

DFW  
Department of Forestry and Wildlife



ITTO  
International Tropical Timber Organization

## **ESTABLISHMENT OF A FORESTRY RESEARCH BASE FOR SUSTAINABLE FOREST MANAGEMENT IN CAMBODIA**

### **PROJECT COMPLETION REPORT**

**Submitted by**

**Department of Forestry and Wildlife  
Ministry of Agriculture, Forestry and Fisheries**

**Sponsored by**

**International Tropical Timber Organization (ITTO)**

PPD 10/98 Rev.1(F)

**"Establishment of a Forestry Research Base for  
Sustainable Forest Management in Cambodia**

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## PROJECT COMPLETION REPORT

- a) **Title:** : Establishment of a Forestry Research Base for Sustainable Forest Management in Cambodia
- b) **Serial Number** : PPD 10/98 Rev.1 (F)
- c) **Executing Agency** : Department of Forestry and Wildlife
- d) **Host Government** : Royal Government of Cambodia
- e) **Starting Date** : 07 February 2000
- f) **Duration** : 5 months (7 February 2000 to 7 July 2000)
- g) **Project costs** : US\$ 77,835 – (ITTO US\$ 66,655, Gov't of Cambodia US\$ 11,180)

### PART I: Executive Summary

Through declaration No. 530 dated 17 December 1997, Ministry of Agriculture, Forestry and Fisheries (MAFF) established the Forestry and Wildlife Research Institute (FWRI) within the Department of Forestry and Wildlife (DFW). However, FWRI never got off the grounds due to serious financial and human capacity constraints. ITTO encouraged DFW to execute the Pre-Project "Establishment of a Forestry Research Base for Sustainable Forest Management in Cambodia" in order to identify more clearly the preconditions that could lead to early initiation of meaningful forestry research.

In February 2000 the Pre-Project team started working .It aimed at achieving two important outputs:

- 1) to assess the current research capacities of DFW staff and analyze needs of capacity building and upgrading of technologies;
- 2) to elaborate a project proposal for to be submitted to ITTO, that would aim at capacity building in forest management and forestry research and make a substantial contribution towards bringing about sustainable forest management in Cambodia.

During the 5 months of project duration the project team executed the prescribed activities in order to achieve the Outputs as stipulated, but also to progress towards achieving the specific objectives.

Through evaluation of documents, literature and interviews with knowledgeable people a certain inside into training, performance and potential for conducting research could be derived. The collected data were further scrutinized during a workshop in which many provincial forestry officers participated.

Cambodia is still covered by 10.6 million ha of forests, but due to illegal activities, encroachment and land conversion between 60,000 and 160,000 ha of forest are lost annually. In contrast, reforestation during the last 20 years amounted to only 500 ha per year. DFW is the sole agency responsible for management of national forests, excluding protected areas.

During the last three months, available information in support of the formulation of a project proposal was assembled and analyzed as a basis for discussions with experts and DFW officers in preparation of a planning workshop. After intensive discussions and questioning by stakeholders, the fundamental goals were clearly set and laid down in a Project Proposal for submission to ITTO.

However, DFW is under-equipped in manpower and funding to fulfill its mandate of sustainable forest management. Key problems are wasteful logging practices, missing capacities for law enforcement, reforestation of degraded lands, a lack of scientific and technological capabilities, and absence of a research infrastructure, laboratories, collections, library and database center. In order to make routine work and research more efficient, technologies in forest resources assessment, GIS application, forest inventory and wildlife monitoring need upgrading. Without these significant inputs it may be difficult to achieve sustainable forest management.

### 1 Background Information About the Pre-Project

#### Background

In May 1997, in cooperation with FORSPA, Department of Forestry and Wildlife held a national seminar on "Priorities and Institutional Arrangements for Forestry Research in Cambodia". The report of this seminar recommended to strengthen and improve field research through short-term training and,

simultaneously, to develop a long-term framework for creation of a national forest research base to support DFW in the implementation of sustainable forest resources management. In early 1999, the Royal Government of Cambodia (RGC) created the Forestry and Wildlife Research Institute (FWRI) within the Department of Forestry and Wildlife (DFW) in order to start research activities on forest management, reforestation, wood properties and industrial wood processing.

