STAFF APPRAISAL REPORT

CAMBODIA

AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT

January 31, 1997

Agriculture and Environment Operations Division
Country Department 1
East Asia and Pacific Region
CURRENCY EQUIVALENT  
(as of December 1997) 
US$1 = 2720 Riels 

ACRONYMS AND ABBREVIATIONS

ADB  Asian Development Bank
ADC  Agricultural Development Center
ACR  Australian Catholic Relief
ADOR Agricultural Development Options Review (FAO/ADB)
APIP  Agricultural Productivity Improvement Project
ASM  Agriculture Sector Memorandum
AUSAID Australian Aid
CAAEP Cambodia-Australia Agricultural Extension Project
CARD Council for Agriculture and Rural Development
CAS  Country Assistance Strategy
CARERE2 Cambodian Area Rehabilitation and Regeneration Programme (UNDP)
CDAI  Chumcar Daung Agricultural Institute (now RUA)
CDC  Cambodian Development Council
CEA community extension agents
CFD  Caisse francaise de developpement
CG Consultative Group
CIAP Cambodia-IRRI-Australia Project
CIRAD Centre de cooperation internationale en recherche agronomique pour le developpement
CMAC Cambodian Mine Action Center
CWS Church World Service
DANIDA Danish International Development Assistance
DAPH Department of Animal Production and Health
DAETE Department of Agricultural Extension Technology & Economics
DGPH Direction Generale des Plantations d’Heveas
DOA Department of Agronomy
DOF Department of Forestry
DPSIC Department of Planning, Statistics & International Cooperation

Vice President (ag.): Javad Khalilzadeh-Shirazi
Director: Javad Khalilzadeh-Shirazi
Division Chief/Manager: Jeffrey Gutman
Staff Member: Christopher Redfern
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>GDIHM</td>
<td>General Directorate of Irrigation and Hydro-Meteorology</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GRET</td>
<td>Groupe de recherche et d'échanges technologiques</td>
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<tr>
<td>HS</td>
<td>haemorrhagic septicaemia</td>
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<td>IDA</td>
<td>International Development Association (World Bank)</td>
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<td>IDRC</td>
<td>International Development and Research Center (Canada)</td>
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<td>IFAD</td>
<td>International Fund for Agricultural Development</td>
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<td>INM</td>
<td>integrated nutrient management</td>
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<td>IPM</td>
<td>integrated pest management</td>
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<td>IRCC</td>
<td>Institut de recherche sur le caoutchouc au cambodge</td>
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<td>ITF</td>
<td>Interim Trust Fund (IDA)</td>
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<td>MAFF</td>
<td>Ministry of Agriculture, Forestry and Fisheries</td>
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<td>MEF</td>
<td>Ministry of Economy and Finance</td>
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<tr>
<td>MRC</td>
<td>Mekong River Commission</td>
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<td>MRD</td>
<td>Ministry of Rural Development</td>
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<tr>
<td>NAHPIC</td>
<td>National Animal Health &amp; Production Investigation Center</td>
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<tr>
<td>NGO</td>
<td>non-government organization</td>
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<td>NPRDC</td>
<td>National Program to Rehabilitate and Develop Cambodia</td>
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<td>NVDL</td>
<td>National Veterinary Diagnostic Laboratory</td>
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<tr>
<td>O&amp;M</td>
<td>operation and maintenance</td>
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<tr>
<td>PLAC</td>
<td>Prek Leap Agricultural College</td>
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<td>PRDC</td>
<td>Provincial Rural Development Committee</td>
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<td>RGC</td>
<td>Royal Government of Cambodia</td>
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<td>RUA</td>
<td>Royal University of Agriculture</td>
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<td>TCP</td>
<td>Technical Cooperation Program (FAO)</td>
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<td>United Nations Development Program</td>
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<td>United States Agency for International Development</td>
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<td>VDC</td>
<td>Village Development Committee</td>
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<td>VV</td>
<td>village vet</td>
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<td>VPL</td>
<td>Vaccine Production Laboratory</td>
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<td>WB</td>
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<td>WFP</td>
<td>World Food Program</td>
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**GOVERNMENT FISCAL YEAR**

