environment education and research with the reality of development cooperation programmes and we question why this has been so difficult to achieve over the years.

Over the three-year period of the present 1993-96 SIDA-AIT programme:

19 students with full Swedish scholarships and one student on partial scholarship have passed their Masters exams

35 are presently studying on their last year and

35 have started their studies in 1996.

2 students have failed in their studies. One Laotian, from the May 1989 intake was dismissed and one Cambodian for the January 1994 intake only completed 3 terms of his Masters studies.

Of the total number of students on Swedish scholarships, 57 students have chosen environment related academic programmes.

The cost for a 20 months Master's programme is 25.000 USD per student, or 1.250 USD (SEK 8.400) per month. This covers academic programs, board and lodging and some pocket money. In this amount is further included, an amount of USD 2.000 to be used for the students' minor research/thesis work, incl. travels to their respective home countries. SIDA is one of the major donors to provide such funds for this objective. Other major donors providing similar research funds for student research are ADB/Japan, Denmark/Danida, France, Keidaren, Swiss SDC, The Netherlands and Canada/Cida.[2])

3. The Environment Programme (EP), 1993-1996

The Agreement between Sida and AIT states that 17.5 MSEK has been allocated for the Environment Engineering Programme of the total 51 MSEK agreed upon for the whole Sida-AIT cooperation. The present financial reports which have been analysed by the Team, give that available resources are about 22 MSEK. In the absence of the Sida Programme Officer at AIT we were not able to establish the reason for this difference, but we believe that it is due to unused funds from the first phase.

Until 30 June 1995 13.27 MSEK has been spent within the Programme and another 8.78 MSEK has been budgeted for 1996. This is roughly 43% of the total Swedish support to AIT, which makes this programme the largest of the five programmes.

The distribution of the 22. MSEK Sida support to EP during the period 1993 to 1996, in this case mainly the Environment Engineering Programme and the soil-toxicologist within the STAR Programme are as follows:

37% or about 8,10 MSEK for 3x15 scholarships at USD 23.000 and bridging courses
20% or about 4.25 MSEK for secondment of the expert on environment expert

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[2])Even before SIDA started its scholarship's programme in 1989/90, CIDA as early as 1983, Keidaren ADB/Japan and Germany through GTZ have also provided research funds to the recipients of their scholarship grants. About the same time as SIDA, Swiss Development Cooperation, SDC, Danida and the Netherlands also provided scholarships with research funding. During 1992-1993 Germany has in addition to the above provided research grants also for Doctoral studies.

12% or about 2.70 MSEK for training and maintenance for lab (hire of lab. assistant, etc.)
8% or about 1.80 MSEK for Bai Bang and Costal Contamination research projects
7% or about 1.46 MSEK for a project on toxic waste
5% or about 1.20 MSEK for project on environment awareness, greening of AIT
5% or about 1.10 MSEK for the employment of the Thai Doctor of toxicology to STAR
2% or about 0.42 MSEK for Masters research grants
2% or about 0.38 MSEK for equipment replacement

The use of the Swedish funds to the Programme in different areas has been:

37% to scholarships,
37% to three technical assistance faculty and staff
14% for major research projects that will finish in 1996
5% for AIT internal environment awareness, greening
2% for Masters' research
2% for upgrading of laboratory facilities

The Team believes this is a rather normal distribution of costs in a budget for the development of an academic education programme. The budget is however weak on research.

A research component was an important part of the first phase and the CENTEK agreement and during this phase AIT professors went to Sweden to explore research cooperation possibilities. Then, in the programming before the second phase, the research component was taken out of the agreement by SIDA and in our interviews it was claimed, that it then took 2 years to get it back into the program again.

3.1. Sida-SAREC research program
At the same time as the Department for Education and Social Development has been somewhat restrictive regarding research it must be noted that Sida-SAREC has entered a three-year (1994/95-1996/97) Regional Energy-Environment-Climate Research Programme in Asia through AIT.

The SAREC programme covers (amounts yearly in KSEK):

- A Research Fellowships Programme	750
and four Research Programmes on	
-Energy Efficiency in Electricity Sector	700
-Environmentally Sound Industrial Technology	600
-Mitigation of POC Emissions	300
-Biomass as Energy and Mitigation of GHGs	650

Of this SAREC-funded research Environmental Engineering receives 2.14 MSEK for the three-year period. During the two-year period 1996-1997 (calendar-year 1996 and budget-year 1997) the SAREC-support is allocated like this (amounts yearly in KSEK):

- Solar photovoltaics	1400
- Solar drying	450
- Solar water heating	300
- Small-scale brick making	400
- Specialist courses, fellowships & workshops	600
- Unforeseen	200

The total of the SAREC-funded research support for this period will be 8 MSEK.

The Team has noted with some concern, that two Departments within the new Sida have quite different approaches in the cooperation with AIT. We are aware of the fact, that this is something which originates from the time when SIDA and SAREC were two separate authorities. Nevertheless, we believe, that the new Sida now must take fast action to coordinate the different activities in the same fields of environment studies and research. The present situation is not good for Sida's general image at AIT.

B. ANALYSIS

1. General Quality Of AIT Education

Already in 1992, when SIDA made the feasibility study on an AIT cooperation, interviews with foreign experts in the fields of environment gave, that AIT's academic reputation was excellent. Some few interviews during this mission with professional Thai and Swedish seconded management staff at Mekong River Commission confirms, that this general opinion on AIT's academic standard is still valid.

SAREC, now a Department within Sida has made the same assessment. In the 1994 project proposal for the SAREC research programme it is stated:

"To get to grips with the complex of problems there is a need for knowledge, competence and capacity within many subject areas which are not to be found in one place in the region. AIT has the necessary experience, legitimacy and importance to be accepted by the other institutions in the region as the Coordinator of the Programme." (Translated from the document in Swedish.)

Does AIT Environment Programme have any competitors in Thailand? The Team does not think so. Some students in the present EP are faculties from leading Thai universities, who are studying at AIT to improve their academic knowledge in environment-related areas. In our opinion this is a clear indication, that right now, AIT has a leading role within this field of study.

Still, the Team questions why no students from Taiwan, Japan or Korea and other countries were studying there. The reason for this may be that AIT has not done enough marketing for the programmes in those countries. Students are "floating in" anyway because of generous sponsoring by several development cooperation agencies. Eventually this could be negative. With such secure supply of aid-sponsored students AIT academic programmes could risk developing slower than in other academic institutions in the region.

The Team considers that, in spite of the above remark, there is still enough evidence that AIT remains as one of the most important "Centres of Excellence" in the South East Asian Region.

1.1. System of Grading

In some interviews it was claimed that the system for grading - the normal distribution curve - was used in AIT. The Team considers that this could hardly be an appropriate way for this kind of higher technical education. It does not encourage cooperation among the students, which should be of significant importance in this multinational institute.

During the debriefing with AIT Management, this matter was lively discussed. AIT's Management claimed that all gradings are "target related". Still, considering other interviews, we did not find a total clarity wether the system of grading at AIT is according to the principle of the "normal distribution" or if the grades are "target related". Some possible reasons for this could be weaknesses in the definition of objectives, or even poor quality of some tests. In our final discussions with AIT Management this possibility was mentioned.

It is obvious to the Team that this is an area which could still be improved. We believe this is very important to students from underprivileged countries. Also in this matter we think CLET could be part of the solution as an "internal consultant".

1.2. Quality assurance

"Quality assurance" is a worldwide trend. Within AIT there is an ongoing project, "Internal Academic Quality Audit", compiled by CLET. The Team finds this a very interesting and important project where AIT claims that it is now taking a worldwide leading position in this academic field. The next step would be to discuss the results of this project to the AIT faculty in a workshop. A second step could be that an internal audit team will be invited to assess the academic quality at AIT from a different perspective.