Based on the Pre-Project proposal submitted by RGC, the International Tropical Timber Organization (ITTO), in May 1999, offered its assistance to determine needs concerning human resources development, introduction of modern technologies, improvement of research infrastructure, and necessary equipment of a future forestry research base through ITTO pre-project PPD10/98 Rev.1.

### **1.1 Key problems intended to be solved**

This chapter lists a number of unsatisfactory conditions and areas where qualified staff, equipment and upgraded technologies data would be needed to deal more efficiently with existing problems of resource management.

#### **i) Wasteful logging**

RGC considered concession agreements with logging companies as a suitable way of using the forest resources of the country. However, experience has shown that logging practices were wasteful and need substantial improvement. Through legal and policy measures the control and management of forest resources has been initiated. Concession contracts are under revision and a recently elaborated Logging Code of Practice will be incorporated in the new logging concession contracts.

#### **ii) Regeneration methods for logged-over and degraded forestlands.**

No experience and technologies are available for selecting the optimum methods of regenerating logged-over forests. Silvicultural alternatives need evaluation. However, a concept and the necessary specialists are not available.

#### **iii) Forest protection, water and watershed management**

Watershed assessment and management and conservation of wildlife need to be intensified. The hydrological cycle dominated by the prevailing monsoon climate is increasingly affected by deforestation. Excess of water during the rainy season and the risks of floods are effectively mitigated by forests. Forests act as powerful reservoirs supplying water stored in the ground to creeks and rivers during the dry season. Therefore, sustainable forest management implies also water management and security of water supplies (and also fish and river transport) to rural people in the dry season.

#### **iv) Surveys of fauna and flora**

A comprehensive survey of wildlife has yet to be undertaken. There exists only very limited capability for analyzing environmental, economic and social implications connected to different management options. Management planning lacks scientific data for yield assessment and determination of the allowable annual cut. Therefore, establishing a forestry database center will contribute to solving this and related problems in the long run. Without such data sustainable management of forest resources is unreliable. The scientific base of natural forest management and rehabilitation of degraded forests need considerable strengthening.

#### **v) Technical advice and assistance for the wood working industry**

There exists a need for professional experience and introduction of new technologies in the fields of reforestation and rehabilitation of degraded forestlands and establishment of new plantations. There are at present 2.6 million ha of degraded forestland, which need reforestation to secure future wood supplies.

#### **vi) Promotion of community forestry**

With 80% of the population living in rural areas, often near forests and 90% of the total population using firewood and charcoal for cooking, forestry research must reconcile its mandate of sustainable forest management in the satisfying basic needs of water, food and energy of the rural poor.

The previous research institution that had existed between 1950 and 1975 was completely destroyed

in the course of the civil war. A suitable institutional framework for forestry and wood products research has yet to be established. It is, therefore, essential that the present situation of human and material resources constraints is alleviated and the creation of a new scientific database initiated through this Pre-Project.

## **1.2 Specific Objectives and Outputs**

The **Specific Objective** reads as follows:

"To establish a forestry research base with full capacity that can serve as an instrument for upgrading technologies in sustainable forest management with special reference to forest conservation as well as to forest sustainable use and building up the capacity needs of forestry research and forest management in Cambodia".

For achieving the Specific Objective, the following two Outputs have been stipulated, namely:

**Output 1:** Available information on capacity building of human resources, upgrading technologies, and other relevant aspects needed for supporting forestry research in Cambodia are collected and analyzed.

**Output 2:** A Project Proposal for the establishment of a Forest Research Base in Cambodia has been elaborated for submission to ITTO.

### **Activities**

#### **Output 1:**

**Activity 1.1:** Analyze the current capacities in Forest Management and Forestry Research in Cambodia.

**Activity 1.2:** Organize a workshop to analyze by consultation the capacity needs in forestry research.

#### **Output 2**

**Activity 2.1:** Survey and design the construction of a Forestry Research Base and equipment requirements.

**Activity 2.2:** Organize one workshop to present the draft study of Forest Research Base Establishment.

**Activity 2.3:** Develop a Project Proposal for the establishment of a Forest research base in Cambodia for submission to ITTO.

## **1.3 Strategy adopted in carrying out the Pre-Project**

The Pre-Project's activities are directed at identifying needs for building-up capacities of DFW by strengthening human resources and updating technologies in forest management, forest inventory and assessment of bio-diversity indicators. Analyses are to be carried out in the fields of wood technology, market surveys and forest industry developments. If successfully accomplished this strategy would efficiently contribute to design a Project for establishing a Forest research Base.