January 1 to December 31
CAMBODIA

AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT

STAFF APPRAISAL REPORT

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This report is based on the findings of IDA pre-appraisal and appraisal missions that visited Cambodia in February and June 1996, respectively. The missions comprised Christopher Redfern (task manager), Philippe Boyer (agronomist), Mustafa El-Erian (lawyer), Charles Maguire (agricultural training specialist), Susan Tamondong-Helin (sociologist) and David Sislen (project analyst). Youqiong Wang (project controller), Louise Bevan (agricultural economist) and Harry Franks (agricultural institutions specialist) participated for IFAD. The contributions of the following consultants funded under French, Japanese and Swedish grants for project preparation are acknowledged: Jacques Arrivets (agronomist), Ian Hancock (agronomist), Jeffrey Himel (water resources engineer), Mogens Lemonius (seeds specialist), Ken MacKay (fisheries) and Murray Maclean (veterinarian). The component for planning and statistics strengthening was prepared with the assistance of David Marshall and Jack Corwell (FAO) and Baden Cameron (AusAid consultant). Document clearance was provided by Jeffrey Gutman (Division Chief, EA1AE), Walter Schwermer (Project Adviser, EA1) and Javad Khalilzadeh-Shirazi (Director, EA1). Assistance in preparing the documents was provided by Saraswathi Sundaram.
**CAMBODIA**

**AGRICULTURE PRODUCTIVITY IMPROVEMENT PROJECT**

**Credit and Project Summary**

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<th>Borrower</th>
<th>Kingdom of Cambodia</th>
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<tr>
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<td>Ministry of Agriculture, Forestry and Fisheries</td>
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<td>Staff Appraisal Report</td>
<td>Report No. 15984-KH</td>
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<td>Map</td>
<td>IBRD No. 27954</td>
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1. PROJECT RATIONALE

A. COUNTRY BACKGROUND

1.1 With a 1995 population of about 10.25 million and an estimated GNP per capita of US$260, Cambodia is one of the world’s poorest nations. In stark contrast to some of its South East Asian neighbors with dynamic and fast growing economies, the country is still recovering from 25 years of war and isolation, during which much of its physical, social and economic infrastructure was destroyed. Following a period of almost exclusive assistance from the former Communist Bloc (1979-1988), the Paris Peace Accords of October 1991 opened up the country to wider rehabilitation assistance by bilateral and multilateral donors as well as international NGOs. The Paris Accords also paved the way for national elections held under the aegis of the United Nations Transitional Authority of Cambodia (UNTAC), culminating in the formation of a coalition Royal Government of Cambodia (RGC) at the end of October 1993.

1.2 The new Government has embarked, with the support of the international community, on a comprehensive medium-term program of macroeconomic stabilization that would help Cambodia successfully complete its recent re-orientation towards a free market economy. Major policy interventions have been directed at bringing down the budget deficit and rate of inflation, at raising tax revenues and improving tax administration, and reforming the monetary sector. The tighter financial policies have started to yield results, notably with the rate of inflation falling to an estimated 3.5 percent in 1995 as compared to triple-digit figures in 1992-93.

1.3 In fact, successful long-term development of agriculture will be crucial in helping Cambodia to meet the numerous challenges that it faces. Amongst these are the need to feed a population that, at its present growth rate of about 3% p.a., will double in 25 years, and to contain unsustainable urban migration by creating opportunities of productive employment in the rural economy for a young and growing population (about half are under 15 years of age). A critical challenge is therefore to rebuild the Government’s capacity to plan, formulate and execute agriculture and rural development programs.

B. SECTORAL BACKGROUND

1.4 Most Cambodian households depend on agriculture and its related subsectors of livestock rearing, fisheries and forest exploitation for their living. There are estimated to be about 1 million farming households of which a substantial minority, perhaps as high as 35 percent, is headed by women without access to adult male labor. Agriculture constitutes half of Cambodia’s GDP and involves about 80% of the labor force. Crops, grown both for food and for other products such as rubber, account for roughly 30% of GDP, livestock raising for another 15%, fishing for an estimated 4 to 5%, and forestry for 1 to 2%. Rice is the most important crop, accounting for one-third of the total estimated value of agricultural production; rice, vegetables, fish and some meat
are the staples of the Cambodian diet. Rubber and timber are the country’s most important export commodities, recently comprising 75% of total domestic exports; but small quantities of other agricultural products, including live cattle, rice, fruits and fish, are also traded to neighboring countries, which represent important markets for future development of the sector.