Without knowing the whole complexity of this matter, we are convinced that this is a key issue for AIT to remain as a "Center of Excellence" in the region. At this stage the AQA project may not be the major concern for Sida, but it is our conviction, that it could be very important for Sida in its efforts to monitor and evaluate the objectives of its many programmes for environment education.

1.3. Bridging Course - a great success - but not sufficient for all students

Another problem was related to the Cambodian students. The long period of isolation during the Khmer Rouge totalitarian rule, the destruction of the country's educational and technical infrastructures and the abolishment of English language training, has created a very difficult situation for the students. During the Team's visit to AIT discussions were going on, whether three Cambodian students should have to leave their studies because of their poor results. The Bridging Course had apparently not been sufficient to bring them up to a level, where they could take off in their studies. A decision was taken during the week to retain them and to give them more support in their studies. We were very satisfied with this decision.

The present situation is in many ways similar to what happened to the first Lao students at AIT only a few years ago. At that time they were the problem students and the Bridging Course was established to support them and some of the Vietnamese students who had limited knowledge of English and more modern technical notions. The Lao and even less, the Vietnamese problem is now acute. Instead the Cambodians need more support. CLET has started to build an Academic Support Network (ASN) to do this work, but so far it has not been fully set up everywhere within AIT.

The Team discussed the prevailing situation with a CLET faculty and was shown some convincing statistics which gave, that *students, with the Bridging Course are often still weak during the first terms of their Masters' studies, but usually perform quite satisfactorily during their later terms.*

The Cambodian and some other students will probably continue to need much more attention than would normally be given in a postgraduate education programme of this kind. AIT Management discussed whether a sixth, or even a seventh term could be introduced to help these students to pass their exams.

The Team believes, that there are many opportunities to improve this situation. The Bridging Course has apparently been a great success to help students to adapt to AIT education programmes. We believe, e.g. that for some students the bridging could be pursued even further, into the regular education programmes by continued tutoring by the doctoral students who have supported them in the Bridging Course.

We do not believe in a prolongation of the present education programmes, but more in a better selection and longer preparation in their respective home countries. AIT has now much

experience from Cambodia and establishing a cooperation with an education institution in this country to improve the situation should not be too difficult.

Another issue is related to how these students are looked upon by faculty and staff at AIT. Again we have heard some evidence, that students with weak language and communication skills have experienced some difficulties to adapt themselves to the academic environment - and to be accepted! It could be discussed within AIT how faculty and staff can best, in a more uniform way, work for their integration into the different programmes.

The Academic Support Network (ASN) which is managed by CLET could be further developed at AIT and implemented in the four Schools. We believe that CLET with its long and successful experience of working with these students could contribute considerably to such improvements.

2. Environmental Programme And Sida's New Environmental Policy

When the EP was formulated, there was no clear SIDA environmental policy. Therefore, we can only compare the original objectives of the education programme with the later established Sida Environment and Environment Education Policies.

2.1. Policy

The fifth objective for Swedish aid, established by the government in 1988, points out that it must contribute to a long-term, sustainable use of natural resources and a care for the environment. Environment and development shall be linked with each other following the Swedish support to the Rio-declaration, Agenda 21 and other international conventions for environment.

Sweden has committed itself to support a sustainable development of the world's natural resources. The official report "Sustainable Aid - the Swedish aid after UNCED" was adopted by the Government in Spring 1994. The report was delivered in November the same year and has been under consideration during the first half year of 1995.

The Sida "Action programme for a sustainable development" describes Sida's intentions to convert the report "Sustainable Aid" into practice.

2.2. Priorities

In the coming years the following topics should be given high priority;

-water resources,
-sustainable soil and forestry,
-marine environment,
-urban environmental issues and
-energy from an environmental point of view, both regarding consumption and production.

The methods to be emphasised by Sida are the development of institutions, their competence and capacity. NGOs are also given an important role in the development of a sustainable environment.

The Team finds that all projects in the present Sida- AIT programme, although to a different extent and with shifting points of departure are in line with these priorities. If a sustainable development in Sida's programme countries shall ever be reached, the training of national expertise in environment-related areas must be a priority.

The development of the Environment Programme at AIT is so far unique in the region. Therefore, it is an important focal point for the building of a resource base for environmental sustainability in Sida's programme-countries in South East Asia.

2.3. Sida's new Environmental Education Policy

From the new Environmental Education Policy an Environmental Education Policy was later worked out by Sida-DESO. This policy is quite new, adopted in late April 1996, and therefore, not yet known at AIT. The policy states, that support shall be given to "methodological-experimental- and pilot projects" which cannot be funded from the Sida country allocations. It further stresses the importance of *"formal basic educational support"*. Sida's objectives regarding *"higher education"* like EP at AIT appears only later in the document, as paragraph 5.4 under "Strategical importance contributions".

This is quite understandable, since DESO is mainly responsible for basic education programmes. Nevertheless, the Team finds that this may be a weakness in the Policy, that it does not connect basic and higher education into one conceptual framework. Experience from Sida's contributions to higher environment education, like EP at AIT, may in the end be an indispensable factor in developing an even more comprehensive and forward-looking environmental education policy.

The Team finds, that the present support to AIT Environment Education falls well within Sida's Action programme for Sustainable Development of January 1996. Objectives, principles, and priorities are in obvious accordance between the two. Yet, there are some aspects that should be pointed out, where the Sida-policy and the AIT-practice are not totally in line, like the

-establishment of a more coherent environment profile in all education programmes,

-setting up routines for environment-conscious purchasing

-a more active networking with regional and national NGOs to gain from their practical experience and to disseminate modern environment technology.

Although the EP falls mainly within the objectives of both Sida's Environment Action Programme and its Environmental Education Policy, it should also be a concern of the donor organisation to see them set up through workshops, seminars and so on at AIT Campus. So far this has not been done.

3. Were The Original Objectives Clear, Relevant And Realistic?

The original objectives are well documented earlier in this report. Under the current agreement, the EE consists of the following five components:

- scholarships and research grants (Masters' degree studies)
- faculty secondments
- laboratory maintenance and training
- environmental research
- capacity building

Each of these components has its own objectives, given in the project proposal of February 1995. It should however be noticed, that the importance given to the objectives has shifted over time - at least as for what has been the focus in the document. Initially, during the first phase, the refurbishment of the laboratories was in focus. Later the upgrading of the education

programmes was given more priority. Research was introduced and later taken out of the programme. Presently, the total capacity building regarding both faculty and laboratory staff has become more important.

The Team finds that in spite of the shifts in priorities observed the objectives have been clear, relevant and during the second phase of the programme developed in a reasonably realistic way.

SIDA and AIT's management however, both underestimated the complexity of bringing the Institute's different departments together, working horizontally with a new concept as complex as "environment". Therefore, this objective has still not been fully achieved, although the discussion and mutual comprehension of environment issues at AIT and the definition of possible fields of cooperation have considerably improved during the second phase of the Environment Programme.

Sida has assisted AIT to build new competence and education capacity. The scope for expansion is great but facilities and the faculty is still limited. The programme has expanded over the years but the budget has remained much the same.

4. Objectives Of Environment Education Programme - Were They Met?

4.1. Number of students - allocation of Sida scholarships

AIT's Environment Engineering Programmes are now the second largest, counted in number of applications, 300 on a capacity to enroll 60 students per year. Only the School of Management has more applications, about 500 per year.

There is scope for an increase of intakes into the Environment Engineering programmes, but the laboratory facilities put a limit to any greater expansion. AIT management has contemplated double classes and shift use of the laboratories. This would increase the capacity, but the professional laboratory staff does not believe that this will be possible. The laboratories are already used by students both day and night, although this is unscheduled.