Essential activities included:

- assessing available and needed capacities to strengthen the human resources and scientific research potential;
- elaborating proposals for updating technologies in forest management, forest inventory and monitoring, reforestation, biodiversity assessment and conservation, wood technology and forest industry, and
- designing a forest research base in Cambodia with the main objective of creating a permanent scientific database for sustainable forest management.

## **1.4 The Pre-Project's planned duration and planned overall costs**

The project lasted 5 months and completed its tasks as scheduled. As it is the first project with ITTO

with a substantial budget, streamlining and concretization of various aspects of the proposal have partly been undertaken after the scheduled end of the Pre-Project.

All activities were performed within the framework of the total Pre-Project budget of US\$ 77,835.

## **2. Pre-Project Achievements**

### **2.1 Outputs achieved**

**Output 1:** Available information on capacity building of human resources, upgrading technologies, and other relevant aspects needed for supporting forestry research in Cambodia are collected and analyzed.

It has been assumed that the following activities would lead to achievement of Output 1, namely:

**Activity 1.1:** To collect information and analyze the current capacities in forest management and forestry research in Cambodia.

**Activity 1.2:** To organize a workshop to analyze by consultation the capacity needs in forestry research.

#### **Activity 1.1**

It has been assumed that an analysis of information on current capacity building, upgrading of technologies and other relevant factors supporting forestry research could be based on:

- 1) Available documents of DFW, the Faculty of Forestry Science (FFS) and documents of previous research activities;
- 2) evaluating the professional qualifications of graduates (BSc) of FFS;
- 3) assessing the available research infrastructure, i.e. laboratories, library, collections, field installations;
- 4) evaluation of staff performance by a departmental review board deciding on promotions;
- 5) the draft version of the Strategic Research Plan for 2001-2010 outlining research that needs to be undertaken.

This proved difficult to do because no hard facts have been documented. A look at on-going research activities or investigations of DFW reveals that these are very limited in scope and irregularly executed. Reports were factual but contained no conclusions, recommendations or interpretations of results. None of these resources proved reliable, comprehensive and completely useful for the intended analysis. Senior staff who had graduated abroad and had been working in Universities and research facilities explained that the country had to start from bottom up because nothing had been left intact by the Pol Pot regime and subsequent civil war. These facts were confirmed during the Consultative Workshop held in fulfillment of Activity 1.2

No official data are available in DFW on the academic record of FWRI staff holding bachelor of forestry degrees or higher. However, team leaders of international development aid repeatedly stated that in order to proceed with project activities projects had to conduct trainings at a very basic level. Subjects concerned range from English language comprehension, conversion and use of measurement units, calculation of map scales, use of compass and level in surveying etc. Serious deficits exist further in the fields of applied mathematical statistics, botany, biology, chemistry (inorganic and organic) and physics. Whatever theoretical knowledge exists has never been tested in reality and generally suffers from the missing intellectual connection from theory to practical application. This was also reflected by the contributions of participants of the "consultative" workshop held in DFW in March 2000.

(Details concerning the assessment of current capacities of FWRI staff in implementing forest management systems and conducting basic research have been given in the Technical Report attached to this Completion Report.)

#### **Activity 1.2**

The consultative workshop specified in the pre-project work plan under Activity 1.2 was held on 14 and 15 March in the Department of Forestry and Wildlife. Main objectives were:

- a) Encouraging a dialogue between staffs of DFW-FWRI and the Pre-Project Team on Management capacity deficits and proposed activities to improve planning and implementation of forest management.
- b) Identifying by discussion and consultation fields of forestry research and experimentation considered necessary for a better understanding of forest ecosystem functioning.
- c) Assessing the needs of DFW-FWRI staff for training, identification of priority research fields and capacity needs in terms of research equipment and know-how in the application of new technologies.

During the consultative workshop DFW questioned participants also with the objective of identifying training needs with the following results:

According to the participants of the workshop 68 staff members should have or acquire intermediate and higher academic or technical degrees as follows:

Degrees	Ph.D.	Master of Sc.	Bachelor of Sc.	Technical	Totals
Target number	9	22	28	9	68
Available	1	6	40	1	48
To be trained	8	16	none	8	32

This means that 32 persons need up-grading immediately and a solid academic education after a few years.