1.5 Agriculture research, planning and development, including that of the livestock, forestry and fishery subsectors, as well as management of water resources for all agricultural uses, is under the responsibility of the Ministry of Agriculture, Forestry & Fisheries (MAFF) which is organized on the basis of seven technical departments which control their own staff in the provinces, with a total of about 12,000 employees. Although many of these staff have useful training and work experience from earlier years, the Ministry does not presently have the budget or responsibility for implementing major projects, apart from irrigation rehabilitation works funded by the Asian Development Bank (ADB) under its Special Rehabilitation Assistance Loan. All agricultural research is presently being done under externally funded projects, for rice notably by IRRI under a project funded by Australia. France plans to support the re-establishment of a research institute for rubber (IRCC). Responsibility for coordinating rural development activities lies with the Ministry of Rural Development, which now has about 1,200 employees and is involved in organizing rural water supply, rural roads, rural credit, village health and community development programs, often in collaboration with projects started by NGOs and international organizations. Important decisions by the Government affecting the relative roles and responsibilities of these and other agencies operating in the rural sector are increasingly being taken by a Coordinating Committee for Agriculture & Rural Development (CCARD) on which all agencies concerned are represented under the chairmanship of the Second Prime Minister. The CCARD is likely to be the Government’s overall coordinating body for this and future Bank-supported projects for agriculture and rural development. Coordination of activities at provincial level is increasingly provided through Provincial Rural Development Committees (PRDC), chaired by the Provincial Governors.

1.6 Although agricultural production recovered quite strongly over the last decade, productivity levels are still low compared with those in other countries in the region, indicating that opportunities for raising them through improved technology and other means should be substantial. However, there are important constraints on how quickly this can be achieved, relating to technical, economic and socio-political factors. Yield of main crops, especially rice, is quite varied between different agro-ecological zones and very unpredictable from one season to the next, dependent on climatic events. In both 1994 and 1996, extensive flooding resulted in considerable crop damage, amounting to about 15% of the normal expected crop. Above-average rice production in 1995/96, which permitted limited rice exports to be resumed, was attributable to favorable rainfall, an increase in the use of inorganic fertilizers and a restoration of natural soil fertility as a result of flooding of the central plains the previous year. Consequently, year-to-year fluctuations in rice supply are likely to recur.

1.7 This yield uncertainty is the result of many factors, including a low proportion of cropped area under irrigation, difficulties in achieving satisfactory water control on often poorly engineered irrigation schemes, unusually variable soil conditions, and restricted availability of modern technology inputs that could potentially reduce crop losses from drought, pest and
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disease. The three decades of civil war have destroyed vital data and the technical knowledge
needed to use these data, severely depleted the agricultural labor force, leaving many women
with the responsibility of farm as well as household management, and displaced rural families
from their original land holdings. Poor transport and communications and continuing insecurity
in parts of the country only aggravate the problem by making it more costly for farmers and
traders to move surplus product and other supplies from one area to another.

1.8 Constraints on agricultural productivity, including low resiliency of production systems
to flooding, drought, pest and disease, result in regional and localized shortfalls in supplying the
minimum nutritional needs of rural residents for rice and other basic foods. Reaching national
self-sufficiency in rice production has remained elusive, necessitating an unsustainable reliance
on external food aid. The high cost of transporting rice and other foods, along with the inability
of poorer residents to pay, means that even if aggregate production is sufficient for national
needs, pockets of the rural poor go hungry. With the system of collectivized agriculture officially
dissolved in 1989 and land privatization given legal backing in 1991, public supports (including
provision of agricultural inputs, basic commodity distribution, and price setting) have been
progressively removed. The impact of these changes is uneven, likely contributing to an increase
in agricultural production, but also placing disproportionate strain on vulnerable groups
including recent returnees, internally displaced persons, landless and land-poor rural residents,
and rural households, such as those headed by widows, lacking in family labor. In general, these
are the groups put at greatest risk in times of local food shortage.

1.9 Rice, which supplies about 75% of the calories consumed by Cambodians, is grown on
over 90% of the currently cropped area. In 1989-91 Cambodia was considered close to food self-
sufficiency, producing an annual average of some 2.5 million tons of paddy. The droughts and
flooding that have damaged rice crops in parts of the country each year since 1990, however,
have partly frustrated the attempts to increase aggregate rice production, while mines and
insecurity problems have kept farmers away from otherwise cultivable areas. Due to the refugee
repatriation and an estimated population growth rate of 2.7% per annum, paddy production
would need to reach approximately 3.0 million tons by 2000 to assure national self sufficiency
(based on FAO minimum nutritional requirements).