Many scholarship students at Environmental Engineering are now having other funding than from Sida. Other national aid agencies and multilateral agencies like WHO, are supporting students by scholarships for Master, Diploma, Certificate or other Special Courses. This is a very encouraging trend and the Team believes it will continue.

Considering the fact that Environmental Education now is so highly demanded, we wonder whether earmarked Sida-scholarships for this programme will be necessary in the future. AIT has already taken the initiative to give Sida scholarships to other environment related fields of study in the STAR program as well. This is in line with the original concepts for the first phase of the EP but it nevertheless proved to be a sensitive issue, since these Sida-funded scholarships carry a budget of 2.000 USD for students' research in their home countries. EP did not want to lose these resources. We have to admit that getting a good picture of whether the students really go back to their home countries for their research work or stay at AIT was difficult.

The Team considers this issue to be very complicated. All students must do a research work. In the best circumstances such research work should be client-oriented. We believe that there must be a great number of research tasks in most development cooperation programmes in the region but they apparently never come to the AIT faculty and students' knowledge. Therefore, most of the present research work is knowledge-oriented and, as we fear, based at AIT campus. We believe that this issue must be closely monitored in the future.

4.2. Laboratory and equipment

The laboratory has been upgraded following the original agreement.
At the same time it has to be kept in mind that a laboratory and equipment of this kind will continuously have to be replaced and upgraded. This is very important if the laboratory shall become an important asset for sustainable development through research-cooperation and even some commissioned work.

An example of this later development is a contract with a shoe-manufacturer which needs to investigate the environmental impact of residues of shoe paint. This contract has made it possible for AIT to make new investments in both equipment and competence to strengthen the capacity of the laboratory. This is the first major project of this kind but there is still, however, many further steps to take, before such projects could be integrated in a more planned way in the students' Master thesis work.

One important issue remains to be resolved. The ventilation system is not functioning in a satisfactory way. By our judgement AIT has fulfilled its obligations in the contract with ABB, the deliverer/installer. ABB on the other hand, has not fulfilled their responsibilities. The Team finds this remarkable, since this is a company with a strong Swedish connection and high reputation for environmental thinking in the global perspective.

What was reported to us was a lack of interest in taking measures to repair faults, long waiting times, incompetent service personnel, lack of personal relations, etc. The long waiting-times had lead to somewhat amateurish efforts from staff and students to manage the deficiencies. Ventilating a two-store building like the EP laboratory should not be that complicated, but apparently it has had some pitfalls. We hope that ABB will finally be able to resolve remaining problems.

Even a functioning ventilation system will need much knowledge and care. Different air pressure in laboratory halls and corridors, e. g. demands a constant management of the system from all persons, faculties, laboratory staff and students, who are spending their time there. With the non functioning ventilation system there is no incentive for the users to follow rules and regulations.

A continued support to EP for a further three years should include the laboratory. It is still a matter of upgrading, but most of all to support the development of a strategy for greater sustainability. Sida could point out the need for a well functioning ventilation by sending this report to ABB to make the company aware of the fact that they still have to fulfill some of their obligations for which they have been paid.

4.3. Physical facilities and laboratory staff - programme administration

With present capacity of the laboratory and the education programmes the fast increasing number of students is a problem. The EP has expanded by more than 100% since its start. Both lecturers and students' work, independently and also under supervision, are done in shifts. The Team could notice that the laboratory was used for nearly 24 hours a day. Of course, this is positive, but on the other hand the laboratory facilities and its equipment will be rapidly worn down.

We could verify that the students displayed high ambitions in their laboratory work and that the atmosphere could be characterized as one of "relaxed concentration". Yet, at the same time we could see that safety regulation were ignored in a remarkable way. Food was lying around in the lab, safety doors were open, etc. According to interviews with students and staff, thefts, "timeserving" and lack of responsibility for equipment were realities. This is probably not different from similar laboratories in other countries, but nevertheless an unsatisfactory

situation. Even more serious is the fact, that with this situation student's and also staffs' health and security may be at risk.

Because of insufficient staff conditions, AIT has suffered loss of qualified laboratory staff. This has caused congestion in the laboratories and less academic output. The consequence of this is also that students tend to stick to the more elementary lab-techniques and do not pursue with more complex and challenging tasks. This was said to be the main reason why some parts of the laboratory are overcrowded, while more advanced and accurate equipment is not fully used. The result of the imbalance also leads to raised maintenance costs.

In interviews, the students expressed their dissatisfaction with the low level of supervision from the laboratory staff. To some extent this can be explained by lack of time, since the programme has grown so fast. The students also felt a need for more computer support to be able to compile reports and to write their thesis. The lack of PCS and software and also guidance in using them was perceived as serious obstacles in their studies.

According to our evaluation the Administration of the Education Programme functions well.

The core of the above criticism from the students we believe, was both serious and concrete. This is not mainly an economical question, but more a lack of organisation and management of the laboratory, its staff, equipment and physical facilities. Safety regulations are not sufficiently followed. There is a certain absence of routines and of follow-up of the existing ones. We were informed that during the second phase the staff had not gathered once to discuss security and safety regulations. We find this serious. Sida should demand that AIT Management take measures to increase safety and improve laboratory management together with the EP faculties.

4.4. The faculty

The faculty is sufficient for the present programme, but so far only with seconded personnel included. Thus, there is still no internal AIT sustainability. Our appraisal of the present faculty, seconded and on AIT employment, is nevertheless, that they are doing a highly qualified and determined work to develop the education programmes.

The increase in number of students to EP now gives an increasing burden to the faculty. At AIT the normal ratio between faculties and students 1 faculty on 9 students, while the EE has 1 on 13. This should be taken into special consideration, especially when the students are coming from countries with weak academic traditions.

The students brought to our attention that some courses had been cancelled at short notice and that some lessons had been held by hired faculty - with mixed results. Cancelled courses are a warning sign that the EP capacity limit has been reached. Courses with occasional faculties, not always well informed about all aspects of the programme, are less effective. The many nationalities and some students' weakness in English, is another strain for unprepared guest-lecturers. Our impression from the discussions with the students is that the guest-lecturers had not really got the conditions required to carry out a satisfactory work.

To develop and maintain sustainability over the next three-year period the EP faculty capacity should aim at first consolidating its present faculty. The second step should be to increase the number of faculties to become a "self-sustained faculty" which can be complemented with some few, strategic lecturers.

4.5. Teaching as seen by the students

The Team had an afternoon meeting with the Sida-sponsored students. Most of them came from environment-related studies. After a hesitant start the meeting became quite lively and many issues and proposals were discussed. We believe that improvements on some of the points discussed could have a positive impact on AIT's education systems.

Students had opinions about the quality of some lectures given. It happened far too often that transparencies were displayed to be copied by them with no or little explanation and that there was a lack of two-way communication. It is, with no doubt, very difficult to teach in such a multilingual and multi-cultural environment as in the AIT programmes, but this should not result in a routine use of transparencies as the ultimate solution.

In this area, as in others discussed in this report, students feel a lack of tutoring of their studies. The EP programme has grown rapidly in the last years. The diversity of students' backgrounds, academic experience and knowledge of English are with no doubt important reasons for their demands of more support.

Nevertheless, the Team feels that there is a new approach which should be developed within AIT management and faculty to support these students. In the debriefing at the end of the mission, this was discussed in a very open-minded climate. The President, as we understood it, was well aware of the situation. This is a good point of departure for improvements.

We know that instruction assessments are being done regularly. Still we believe, that more could be done in this respect. CLET in cooperation with faculties in all AIT education programmes should develop a programme to improve the situation, e.g. through the Academic Support Network (ASN).

4.6. Curricula and syllabi

It is a difficult task to penetrate in a few days such complex areas as curricula and syllabi for a large education programme like this. They have certainly been changed and improved; that goes without question. Nevertheless, the question will always have to be asked: is the present level adequate? An even more important question to ask will be; is there a readiness within the faculty for further development?