### 2.1.1 Estimating current capacities

Presently, FWRI comprises a work force of 71 members. (Numbers are varying because some staff is temporarily "borrowed" by MAFF for special tasks or they are transferred to technical assistance projects as counterpart staff). According to information supplied these 71 persons comprise 3 Ph.D. degrees, 3 Masters degrees, 58 Bachelor of Science degrees, 3 engineers and 4 technician level employees. The bachelor level staffs are on the average 33 years old and have graduated 7 years ago. The "senior" staffs, Section Heads and Chiefs of Offices, are on average only 5 years older. Only 3 out of 71 staff members with a higher education are women (see table 1).

A basic deficit affecting nearly 80% of all employees is the lack of English language skills. While most foresters manage basic spoken English, hearing, reading and writing abilities are insufficient. This handicap severely restricts access to documents and scientific literature, makes discussions cumbersome and slows down the processes of communication, decision taking, presentation of papers, formal applications and understanding of technical instructions.

Cambodian foresters are judged to be strong in practical application but show weaknesses concerning the theoretical background, e.g. in soil science, probability statistics, research planning, and experimental design. Also, interrelationships with other fields of science and economics and interdependencies with social and land use issues are often neglected. Courses taught at the Royal University of Agriculture do not yet provide a solid base in natural sciences, biology, chemistry, physics, mathematics etc. This makes it difficult for the graduates to plan work and research in their fields of interest and at the same time to communicate and exchange experiences with colleagues in related fields of forest science at the national or international levels.

**Table 1: Professional qualification and age groups of FWRI Staff**

No.	Age Class (Years)	Qualification						Total	Percent
		PhD	Masters	BSc.F	BSc	Eng.	Techn.		
1	> 25	1		9	2	1	2	15	21
2	>30	1	1	28		2	1	33	47
3	>35		2	4	1			7	10
4	>40				1			1	1
5	>45	1					1	2	3
6	Unknown			13				13	18
Total		3	3	54	4	3	4	71	100
Percent		4	4	76	6	4	6	100	

The assessment of current research capacity is based on evidence related to promotion and salary increases. New graduates start in Salary group 1 and advance after 3-4 years to group 2. Here they remain unless they excel in their efforts and results or acquire a higher degree through evening school or study abroad. Only 11% have been promoted into groups 3 to 6, one female employee with a Ph.D. degree is in group 5 (See table 2). It is not known whether lack of funds slows down promotion or not. But given the low level of salaries and the dismal salary increases given with promotions this cannot be the only reason. Increases in salary cannot be considered as an incentive for high performance, but imply rather the chance of being granted leave or preferential status in the allocation of fellowships for studying abroad.

**Table 2: Year of graduation and salary group of 71 graduated staff of FWRI**

Year of graduation	Salary Group						Total staff	Percent
	1	2	3	4	5	6		
<1990						1	1	1
1990		2	1				3	4
1991		3	1				4	6
1992		3	0		1		4	6
1993		7	1				8	11
1994	1	18		1			20	28
1995	2	6					8	11
1996	1	1					2	3
1997	1	1					2	3
1998		0		1			1	1
1999		2					2	3
2000		1					1	1
2001		2					2	3
Unknown	6	6	1				13	19
<b>Total</b>	<b>11</b>	<b>52</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>71</b>	<b>100</b>
<b>Percent</b>	<b>16</b>	<b>73</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>100</b>	

It is not possible to draw any conclusion on the research capacity from the above two tables, because evaluation of the intellectual and professional performance and creativity are not yet made. Although no accurate figures could be obtained, it is estimated that only 25% of annual work can be dedicated to research activities because of inadequate operational funding.

Neither of the above tables provides any objective clues as to the quality or capacity of staff in performing research.

Looking at the tables in the annexes 1 and 2 reveals that a total of 38 Masters and PhD degrees have been obtained. However less than one half, only 15 of them, actually work in DFW. It is not known how many work in other government institutions but it is likely that many have left to work in private companies where remuneration is much better. This is a latent risk in all training efforts.