1.10 Moreover, even if overall rice production is adequate at a national or regional level,
constraints on the transport and marketing of rice and other basic foods still pose significant
obstacles to achieving household food security. In the past, heavy government regulation could
be blamed as the main impediment to output growth. In the mid 1980s, controls on rural mobility
and restrictions on private trade were significant, but the market liberalizing reforms introduced
since 1989 removed most such regulatory constraints. More recently, a ban on rice exports
limited the potential of farmers to increase incomes through access to the export market. The
Government agreed to lift the ban on rice exports in late 1994, but delayed the official lifting
until late 1995 because of the poor 1994/95 rice harvest. The Government’s commitment to an
open export policy for rice is important in signaling to farmers that investments in increasing
domestic food production are worthwhile. National food security is not put at risk with such a
policy because of Cambodia’s proximity to two major rice exporters.
1.11 Beyond the need for clear policy signals, two factors stand out as pressing constraints on agricultural marketing. First is the poor state of transport infrastructure that makes distributing the stocks to rural areas experiencing a rice deficit very costly. Second is the widespread practice of illegal road “taxation,” whereby various groups levy a toll on road users. WFP reports that, though rice remained available in Phnom Penh and province centers in 1995, villages outside a 15-20 kilometer radius generally did not have access to these supplies in times of local shortage. This is partly due to the high transaction costs in food transport.

C. RATIONALE FOR IDA INVOLVEMENT

1.12 In its presentations to the CG meeting held in July 1996, the Cambodian Government has made clear the top priority given in its development strategy to achieving early and sustainable improvements in agricultural production and poverty reduction in the rural areas. Furthermore, in the context of its efforts to reinforce the political basis for national reconciliation, the two Prime Ministers have repeatedly stressed the urgency of formulating and implementing sound projects for agriculture and rural development, as the principal means to bring about peace and security in the countryside. The Bank’s assistance program fully reflects this priority, and the design of the proposed project responds to the strategic objectives set out in the Country Assistance Strategy dated January 28, 1997 and scheduled for Board discussion on February 20, 1997. Specifically the project supports the strategic objectives of “enhancing rural development and natural resource management” and “improving the human resource base and reducing poverty” (draft CAS, paras. 39 and 42). Complementing the proposed project, identification has taken place of a possible IDA-financed Rural Development Project for FY98/99, with components for rural transport and water supply improvement, agricultural and other income-generating activities, and institutional strengthening at local levels in four northeastern provinces, which would build upon the agricultural field development programs to be started under APIP. Clarification of the policy and institutional framework for both of these projects has been assisted by discussion with Government and other agencies of an Agriculture Sector Memorandum.

D. LESSONS FROM PREVIOUS INVOLVEMENT

1.13 The Emergency Rehabilitation Project (ERP), Credit 2550-KH, was approved in November 1993 and is now closed. The major part of the US$63 million equivalent Credit financed critical imports needed by the private sector, while the rest financed the foreign exchange costs of rehabilitation sub-projects in six sectors. Following a mid-term review in October 1994, the amount earmarked for agriculture (and some other sectors) was reduced, both because of a lack of well prepared rehabilitation projects, and because of a pressing need to reallocate funds to investments in the power sector and for general imports. The restructuring of the agriculture component resulted in the elimination of several sub-projects whose technical feasibility or implementation within the agreed time-frame looked uncertain. As a result of the
restructuring, successful implementation of ERP agriculture subcomponents has helped pave the way for some of the components of the proposed project.¹

1.14 The main lessons learned from implementing the agriculture component of the ERP are: (i) in Cambodia's present transitional stage of development, the Government's absorptive capacity for planning and implementing projects is still very limited and needs to be supplemented for an interim period with technical assistance; (ii) at the same time, the risk of creating a long-term dependency on foreign technical assistance should be avoided by involving local staff in project design and implementation at an early stage, improving incentives for initiative and performance, and providing more relevant and better organized training; (iii) project design and management arrangements should be kept simple in terms of their demands on central government coordination and implementation capacity, with attention also paid to decentralizing responsibility for implementation to the provincial levels; and (iv) despite efforts being made in the Finance Ministry to overhaul the budgetary system, systems for making timely transfer of funds to the line departments and provinces remain weak and will require continued attention.