As far as the Team can assess, the curricula and the different syllabi are presently according to the programme. Furthermore, the Swedish and other foreign faculty are a decisive factor in this respect. This issue is however something which would demand some continuos monitoring for a better assessment.

4.7. Research tasks

Research is very important to AIT as it is for any other prominent technological institute which wants to remain in the forefront. Qualified research is the fundament for quality of the education programmes. This is totally in line with the Sida-objectives in the Environmental Programme.

We also believe that research on Doctoral level would have been a natural continuation of the present programme.

The Team is however still not totally clear on how research tasks for Diploma and for Master students are selected, how funds are allocated and how research is tutored and monitored. We were not really able to find out who (and in what forum) decides about projects, how validity and quality aspects of the research proposals made by students are assessed. We would also

have needed more information on whether (or how) students are guided to choose research tasks in line with their studies and the needs of their countries?

In this area, the Team is still not certain about procedures and routines for the selection of research work. In the meeting with the students it became clear, that they share this uncertainty with us. The extra resources, earmarked for each Sida-sponsored student, should be more explained to them by all faculties of the programme.

4.8. The Environmental Awareness Programme

The results of this programme which has received about 1.5 MSEK during the second phase, can be seen all over the AIT campus. Separation of waste is an accepted activity. Energy saving devices have been installed. Documents and other papers are now collected for recycling. Articles related to environmental issues are published regularly in AIT publications. Different kinds of contests are run and videos are produced. Training of new employees is now carried out within the whole AIT in cooperation with the Human Resources Development Office. Information of the various of plant species on campus is displayed all over campus. This is an encouraging development and in many respects AIT is now trying to live up to a more environmental friendly profile.

Earlier in the Sida-support much attention was focussed on spectacular events like the yearly "AIT Environmental Week". Foreign experts, external consultants and excursions meant a rather expensive programme, without an evaluation about "cost effectiveness" and "awareness raising". Now the programme will be integrated more in the everyday activities of the Institute and will be handed over to the students association for further actions.

The Team finds that this sub-project has been quite successful in its present, limited scope. We also find the trend from spectacular events to integrated longtime commitments very healthy. The development for this part of the support appears to be increasingly in line with the intensions in Agenda 21 and the decisions of Rio in 1992.

The plans to hand over this matter to the Students Association we find quite good. The total picture of strengths and weaknesses within the Students Association is not clear to us. The Association is however respected among students, staff and faculty. It will however be interesting to see what plans AIT and the Association will work out for the next phase. We believe that if there will be a continued Swedish support to environment education at AIT, a minor amount could be allocated for these activities.

5. Technical Assistance

During the second phase of the Programme the Swedish technical assistance (TA) has been mainly restricted to the seconded Principal Investigator in the Environment Engineering Programme and the Thai toxicologist in the STAR programme. Since five months the Principal Investigator is the elected Coordinator of these programmes.

In the Environment Laboratory a Swedish Senior Research Assistant is employed on local conditions to build up management and maintenance structures and to train the laboratory staff in the use of new equipment.

5.1. Achievements

The Team has assessed his achievements so far and has come to the conclusion that the *Principal Investigator's contribution to the upgrading of the Environment Engineering Programme has been of great value.* The lacking cohesion with other programmes on environment which has been pointed out earlier in this report, we believe, is largely depending on old AIT traditions and internal resistance working over academic boundaries. We have also tried to look into the work of the Eco-toxicologist and based on interviews, with our limited

knowledge of the subject, we have found that *she also contributes much to the environment profile of AIT. We still, however, as stated earlier in this report would have liked to see a better coherence between the different fields of study.*

The local hiring of a Senior Research Assistant, *we consider having been very important for the development of a well-functioning laboratory. We consider that this post should be included in the budget as a separate item in the next phase - if there is going to be one.*

5.2. Employment conditions - costs

During the first phase the Principal Investigator was directly employed by CENTEK and seconded to AIT, but during the second phase he has been employed by AIT on direct hire, funded by Sida. As such, he has maintained his old CENTEK salary and other employment conditions from to his old contract. This has resulted in a situation, where he is now one of the highest paid AIT faculty. The Thai Eco-toxicologist, on the other hand, is employed on normal AIT employment conditions. The difference in costs for the two posts is 1:4. This is not an abnormal difference in salary and other emoluments for other seconded faculty, including the Swedpower faculty for the EPSM Programme

Sida requested the Team to look further into this issue and assess, whether these emoluments are reasonable, especially in the light of a possible new, third phase, which has been requested by AIT.

A closer look at the internal budget for the Principal Investigator for the period July 1995-June 1996 of SEK 1.533.267 gives that

SEK 300.000 goes to Direct Expenses like computer equipment, books and photocopying, but also to Laboratory materials, repair and maintenance and students' theses work, etc.

SEK 1.232.000 goes to Personnel but this post includes many other items than the PI's salary

526.000 SEK (or SEK 44.000 per month)

as e.g.

180.000 SEK for housing which is on the lower side in Bangkok
223.000 SEK for repatriation which will not be paid out until the PI leaves
70.000 SEK for social security which is not very high
68.000 SEK travel costs

Total 1.067.000 SEK

In addition to the above, there is an overhead of about 25% or about SEK 300.000 for AIT administrative costs.

This total sum of salary and emoluments for the Principal Investigator is therefore lower, than appears at a first glance on the budget. The figure also lies well within what is usually considered to be a normal budget figure for any technical assistance through Sida. In the feasibility study for Song Da Tunnelling Corporation in Vietnam which was done in January this year, a budget figure of SEK 1.2. million was used in spite of the fact that housing costs in Vietnam were not calculated as high as in Bangkok. Another comparison can be made with the SAREC project proposal which calculated 0.9 MSEK per year for regional researchers.

We do however very much question why AIT should add an "overhead cost" of this size for a seconded faculty for whom everything has been paid in the Sida budget.

In the EP budget there are finally two other items:

93.000 SEK for local hire of a Research Assistant for laboratory training
70.000 SEK as Conference Allowance to enable the PI to participate in conferences related to his subjects and research.

Nevertheless, this budget could be discussed from many points of view. The Team questions why in the Direct Expenses there are so many items which are directly related to administrative costs for which there is already the 25% overhead for AIT. We are aware of the fact that this is because expenses for administration are always a bottleneck and by this the EP has secured more resources and freedom of movement.

We also question the fact that a small sum, SEK 150.000, is kept in this budget for students'research and thesis work. How is it related to the USD 2.000 that follows every Swedish and many other scholarships? We believe that this issue of funding of thesis and other research should be given more consideration in a possible next phase.

To conclude, the Team has found the AIT budget presentation of the TA costs to be more confusing than alarming. Therefore, misinterpreting it has been easy for new Sida Programme Officers without any deeper background to the programme. We consider, that AIT has missed the (public relations) importance of presenting a more clearly divided budget for the different interventions planned.

5.3. Time limits

Another issue which should be discussed, is for how long Sida should commit itself to keep a Technical Assistance faculty in the field. The Principal Investigator has now been employed at AIT for five years.

For Sida-contracted staff and for Sida's own field staff, the rule of a maximum of four, or possibly five years is applicable. After this time foreign TA personnel has often given their best and would need to return home to readjust and to learn more about new developments in their home countries. This internal Sida rule is however not without exceptions. It must be acknowledged, that there are cases, where seconded Swedish technical assistance staff can still, after five years, contribute much to the recipient organisation. Because of this there is an option that, if recipients are interested to keep a seconded staff, they could be offered to do so on local conditions.

The Team considers, that in this case the option for a further extension should be applicable. We have assessed the results so far reached by the TA's and are clearly impressed. Yet, much remains to be done before the supported education and research programmes are developed to a sustainable level.