### 2.1.2 Assessing upgrading needs

Due to financial and communication constraints there has been very little change in technologies applied and very little introduction of new methods. Basic research, with or without foreign financial and technical support, is being or will be conducted in the following fields:

- Plantation trials, with native dipterocarps and foreign acacias and eucalypts;
- Forest management experiments in logged-over forests;
- Growth and yield studies on permanent plots;
- Wildlife surveys (tigers);
- Assessment of non-timber-forest-products (NTFT);
- Seed tree studies and seed progeny trials.

All these investigations have started only recently and are carried out on a limited scale due to financial constraints. The staff in charge of these investigations would need further professional qualification in order to achieve satisfactory and reliable data.



For solving the following problems facing DFW, research should be conducted to provide guidelines for cost-efficient procedures:

- For the most pressing problems, forest management, community involvement, reforestation and rehabilitation of nearly 2.6 million ha of degraded forests exist no clear strategies or rehabilitation planning;
- Extent and locality of affected areas, soil and site conditions, present vegetation, intervention nutrient status, ownership, plantation techniques, species selection, pest control methods etc. are unknown variables. It may be advisable to undertake trials with direct seeding, seedlings, and stumps, fertilizer application and soil analyses to obtain as soon as possible a number of viable alternatives;
- Forest resources assessment, cost-efficient methods of inventory in concession areas are urgently needed but not tested because of a lack of guidance, priorities, lack of access to information and funding;
- In community forestry more data are needed for assessing the socio-economic and cultural implications for the rural communities and their inhabitants to participate and benefit fairly.

Other sectors with high information and data demand are botany, wood anatomy, wood technology and wood protection. Technological properties of commercial species are only known from literature but testing national species from different forest types for comparison is impossible because of a lack of technical installations. In addition next to nothing is known of the so-called unused or under-used species, which make up more than 80% of the standing volume.

In conclusion it must be stated that new technologies are needed in reforestation, nursery practice, sociology, silviculture, growth and yield assessment, wood technology, forest inventory and forest management. Most urgent would be reforestation, rehabilitation, seed treatment and planting technologies.

The other most influential factors affecting forestry research in Cambodia are infrastructure deficits and insufficient funding. By infrastructure is meant the absence of office space with basic equipment, a reliable supply of electricity, access to books and international professional journals and papers, telecommunications, a budget for materials, official travel and transportation to field work. Government pay remains insufficient for covering the cost of living. It is therefore a disincentive for young gifted graduated for working in forestry research.

A positive aspect of the contacts made during the Pre-Project is the declared willingness of several institutions to support the start-up of FWRI. FORSPA, the Forest Research Support Program for Asia of FAO will support seminars and workshops. The Treelink project under the Asia-Pacific association of Forest Research Institutes has offered to assist with identifying equipment needs. The Deputy Director, staff of the University of Malaysia has offered assistance with fellowships at the University of Malaysia. The Cambodian German Forestry Project of GTZ, the Indochina Seed Tree Project of DANIDA, have offered to assist with books and equipment, JICA is willing to share training facilities with FWRI and Forest Research Institute of Malaysia is willing to assist with trainers.

For tapping these resources DFW would have to compile a catalogue of training and equipment needs and circulate it in the donor community. This willingness of international institutions to assist FWRI during the start-up phase is an indicator of the interest of seeing a viable research capacity being established in Cambodia.

**Output 2: A Project Proposal for the establishment of a Forest Research Base in Cambodia has been elaborated for submission to ITTO.**

**Activity 2.1:** Survey and design the construction of a Forestry Research Base and equipment requirements.

Project team and adviser have been working on surveying and designing the future Forest and Wildlife Research Institute. Department of Forestry and Wildlife disposes of place of suitable land in the outskirts of Phnom Penh.

A tentative design made foresees a building of two stories with 64 offices, laboratories, lecture and meeting rooms for accommodate the nearly 80 people allocated to the Forest and Wildlife Research Institute. The building offers 3000 square meters of rooms, including a conference room for 80 people and 4 basic laboratories for conducting forest research.

**Activity 2.2:** Organize one workshop to present the draft study of Forest Research Base Establishment.

The consultative workshop specified in the pre-project work plan under Output 2 has been held on 12-13 March in the Department of Forestry and Wildlife and elaborated the logical framework of the future project and identified the Development Objective and 2 Specific Objectives.

**Activity 2.3:** Develop a Project Proposal for the establishment of a Forest research base in Cambodia for submission to ITTO. The Pre-Project was concluded on 13 July 2000.