¹ The components concerned are those for agronomy, livestock, fisheries, agricultural hydraulics, and smallholder rubber.
2. PROJECT DESCRIPTION

A. PROJECT PREPARATION

2.1 Most of the cost of project preparation was covered by a grant from the Japan Policy and Human Resource Development Fund of Yen 42.4 million (US$0.4 million equivalent), of which approximately half was used to finance agronomy, irrigation, fisheries, sociology and agricultural economics specialists for the preparation of this project and for pre-implementation assistance to the MAFF; the balance is being used for preparation of a rural development project under the aegis of the MRD. At the request of the Government of Cambodia, trust funds for project preparation were administered by the Bank. The Swedish SIDA trust fund financed a veterinarian who helped to update and expand the livestock component prepared by IFAD in 1994. The French general consultant trust fund financed a research agronomist from CIRAD who contributed to the preparation of the agronomy component. CIRAD also prepared the smallholder rubber research component. FAO and IDRC (Canada) helped prepare the IPM and fisheries components. FAO prepared the agricultural statistics component; and the FAO Cooperative Programme provided a seeds industry specialist for preparation of the seeds production component. Bank missions and MAFF staff worked together closely throughout project preparation to incorporate the above contributions into the final project design.

B. PROJECT OBJECTIVES

2.2 The project's overall objective, in line with the major goals of government policy in the sector, is the sustainable and broad-based improvement of smallholder agricultural productivity as a means to improved food security and increased rural incomes. In the longer term, the agricultural sector is also expected to earn needed foreign exchange through exported surpluses, save foreign exchange through import substitution, and contribute government revenue to cover investment and recurrent costs of providing public services to the sector. This goal recognises: (i) Cambodia's commitment to a market-based economic development strategy; (ii) that aggregate agricultural production is a function of decisions made by individual farmers, who already invest their own resources in agricultural production at high risk and for low returns (crop losses, crop failure, livestock disease/mortality, civil insecurity, unknown markets); and (iii) that reduced risks and increased returns could be assisted through improved farmer access to information, appropriate technology, inputs and markets.

2.3 The project's underlying premise is that MAFF has, and will continue to have, an important responsibility to the 80% of Cambodia's population who derive their livelihood from agriculture, which at present MAFF does not have the capacity to fulfil. As defined in MAFF's draft mission statement, its role is "to support the economic growth of Cambodia by providing high quality services which result in a secure food supply, increased agricultural output and add value on a sustainable and cost effective basis to the agricultural, fishing and forest based sectors". The project would help to build the necessary institutional capacity in MAFF, in part by
implementing pilot field programs as a means of (i) gaining experience in the planning, organization and management of agricultural development programs; (ii) adapting, testing and demonstrating improved agricultural technology under field conditions; and (iii) more generally developing MAFF's understanding of and responsiveness to the needs of its client base.

2.4 The project would promote sustainable agricultural development by creating a MAFF that is enabling, responsive, accountable and cost effective. MAFF's evolving role and responsibility within a market-based economy will be to:

(a) create an environment wherein smallholder farmers, who are predominantly poor and largely excluded from the market economy, can gain access to basic agricultural services and the opportunity to use new technology;

(b) adapt, test, and demonstrate new technology appropriate to the country's different agro-ecological zones, which responds to local priorities and is economically beneficial to farmers;

(c) regulate farming practices so as to ensure sustainability of natural resources and to protect the health and welfare of the rural population;

(d) provide public, and some private, goods and services used by the agricultural sector (e.g. annual stocks of rice foundation seed) on a cost recovery basis;

(e) license and regulate the provision of private goods and services (such as crop inputs, veterinary services and water) so that consumer and farmer interests are appropriately safeguarded.

2.5 Recognizing the above, the proposed project would consist of a coordinated five-year program to improve the quantity and quality of the technical, human and physical resources of MAFF needed to promote sustainable agricultural development. This would be achieved through carrying out (i) programs in each of the main agricultural subsectors comprising essential knowledge acquisition, technology testing and adaptation, field development activities, priority rehabilitation investments, and (ii) a major effort in MAFF human resource development. The sum total of these activities should lead by project completion to the building of substantial capacity in MAFF to plan, coordinate and implement successful agricultural development programs for the benefit of and with the participation of the rural populations concerned, and to substantial benefits for farmers in the areas of the pilot field programs in terms of increased crop and livestock production (see para. 2.14 for expected project outputs). The project design is sufficiently flexible and comprehensive to provide a framework capable of absorbing technical assistance and other interventions for institutional strengthening of MAFF which may be provided by other donor agencies.
C. PROJECT DESCRIPTION

2.6 The project would comprise nine components addressing priority development needs of the MAFF. Five components would be carried out by MAFF technical departments\(^2\), and three would be implemented from the Ministry level -- for strengthening agricultural planning and statistics, for establishing a human resource management capability, and for strengthening of provincial agriculture services. The other component would be the establishment of a project management unit (PMU) within the Ministry to manage the project. Organization of the components by responsible department was adopted to facilitate preparation and management of the project; there would, however, be substantial collaboration fostered between the departments, both at headquarters and especially in the field, in implementing the project. The individual components are described below.