In interviews the Institute's management has also expressed their interest to keep the present Principal Investigator and Eco-toxicologist. Based on this we suggest, that in both cases AIT should be offered financing on AIT conditions, if they want to retain them. If not, Sida should request that new recruitments are done in Sweden. We believe that Swedish academic circles could have much to gain of new experience from AIT.

6. Overall Impact At AIT

The level of knowledge and awareness of environment issues in the Institute is very much higher today than it was in 1989, when the feasibility study for the present Sida-AIT environment engineering cooperation programme was done. It is also much higher than in 1992 when the feasibility study on the broader SIDA-AIT cooperation programme was done. Environment issues are indeed much more in focus today both in AIT education programmes and at AIT campus.

To what extent this is due to the Sida-funded EP programme, is not really possible to define. AIT's top management nevertheless claims, that both Denmark and Sweden have played decisive roles in the ongoing transformation of AIT into a more environment-oriented, integrated academic institute.

The SIDA-supported upgrading of the environment laboratory, an old support from ODA, and the Institute's ailing environment education programmes were given to have been decisive inputs which had greatly enhanced the academic quality of the programmes. Because of the Swedish support, the morale of the Division's faculty and staff had been very much improved.

The Team, however, also believes, that there are other reasons for this new enhanced competence and awareness. Environment has become a focal area all over the world today. Ecosystems thinking are on the increase everywhere. The Rio Conference and Agenda 21 has also raised public interest and students now see a future in studying environment subjects. As a self financing, demand-driven academic institution AIT must follow these developments closely. We also believe that the establishment of the four Schools has contributed to this development.

Our main conclusion is that Sida's support to AIT environment education has been well-timed and totally in line with current trends. The weaknesses observed in this report relate to:

1. Institutional/organisational weaknesses within AIT which have made it difficult to break new paths of cooperation and build new modes of cooperation. One of our interviewees described the phenomenon as a "pigeonhole organisation", where faculties can always retreat if their areas of work are "invaded" by other subjects.

2. For many reasons Sida has not been able to be an active partner in this mutual undertaking to develop not only a good programme, but rather the best! We believe that some type of institutional twinning cooperation agreement could have given a more vivid and efficient dialogue and cooperation.

3. The absence of a holistic perspective on this kind of academic education programme with the interaction of Masters courses, research programmes and higher studies is already a hindering factor. In the future, we believe, it will become even more of an obstacle for further development of the programme.

7. Cost Efficiency

The Team has tried to make some a kind of cost efficiency analysis of the present programme. Such analysis must however be based on relatively "loose" assumptions and calculations. Many technical assistance costs below are part of both the development work and of day to day lecturing and tutoring. We have not tried to differentiate them.

Nor did time for this mission allow for any Tracer Study and/or a study on how the students can apply their new knowledge in their respective home countries. We believe that AIT should undertake such a study.

We are also aware of the fact, that AIT has considerable costs for its own faculty and laboratory staff and for fixed costs for premises and equipment, which do not show in our calculations below. We assume that such costs are covered in the regular scholarship costs.

Another issue which is usually not calculated, when estimating cost efficiency, is the low rate of brain drains at AIT in comparison with longer overseas education programmes in Europe or the US. In AIT's follow-up of its Alumni it was given to be as low as 7%. In reality, the

management of AIT claims that it is even lower. Many former AIT students either stay at the Institute to do further research or take on international work for a limited time, after which they often return to their home countries.

In the following estimates we have tried to calculate the direct costs per student per year, counting on a yearly intake of 60 students into the EP. The costs for the Sida-funded Thai faculty in soil toxicology is included, although it is unclear to what extent she is directly involved in the EP. Costs for the two big research programmes on coastal contamination and Bai Bang sewage water pollution and for other research has not been included in this estimate.

-*Cost per student scholarship plus the Bridging Course:* USD 27.000 at SEK 6.70 is SEK 180.000 for 20 months, or 9.000 SEK per month. For twelve months	SEK 108.000
-*Percentage of cost for faculty level technical assistance:* 5.350 MSEK on 3 years = MSEK 1.783. With a yearly intake of 60 students, 1/60 of 1.783	SEK 29.760
-*Laboratory upgrading, inclusive local hire of Senior Research Assistant* 3.0 MSEK on 3 years, which gives 1 MSEK/year, or 1/60 of this	SEK 16.000
-*Renovation of facilities*, 6 MSEK, made during earlier programme, but counted on ten years, 600.000, or 1/60 of this	SEK 10.000
-*Costs of new equipment*, 380.000 SEK counted on a five year depreciation, 1/5 = 70.000 SEK and 1/60 of this	SEK 1.000
Total estimated costs per student/year	**SEK 164.760**

Or little less than **14.000 SEK per month**

The Team considers that this kind of general support to the upgrading of AIT's environment education programmes and facilities, combined with scholarships, ***has been very cost efficient*** *in comparison to other solutions, as e.g. bringing students to Europe for studies or introducing such training in regular, bilateral development programmes. Board and lodging only, would cost about 10.000 SEK per month in Sweden. Only if students could enroll in already existing training programmes, which have been paid for through other budgets, could the costs be comparable. Sida's own Training Centre, Sandö U-centrum, calculates SEK 10.000 per week/student for its language training courses.*

From an educational point of view it is even more cost efficient, since it is tailor-made for students from the South East Asian Region. It has been developed to meet the actual needs of the students and because of this, they do not risk losing their regional perspective.

7.1. Cost effectiveness

With cost effectiveness we understand what effects the present education programmes have had on the establishment of sustainable environment programmes in the region. We believe that so far the effects are small. The new environment engineering programmes are still very recent. So far only 57 students have chosen environment related fields of study and 11 students have taken their Masters exams. Few of them have had time to reach influential posts in their home countries. Over time however, it will be very interesting to follow, how the former AIT students can establish themselves as key persons in the work for a sustainable environment.

Although at this stage, there is little to evaluate, the Team can see some positive trends, most of them related to research. The work done on the Bai Bang Paper and Pulp Mill will be important for future investments in an increased production capacity. The research on coastal contamination will be important for the follow-up of food standards and how sources of

contamination shall best be reduced. We believe that trying to establish links between AIT research and key cooperation programmes will now be important for any funding agency.

The gender issue will also be interesting to follow up since the number of female students is relatively high in comparison with other fields of study at AIT. The spread of the technical knowledge to other universities and technical institutes will also be interesting to follow up.

8. The Sustainability Of The Programme - low grade of self-financing

Although there is much noticeable progress in the Environment Programme, it is still not sustainable. The Team is convinced that, if Sida decided to leave the Environment Programme, AIT would have to look for another donor to complement its faculty and professional staff and to maintain laboratory equipment, physical facilities and other resources.

One important reason for this is, that the present scholarship fees are not sufficient to ensure a complete self-financing and economic independence for AIT. The Institute's management has calculated that a realistic scholarship fee would have to be increased by around 30%, from 23.000 USD to about 30.000 USD, to enable the Institute to develop new programmes and employ high-level faculties which are so far often being funded by foreign donors. They believe that many, aid agencies, other funding institutions or corporations and students would react negatively to such increased fees.

In many ways the Team finds this to be unfortunate. An AIT which is enough financially strong to build up new academic and research programmes and employ high-level faculties on its own conditions, would probably have an easier way to develop its educational profiles.

Many seconded staffs from all over the world - with different cultural backgrounds, varying levels of English and sometimes also with their own agendas - can naturally add much to the necessary, multifaceted approach, so important for an institute like AIT. On the other hand this situation also risks confusing the coherence of the education programmes and puts much strain on the management to maintain some kind of AIT educational culture. A balanced mix of internal resources and outside expertise would with no doubt give the best results, but this can be achieved, only if AIT could become financially stronger.