A draft proposal on "Establishment of a Forestry Research Base For Sustainable Forest Management in Cambodia" was presented to Department of Forestry and Wildlife and has been submitted to ITTO for review. Due to failure of completion of Output 1, a revised version and a supplementary Technical Report are being submitted for review. The revised project proposal aims at a significant improvement of research capacities, by sending up to 9 persons for advance training to Malaysia. About 10 persons will undergo short-term training to have well-trained workers, laboratory assistants, microscopy engineers and database engineers in DFW.

Achievements of Outputs has not been perfect due to a lack of hard facts and reliable information on the current capacities of DFW staff to conduct forest management and forestry research. The very limited research activities did not permit to draw conclusions on the scientific potential of DFW staff.

## **2.2 Specific Objective Achieved**

### **Specific Objective:**

**"To establish a forestry research base with full capacity that can serve as an instrument for upgrading technologies in sustainable forest management with special reference to forest conservation as well as to forest sustainable use and building up the capacity needs of forestry research and forest management in Cambodia".**

Under the assumption that human capacities are improved and upgraded technologies increasingly applied, and Outputs 1 and 2 are essentially achieved, the forestry research base will be established FWRI will not only actively support application of upgraded technologies. The Institute will render its services to the forest industries and continue to build up research capacities butin order to achieve the goal of sustainable forest management. Forest conservation and sustainable forest management would be based on increased research results in the fields of forestry and sustainable forest management.

## **2.3 Potential Contribution towards Achieving the Development Objective**

Achieving the Development Objective of sustainable management of forest in Cambodia will take a long time. This will take the concerted efforts of all stakeholders, Government agencies, industry, rural people, NGOs, official technical assistance, donors, and a change of education at the school level. A common understanding of the importance of forests in securing not only wood and non-timber forest products but of the value of many further functions like soil protection and water purification. But it is certain that without scientific support and research activities into management options, forest ecosystem analyses and the investigation of the demands and expectations of the people no progress can be made. It is a fact that forest protection and wise management are by a factor of 1000 cheaper than forest rehabilitation after unsustainable use. Therefore, investing into comprehension of the interdependencies between forests, people and the environment and into a better understanding of the role and productive functions of forests will contribute towards attaining the development objective.

After project completion, staff of DFW and FWRI will have a better understanding of the need for forestry research and the exigencies related to the operation of a research institutions. They will have gained experience in analyzing cause-effect chains, drawing conclusions on realistic formulation of outputs and understand the linkages between forest management, forest utilization and the environmental consequences to be considered in logging or conversion of forest land.

Staff can look forward to new tasks and challenges in forests under the jurisdiction of DFW but also in a broader regional context. There is also the chance of being chosen for further training abroad or of doing field work in Cambodia under as foreign visiting scientist,

Staff of FWRI is hopeful to be selected for short or long-term training. But they also look forward to learn new skills in cooperation with foreign scientists doing research work in Cambodia. In the process of discussion, acceptance and rejections of ideas and concepts staff of FWRI have learned about scientific dispute of methods and strategies. It is likely that with the intended investments in human resources development the overall attitude towards forestry research will improve markedly.

### **3. Target Beneficiaries Involvement**

Direct beneficiaries of the Project will be the staff of the Department of Forestry and Wildlife and of Forestry and Wildlife Research Institute in particular. But if considered in connection with the development goal of "achieving sustainable forest management" then indirectly rural people having traditional user rights of resource access and use but also the wood processing industry would be benefiting from management data derived from a scientifically established database. Finally the Government would enjoy regular revenues from the forestry sector while many people would find employment in reforestation projects and the wood processing industries. Thus the project provides long-term economic, social and ecological benefits to the nation as a whole.

Understandably, in the Pre-Project phase, only the direct beneficiaries in the DFW have been involved in developing a concept for the organization and functions of a forestry research base in DFW. But discussions during the two workshops have shown that designing and operating a research facility is not a one-time event but a process of evolution determined by outside demand and inside creativity and curiosity. An essential aspect remains that forestry research in Cambodia will be practice-oriented, developing solutions for imminent problems.