The Team believes, that it would be difficult for Sida, or any other organisation to make a unilateral agreement with AIT to accept higher fees without securing, that at least a majority of the foreign donors will do the same. Therefore, this is something that can only be handled by AIT Board of Trustees and Management and be brought up by them in discussions and negotiations with donors.

9. SIDA And Sida's Roles

The programming which was originally made by SIDA and AIT is basically sound and the components chosen are good. They complement each other. The division of work between Departments in Sida is in the Team's opinion natural, since they deal with different professional academic areas. Nevertheless, this is also a reflection on the donor side of AIT's problems to get to grips with an institutional, horizontal approach to environment issues in education.

We have no solution to this other than a more transversal dialogue in AIT and in Sweden and a yearly meeting among all partners really to discuss the different programmes, their interdependency and the possible coherence between them.

We believe that one important reason for the present situation is the fact that the Environment Education Programme is managed by Sida-DESO which is otherwise mainly responsible for

support to basic education programmes. Therefore, the AIT postgraduate programme has received less attention and has been pushed around, mostly to newcomers in the former Education Division. Because of this, there have so far been eight Programme Officers in the five-year period of the two agreements.

Sida's possibilities to monitor the programme have been nonexistent and a professional dialogue impossible. The lack of some continuos, professional dialogue about objectives, available resources and different inputs into the programme has been negative. As a result AIT and the Principal Investigator has had to take many actions without any proper backstopping from the donor agency.

The team has e. g. not found any documentation than in the approved budgets of discussions on the hiring on local AIT conditions of a Swedish Senior Research Assistant for the training of laboratory staff and for the upgrading of the laboratories. Nor has it after our document studies been totally clear to us, that the Thai toxicologist had been somehow organisatorily separated from the Environment Engineering Programme, before we made this study.

We have no objections to the solutions found regarding the Senior Research Assistant. In fact, we are very pleased with the developments achieved in this respect. As for the toxicologist we believe that a more continuous dialogue between SIDA and AIT could have resulted in more appropriate solutions about how the intended closer collaboration between those programmes could have been best arranged.

We believe that to improve the prevailing unsatisfactory situation Sida should seek new ways of organising the management and coordination of all environmental programmes in the Region, including the education programmes at AIT.

10. Environment And Sustainable Development In South East Asia - A Strategic Swedish Support To Mekong River Commission - And AIT?

One of Sida's most experienced consultants in Natural Resources Management, Professor Mårten Bendz, who has long experience from work in Asia has often stated publicly, that the seemingly impressive, economical development of the whole South East Asian Region will eventually risk being halted and even becoming a failure. The reason for this will be that environment issues have not been considered sufficiently. They are decisive factors for any sustainable economic and social development of the region and there is already growing evidence of how environmental degradation has a negative influence on both economic development and the quality of life. Therefore, environment is becoming a very important political issue in countries where a public debate is allowed.

There is now also a growing concern about environmental degradation in the region. Mass media and politicians, in Thailand for example, now give much attention to environmental issues. Yet, actions to improve the threatening situation are still insufficient.

The need for a more balanced development of the Mekong River Basin is now also recognised by all riparian countries. After a long period of doubt and insecurity as to the future role and responsibility of the former Mekong Secretariat a decision has now been taken to restructure and reestablish it as the Mekong River Commission (MRC). There is now a move to get the two remaining countries, Peoples Republic of China and Myanmar to join MRC as full members.

After a period of restrained support to the former Mekong Secretariat, Sida, and many other donors, have now decided to continue its support to the new MRC. The Swedish support is considered to be of strategic importance to promote a cooperation between the riparian countries on a balanced use of the Mekong River water resources and on a sustainable

development of the River Basin. A focal issue to reach these goals will to develop qualified human resources to enable an enlightened dialogue between the countries and a professional management of the River Basin development programmes which are being prepared.

In the new MRC organisation, environment and human resources development will be even more in focus than before. "Centres of excellence" for education and research on environmental issues will now have to be identified. Our discussions with HRD and Environment Specialists of MRC confirmed, that AIT had been identified as one such centre.

Based on the above described situation, we believe that AIT's leading role as a Regional Environment Education Centre will grow and become of even more decisive importance than today.

Sida has now decided to continue its support to the development of the Mekong River Basin through MRC. SAREC has an ongoing, important environmental research programme in the Region with AIT as the focal point.

Therefore, the Team is of the opinion, that it would be a paradox not to continue to support the development of appropriate education programmes at AIT, the selected "Centre of excellence".

The support both to MRC and to AIT falls well within the fifth goal for Swedish aid, the environment goal. We believe that Sida could get synergy effects by supporting both programmes and ensuring that there is a functioning cooperation between them.

10.1 Can Sida leave the EP?

Before the Team left for Bangkok, we were asked, whether the support to AIT environment education could not be taken over by another donor. An important reason for this was the Sida Management's need for a substantial reduction of the number of the agency's programmes and projects all over the world. Since then Sida has been requested by the Swedish government to make reductions of about one billion SEK in its aid programmes, which makes this question even more relevant.

The Team believes, that if well planned, leaving this programme would undoubtedly be possible. Environment education is now of focal interest for most donor organisations. The present EP programme is well managed and has placed itself in focus as one of the most important education programmes within AIT. As such it is a "winning horse" and over time, finding another interested sponsor who can build on what has so far been achieved, should not be too difficult for the Institute.

Leaving the programme at the end of the present agreement, within a month, on 30 June 1996, we however consider being totally impossible. It is in fact an enormous strain on all parties involved in AIT not to know one month in advance what is to become of the programme and this is negative for Sida. The first step not to endanger the results of the programme must be a prolongation of the present agreement up to 31 December 1996.

Leaving the Programme at the end of 1996 could be an alternative, if Sida feels pressure to get out of the programme, but we do not recommend such a decision. Negotiating a new agreement with another donor, planning and getting the agreed expertise installed and ready to take over, would take at least one, possibly two years with a necessary overlapping. Therefore any decision by Sida to leave the Environment Programme must be very carefully planned and programmed not to endanger what has been achieved.

Nevertheless, the Team cannot avoid expressing our concern over the fact, that Sida's appearance within AIT and about environment issues in the support to MRC and AIT is not consistent. SAREC, Natural Resources Department and INEC are continuing their programmes which all have environment components. The need for improved coordination of Sida's efforts should be given more thought for the future.

In an arrear it can be questioned whether the abolishment of the initial idea behind the CENTEK contract, the cooperation between technical institutes, has not been negative in this respect.

Finally, before any decision is taken, Sida's management should also ask, whether there could be any Swedish interest in the establishment of a Swedish environmental profile in the South East Asian Region. So far we have been surprised, that so little has been done to display Swedish environment competence and capacity at AIT which is a focal point in the region.

We believe, that if Swedish competence and capacity were better exposed at AIT this could both contribute to the development of the Institute's education and research programmes and open new markets. This is regularly done by all donor countries, even our closest neighbours, like Finland, through Finnida, which is now sponsoring an upgrading of AIT's telephone and paper and pulp education programmes. So far only Swedish interests remain "virgin".

Considering the above factors, the Team believes that Sida should plan for another three-year extension of the Environment Programme. Simultaneously a discussion should be taken up with AIT Management on how a possible, gradual withdrawal from the programme could best be done in a sustainable way during this time. This should naturally be done considering the effects on other Swedish environment-related programmes in the region not to give any unexpected, negative consequences.

C. RECOMMENDATIONS

-Sida is recommended to prolong the present agreement for the EP up to 31 December 1996 not to cause any disruption. Sida could probably leave the Programme within one or two years, if necessary. The EP is so successful that AIT should not have any problem in finding another sponsor. Giving enough time for a take over by another donor agency will however be important. Looking at the EP from a strategic point of view, the Team nevertheless questions whether this is a good alternative.

-Sida's support to environment in South East Asia should be looked upon as ***one strategic programme.*** The present fragmented way of work, where different Sida Departments cooperate with different organisations within and around AIT is not efficient. Sida will need to coordinate not only its different internal departments' support programmes to AIT but also with Mekong River Commission, IUCN, UNEP and other organisations. A closer cooperation with Sida's bilateral programmes in the region should also be established. For improved coordination of all support to AIT's postgraduate environment education and research programmes Sida should consider placing them under one Department. SAREC has so far offered more of continuos dialogue and backstopping than Sida-DESO, or rather the former Education Division of the old SIDA.

-Sida should continue its support to the EP for another three years, up to the year 2000, but discuss and plan with AIT for a gradual withdrawal of its institutional support to the

programme. Scholarships to environment education should continue after a possible withdrawal.

- *Sida should establish a policy for all projects and programmes in the region with funds for Masters education programmes at AIT or other institutes* as an integrated part of their internal training programmes. This would place funding where it best belongs, in the direct field work for competence development and capacity building.

-*Sida could consider increased payments for AIT scholarships,* but only after consultations and agreements with other major contributors to AIT education programmes.

-*Sida should consider including financing of some research and studies on Doctoral level in a next phase* of the programme. Sida supports a number of programmes in South East Asia, which could be in need of some AIT research support. Instead of using expensive European consultants it could be a new Sida policy to assess first whether the demanded skills are available in the region and at AIT. In this way consultancy support could become part of a broader competence development programme to build regional capacity.

-*Sida should consider a cooperation (twinning) agreement with a Swedish university or Technical Institute that* could promote more active cooperation, exchange of faculties and development of mutual research and education programmes. Swedish MFS students could become part of some of the Minor Research Projects proposed below.

-*AIT could attempt more aggressively to secure other research work,* e.g. from business, industry and from international organisations like Mekong River Commission, Asian Development Bank, ESCAP, UNEP, IUCN and bilateral donors than Sida.

-*AIT and MRC should negotiate to enter a mutual research development programme.* One component could be a Minor Research Programme (MRP), like the Sida MFS scholarships, to enable students from the riparian states to make research in subjects relevant for their future professional careers. Some of these research programmes could be financed by Sida but since the cooperation idea is sound, it could be expected, that other donors would be interested to join.

-*AIT could still do more to improve its environment profile in all education programmes.* The report proposes that the Institute's Management take the Agenda 21 document as a point of departure for a new activity, e. g. Agenda 21 Workshops, to look into every field of study about what can still be done in this respect. Sida could contribute to this work by presenting its new policies and action plans on Environment and Environment Education.

-*AIT still has to lay more emphasis on the preparation of students from Cambodia* and possibly also from Laos and Vietnam, although the Bridging Courses have been of great value for this purpose. A longer preparation in their home countries is recommended. AIT Management could work for better acceptance of the Academic Support Network (ASN) in all four Schools.

-*AIT teaching techniques, tutoring and examination grades and evaluations of faculties' competence and capacity could still be much improved,* according to the Sida-sponsored students. AIT could deal with this by setting up a joint student/faculty commission to study the present situation and come up with proposals for improvement.

Appendix 1.

Sida

1996-01-31

Department for Democracy and
Social Development,
Education Division
Angelica Broman

Ref: Nr. DESO-1995-0025

Terms of Reference

for an Evaluation of the Sida-AIT Cooperative Environment Programme (EP)

1. The AIT/ Sida Cooperation

Swedish cooperation with the Asian Institute of Technology (AIT) initially started as a scholarship support programme, in 1988. The main objectives of the cooperation is to improve the educational level in developing countries - primarily Sida programme countries in South-and South-East Asia. Furthermore, the programme aims at strengthening the AIT educational capacity.

The current cooperation is governed by a one year extension (1 July 1995 - 30 June 1996) of a two-year Agreement (1 July 1993 - 30 June 1995). The two-year Agreement amounted to 34 MSEK and the extension for 1995/96 to 17 MSEK. With the balance from 1994/95 the budget for the one-year extension totals 19.3 MSEK.

The cooperation falls within the framework of four sectors - environment, energy, human resources development and food production. Under the current Agreement, special emphasis is given to natural resources management and environmental issues. Sida is funding the following specific projects:

1. Environment Programme (EP)
2. Human Resources Development (HRD)
3. Language and Training for IndoChina
4. AIT Aquaculture Outreach Project
5. Electric Power Systems Management (EPSM)

The five projects employ various strategies which include education, training, technical assistance, networking, information dissemination, and research.

Sida's Asia Department (REMA) handles the overall coordination of the AIT/Sida cooperation whereas technical departments at Sida are responsible for the administration, technical support and financial follow-up for the various projects listed above. The Education Division at Sida's Department for Democracy and Social Development (DESO) is handling three (1, 2 and 3) of the above listed projects.

During the discussions between Sida and AIT held in Bangkok in May 1995, it was agreed that a review of the Sida-AIT Environment Programme (EP) should be carried out (see Agreed Minutes from Discussions between Sida and AIT, held in Bangkok on the 4th of May, 1995).

2. The AIT Environment Programme (EP)

Environmental issues are a key priority to Sida's development cooperation. When applicable and to the extent possible, environmental issues should be an integrated part of all projects receiving Sida funding. To further stress the importance of the above, Sida established the "Special Fund for the Environment" (SFE) from which each department within Sida receives an allocation. Sida/DESO's Education Division has identified a number of projects enhancing environmental education and has for the past years financially supported such projects. The AIT EP is one of those.

The increasing degradation of natural resources in Asia requires concerted effort to offer education and training programmes in environmental management and to develop stronger appreciation of environmental consideration in development. The specific objective of the EP is to further strengthen AIT's capability to offer high quality environmental education at post-graduate level, to students from the Asian region.

Under the current Agreement, the EP consists of the following five components:

- Scholarships and Research Grants (Master's Degree Studies)
- Faculty secondments
- Laboratory Maintenance and Training
- Environmental Research
- Capacity Building

For details on each component please refer to the projet proposal "AIT-SIDA Environment Programme (February 1995)".

All Sida funds for the EP are drawn from SFE. During Phase I (1993-1995) The Education Division allocated 13.5 MSEK to the EP. The budget for the second phase (1995/96) amounts to 6 MSEK.

The AIT/Sida EP has received a relatively large portion of Sida/DESO's funding to AIT in particular and a large share of Sida/DESO's funds from the SFE in general. Sida/DESO has during the last year examined its criteria on how to use funds from the SFE. A new Environmental Education Policy has recently been established by Sida. The policy will guide Swedish development cooperation in the area of environmental education.

3. Scope and Focus of the Evaluation

The evaluations primary foci are to establish:

- the cost-effectiveness of the EP;
- if the objectives set out in the proposal are being met;
- the impact, if any, the programme has had in strengthening AIT's capability to offer high quality environmental education at post-graduate level; and
- the relevance of the EP's achievements in comparison with AITs overall strategy.

The main reason for a Evaluation of the EP will be to assist AIT and Sida/DESO in discussions about the direction and content of, if any, possible new phase of the EP.

The specific task for the evaluation can be subdivided into three steps:

1 - Description
2 - Analysis
3 - Operational conclusions and recommendations

3.1. Description

The evaluation should briefly describe:

- the objectives, target groups, activities and outputs and costs of the Sida funded EP; as well as
- any amendments to those objectives over time.