### **4. Lessons learned**

#### **4.1 Development lessons**

With the installation of a democratic government in 1994 Cambodia has returned to some state of normalcy. But the effects of 20 years of civil war and isolation have not yet been overcome. The new Government started immediately to create income from granting logging concessions. The following years until 1997 saw large scale forest degradation and insufficient participation and law enforcement by the Government.

Urgently necessary interventions by the Forestry Authorities could not be realized due to lack of qualified staff and a law enforcement capability. In the meantime, RGC has passed a number of decrees and regulations bringing law and more stability to the forestry sector. Criminal investigation and court action have brought about a significant change of attitude.

In 1999 RGC created the Forestry and Wildlife Research Institute but could not make the FWRI operational due to a number of constraints, one of them lack of capacity and limited access to modern technologies in forest management and rehabilitation. However, RGC expressed significant interest in the assessment of capacity needs and introduction of new technologies.

An important factor in promoting the project concept and goals have been the two consultative workshops held by the Project.

RGC has recently declared "sustainable forest management" a goal of forest policies thus expressing its support for the forestry and forest industries sectors.

#### **4.2 Operational lessons**

Work during the final month consisted mainly of the documentation of facts collected, internal discussions on room requirements, equipment needs and future organization of training. The planning workshop as stipulated under output 2, activity 2.2, was held on 12 and 13 June 2000. Under the guidance of a facilitator participants performed problem and objectives analysis and worked out the Logical Framework Plan. However, participants had little understanding of the methodology and usefulness of such an analytical and objective-oriented planning process. This somewhat restricted their participation and contributions to the planning process. It is concluded that such strict planning exercises should be carefully prepared with introductory lessons. Also, it needs an affirmative statement of the

Directorate that criticisms or structural deficits mentioned in a workshop are accepted as subjective and constructive contribution towards improvement of the Organization.

Seeking the assistance and involvement in the analytical process of foreign experts working in DFW has enriched the planning and conceptual structure of project work. Equally, exchange of ideas with the Faculty of Forestry has been useful. Closer cooperation in the future could benefit both sides. With regard to data collection more time should be allocated and the possibility of screening previously produced documents via Internet in former colonial libraries should be part of future information collection.

## **5. Recommendations**

In Southeast Asia Cambodia has suffered most in human and material terms from the military conflicts in the region. It is not imaginable how extensive infrastructure has been and how little the psychological wounds have healed. The desire to lead a normal life and to produce enough income for survival leaves little room for reflections about causes and consequences of unsustainable land use practices. There is a strong interest in advanced education to achieve social security. The government policy of employing a huge labor force at poverty level salaries cannot be maintained forever.

It is therefore recommended to continue support of capacity building as a means of achieving improvement of the living standard and social condition through professional qualification. In conducting such projects more time should be allowed for training and flexibility in adapting project objectives to the capacities of the counterparts.

The project should make use of expert advice available at the FFS and aim at an agreement between the Ministry of Youth and Education and Ministry of Agriculture, Forestry and Fisheries to ensure that students doing thesis work can do so within the research Program of FWRI. Such a set-up widens the experience of students and provides additional workers to field experiments of FWRI. In the same way experience and expertise of visiting foreign scientist could be used for the training and increase of experience of younger graduates by participating in field research. This valuable potential is not used enough for advancement of know-how.

Analysis of needs in terms of qualification of staff, equipment, information deficits, need for new updated management technologies and lack of facts and figures on forest condition show that the proposed investments in creating a forest research facility in Cambodia are urgently needed.

## **PART II Main Text**

### **5. Project Results**

There have been two Outputs specified that would contribute to the achievement of the Specific Objective:

- Analysis of current research capacities and of needs of human capacity building and
- Elaboration of a project proposal supporting the establishment of a forest research base.

The intended results, specifically an analysis or description of the state of current research capacities have been detailed in the Technical Report.

**Achievement of Output 1** has suffered from a lack of data and a failed analysis of the available facts. This has now been essentially remedied by extending information provided in the Proposal and the Technical Report attached to the Completion Report. However, the overall assessment that research capacities are severely limited because of a lack of basic scientific knowledge and an absence of favorable research environment at DFW is considered as valid.

**Achievement of Output 2** has been easier due to guidelines set by ITTO, available facts and technical support provided by DFW. On recommendation by the ITTO Board of Reviewers the direction of the Project Proposal has been changed in order to strengthen primarily the capabilities of FWRI staff. Because of a very strong technical orientation the Pre-Project Team decided to widen the scope of fields to be studied by including social aspects of participatory forest management. This would also allow integrating research work more closely with on-going projects and their facilities.

As long as FWRI remains in the infant stage no significant impacts on the industry, physical or social environments can be expected.

Sustainability of the envisioned Project is a serious problem understood by the Directorate of DFW-FWRI but has not been the subject of deliberations in designing the Proposal. It will be necessary to organize donor support in the initial phase until products and services of FWRI can be offered to the industry or other agencies. RGC should also be encouraged to guarantee a minimum basic budget for operation and maintenance. This will be a problem top concern the Management of FWRI in the coming years.

## **6. Synthesis of the Analysis**

The subsequent analysis reflects the difficulties in collecting facts and reliable figures to make amore accurate assessment of the current research potential. The Project team is aware of the fact that such an evaluation is decisive for measuring the chances of success of a project.

(a) Specific Objective Achievement	partly realized
(b) Output 1	partly realized
(b) Output 2	realized
(c) Schedule	delayed
(d) Actual expenditures	as planned
(e) Potential for replication	modest potential
(f) Potential for scaling up	significant potential

## **PART III: Conclusions and Recommendations**

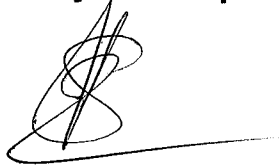
The Project Team learned in the course of project progress that a lot of information and documents have been produced but they are scattered and have not been assembled in a way to ease access. Therefore, no generally valid conclusions are drawn or recommendations made that could make the execution of similar projects more efficient.

- a) Development Lessons:
  - Communicate openly and effectively with international projects and research institutions in the region;
  - Arrange an inter-departmental meeting where staff and objectives of the project are introduced to facilitate access to information and documents;
  - Arrange for incentives in the form of short-term training to keep the loyalty of staff;
- b) Operational Lessons
  - Lack of data was unforeseeable;
  - Time to obtain useful documents unforeseeably long
- c) Recommendations for future projects regarding
  - Design: Make design adequate for situation and procedures in a developing country;
  - Implementation: Go slow and do not overburden partner institutions and the assigned counterparts;
  - Organization: Resist formation of oversize project teams;
  - Management: Do it confidently and effectively, entrust it essentially to the counterpart,
  - Organize adequate path for bringing across criticism or need for improvement of performance
  - Do not forget language and comprehension problems.


The establishment of a Forestry and Wildlife Research Institute will mean a long-term engagement in capacity and confidence building. However, all forestry Research Institutes have gone through the process of evolution, which is essentially not much different from the slow but steady growth of forests themselves.

**Responsible for the Pre-Project and Reporting**

Eang Savet  
Pre-Project  
National Coordinator



K.F. Panzer  
adviser



Phnom Penh, 16 November 2001

## Annexes

### Annex 1: Human resources in DFW

Job skill	Qualified	Staff		Total
		DFW	Provincial	
Forestry	- MSc	15	0	15
	- BSc	228	170	398
	- Associated degree	116	158	274
Others skill	- BSc	51	12	63
	- Associated degree	26	50	76
	- Under Associated degree	0	31	31
No skill	High School and Undergraduate	253	476	729
<b>Total</b>		<b>765</b>	<b>1069</b>	<b>1834</b>

### Annex 2: Human Resources Development for the period 1996 to 2001

Year	1996		1997		1998		1999		2000		2001		Total
Country	MA	PhD	MA	PhD	MA	PhD	MA	PhD	MA	PhD	MA	PhD	
USA	-	-	-	-	2	-	-	-	-	-	-	-	2
Thailand	3	-	-	-	1	-	-	-	1	-	-	-	5
Japan	-	-	1	-	-	-	1	1	-	-	-	-	3
Czech	-	-	-	-	-	-	1	-	-	-	-	-	1
Germany	-	-	-	-	2	-	-	-	-	-	2	-	4
Malaysia	-	-	-	-	-	-	3	-	-	-	2	-	5
England	-	-	-	-	-	-	1	-	1	-	-	-	2
Cambodia	-	-	-	-	-	-	-	-	9	-	7	-	16
<b>Total</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>6</b>	<b>1</b>	<b>11</b>	<b>-</b>	<b>11</b>	<b>-</b>	<b>38</b>