3.2. Analysis

The evaluation should analyse and assess:

- the cost-effectiveness of the project (Including the administrative costs in relation to project costs.);
- the relations of donners vis-à-vis AIT and the EP;
- if the results achieved are fulfilling the objectives set out;
- if the objectives set out were clear, relevant and realistic;
- the function of the organisation, management and coordination of the project;
- the effectiveness of, as well as main obstacles, to the EP;
- actual and/or potential problems within the EP;
- the sustainability of the EP;
- the quality of the EP;
- the impact of the EP on the target group (Including information, if possible, on the present position and function of the EP alumni); and
- if the EP falls within the criteria of Sida's new Environmental Education Policy.

3.3. Operational conclusions and recommendations

Conclusions and recommendations should emerge from, and be supported by, the analysis of the issues listed above.

4. Methodology

The evaluation starts with an in-dept study of the background documentation, completed by interviews with key-actors within the programme (AIT faculty, current scholarship holders of the programme, alumni, project leaders as well as others clearly involved in, and connected to the EP). Furthermore, the evaluation should include observation at project sites, and alike.

In addition, the consultants are encouraged to seek information from other sources if and when needed.

The evaluation is scheduled to be carried out during May, 1996 (including preparation and writing the report). A maximum of two person-weeks are to be spent for preparation and writing the report in Sweden, and a maximum of two persons-weeks spent at AIT in Bangkok.

Prior to the Evaluation, the consultants shall visit Sida for a short briefing and discussion. Upon arriving in Bangkok the consultants should meet with AIT personnel for a briefing and discussion. Furthermore, it is essential that the consultants orally brief AIT about the initial findings of the Evaluation before departing from Bangkok.

5. The Consultants

It is suggested that the team will consist of two people whereof one preferably from the Asian region. Combined, the two consultants should have the following expertise:

- academic knowledge and practical experience in environmental issues ;
- academic knowledge and practical experience in organisational and financial management, as well as resource management;
- experience from undertaking evaluations in the above mentioned fields.

6. Reporting

A draft of the report shall be submitted both to Sida and to AIT, before the final report is written, to give both institutions a chance to comment on the report.

A final written report in English shall be handed to Sida in five copies no later than the 20th of May, 1996. The report shall have a maximum of 50 pages containing only analysis, operational conclusions and recommendations, as well as an executive summery. Any background information shall be provided in appendices. Furthermore, the report shall be of such technical quality as is required for printing and distribution within Sida. The consultants shall also be prepared to present their findings at a meeting with Sida and others invited by Sida.

Appendix 2

List of Appointments for Mr. Börje Wallberg and Mr. Thomas Malmqvist

Monday, 06 May 1996

09:00 - 10:00	Initial discussions with Prof. Alastair M. North, President, Prof. Ricardo P. Pama, VPAA and Prof. Pisidhi Karasudhi, VPD, Room 210, Administration Building
10:00 - 11:00	Meeting with Prof. Karl E. Weber, Dean, SERD, Room 210, Administration Building
11:00 - 12:00	Dr. Lars Baetz Reutergårdh, Manager, AIT-Sida Environment Program
Afternoon	Swedish Embassy Mr Sven Theus Malmberg, Councellor and briefly, Ambassador Eva Heckscher

Tuesday, 07 May 1996

08:30-09:30	Meeting with Dr. Surapong CET, Room 214 Meeting with Laboratory Staff, EP Laboratory
09:30-10:30	Meeting with Prof. Chongrak Polprasert, EE, Room W-128
10:30-11:30	Meeting with Prof. C. Kwei Lin, AFE, Room 205 Inteview with Laboratory Staff
13:00-14:00	Meeting with Dr. Preeda Parkpian, NRP, W-223
15:00-16:00	Meeting with Dr. Harvey Demaine, Room A10
16:00	Meeting with students, HSD E-118

Wednesday, 08 May 1996

08:00-09:00	Meeting with Mr. Benjamin Gargabite, DO, Room 219 Meeting with Environment Awarness Project
09:00-09:45	Meeting with Prof. Prinya Nutalaya, Dean, SCE, Room N-250

Appendix 3

Background materials to the Evaluation of the Environmental Programme at AIT in Bangkok - Spring, 1996

1. Internal Sida documents

1.1. Andelningsbeslut SEKT 119/93

1.2. Avdelningsbeslut REMA 42/95

1.3. AIT- En Studie av ett regionalt centrum för kompetensutveckling, Oct 1992

1.4. Agreement on Development Cooperation between The Government of Sweden and the Asian Institute of Technology, signed on the 14th of July, 1993.

1.5. Amendment of the Agreement on Development Cooperation between The Government of Sweden and the Asian Institute of Technology, signed on the 4th of May, 1995.

1.6. Agreed Minutes from Discussions between Sida and AIT held in Bangkok on the 4th of May, 1995.

2. AIT documents

2.1. Implementation Guidelines for Sida-AIT Development Cooperation Programme 1995-1996 (July 1995)

2.2. AIT-Sida Environmental Programme -- A proposal for funding for FY 1995-1996 (February 1995)

2.3. Guidelines for Students Research Grants - Sida Environmental Programme (EP)

2.4. Scholarship Donors and Specifications of Awards (development office 1/3/94)

2.5. AIT- Sida Scholarships programme, as of Sep,. 1994

2.6. AIT- Sida Scholarships programme, as of Sep, 1995

2.7. AIT- Sida Scholarships programme, as of Feb, 1996

2. 8. AIT-Environmental Engineering Laboratories,-- A Feasibility Study of Self-Financed Laboratories Through Marketing of Services submitted to Sida by Lars Reutergård and Raquel P. Pama (December 1995)

3. Proposal for future cooperation

3.1. Sida-AIT Proposed Development 1996 - 1999, February 1996

11.00-12.00	Meeting with Mr Bill Savage, CLET
Afternoon	Return to Bangkok, report writing

Thursday 9 May 1996

Morning	Meeting at Mekong River Commission, Ms Maytinee, responsible for Human Resources Development
Afternoon	Report writing

Friday, 10 May 1996

Morning	Mr Malmqvist, at AIT for final meeting with laboratory personnel Mr Wallberg, report writing
16:00 hrs	Debriefing with Prof. Alastair North, President, Prof. Ricardo Pama, VPAA,Prof. Pisidhi Karasudhi VPD and Prof. Karl E. Weber, Dean, SERD, Prof. Prinya Nutalaya, Dean SCE, Prof C. Kwei Lin, Prof Chongrak Polprasert, Dr. Lars Baetz Reutergårdh and Dr. Preeda Parkpian, Board Room, Administration Building.

Saturday, 11 May 1996

Report writing

Sida Evaluations - 1995/96

95/1 Educação Ambiental em Moçambique. Kajsa Pehrsson
Department for Democracy and Social Development

95/2 Agitators, Incubators, Advisers - What Roles for the EPUs? Joel Samoff
Department for Research Cooperation

95/3 Swedish African Museum Programme (SAMP). Leo Kenny, Beata Kasale
Department for Democracy and Social Development

95/4 Evaluation of the Establishing of the Bank of Namibia 1990-1995. Jon A. Solheim, Peter Winai
Department for Democracy and Social Development

96/1 The Beira-Gothenburg Twinning Programme. Arne Heileman, Lennart Peck
The report is also available in Portuguese
Department for Democracy and Social Development

96/2 Debt Management. (Kenya) Kari Nars
Department for Democracy and Social Development

96/3 Telecommunications - A Swedish Contribution to Development. Lars Rylander, Ulf Rundin et al
Department for Infrastructure and Economic Cooperation

96/4 Biotechnology Project: Applied Biocatalysis. Karl Schügerl
Department for Research Cooperation

96/5 Democratic Development and Human Rights in Ethiopia. Christian Åhlund
Department for East and West Africa

96/6 Estruturação do Sistema Nacional de Gestão de Recursos Humanos. Júlio Nabais, Eva-Marie Skogsberg, Louise Helling
Department for Democracy and Social Development

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