Agronomy, Seeds and Plant Protection

2.7 This is the largest and most important of the Project’s components, accounting for 29% of total costs. It aims at strengthening the capacity of the Department of Agronomy (DOA) to develop appropriate technologies and formulate technical recommendations to farmers for improving rice and other annual crop production, with a view to achieving greater food security and increased farmer incomes while ensuring sustainability of farming practices. The component does not seek to develop DOA’s capacity to undertake research *per se*, but rather to fill the critical gap between research and extension. It aims to provide DOA with the capacity to: (i) *coordinate agricultural research effectively*, to ensure that research programs on crop technology are formulated in accordance with the country’s priorities; (ii) *collect and analyze regional and local data on the main factors of production*, with a view to identifying constraints and improving the base of technical knowledge that supports agricultural policy making; (iii) *test technologies developed by research* with a view to formulating suitable recommendations to farmers; (iv) lay the basis for modern seed industry in Cambodia capable of *supplying farmers with higher yielding and better quality seed* for rice and other food crops; (v) promote appropriate farming practices to *ensure the sustainability of natural resources and protect the natural environment and the health of farming families* from the increasing use of dangerous pesticides by educating them in IPM and other safer methods of pest control; and (vi) provide *technical support to agricultural extension workers* and staff of the provincial agriculture services.

2.8 The DOA component would consist of: (a) a **Technical Coordination and Capacity Building** sub-component (US$1.5m) and five technical sub-components: (b) **Soil Fertility Management and Conservation** (US$1.0 m); (c) **Farming Systems and Crop Diversification** (US$0.9 m); (d) **Seed Production Program** (US$3.5m); (e) **Plant Protection Service Establishment** (US$1.1m); and (f) **Integrated Pest Management** (US$1.5 m). Each sub-component would receive technical assistance support and the necessary funding for training national staff, supplying equipment, construction or rehabilitation of selected infrastructure and

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\(^2\) In this report the term “departments” also includes the Ministry’s two General Directorates (Directions Generales) for Irrigation and Hydro-Meteorology (GDIHM) and Rubber Production (DGPH).
incremental operating expenditures. Long term TA (one expert each for up to five years) for subcomponents (c) and (f) would be provided respectively by CIRAD (France) and the FAO regional IPM unit based in Manila; their costs are not included in the project.

**Animal Health and Production.**

2.9 All types of livestock in Cambodia suffer from very high morbidity and mortality rates, due to the inability of Government services or the private sector to deliver basic animal health services, for which there exists cost-effective technology and demand from farmers. This component of the project, to be implemented by the Department of Animal Health and Production (DAHP), would build on the experience of successful NGO livestock programs and a pilot scheme started under the Bank ERP. There would be three subcomponents: (a) Disease Control and Management ($2.5 m) which would improve the DAHP central support services for animal disease diagnosis and vaccine production; (b) a Basic Animal Health program in four provinces where livestock raising is particularly important for the local economy ($2.2 m); and (c) Promotion of Animal Production through an extension program for improved animal husbandry and nutrition ($0.2 m). Because subcomponent (b) depends on the successful introduction in four provinces of a system of privatized village vets to provide basic animal health services to farmers, with training and initial support from DAHP, it was agreed during negotiations that by December 31, 1997 the Government would adopt a national plan for training, registration and licensing of village vets satisfactory to IFAD and the Association. The base cost of the component as a whole, which would be financed in parallel by IFAD, is estimated at $4.9 million (15% of total costs).

**Agricultural Hydraulics**

2.10 The agricultural hydraulics component of the project is intended to provide the General Department of Irrigation, Hydrology & Meteorology (GDIHM) with the basic skills, knowledge and equipment to function effectively not only as the MAFF department with the responsibility for managing water for all agricultural uses but also as the only government agency currently with the mandate to plan the use of water resources across sectoral and local boundaries. The component would consist of four subcomponents: (a) GDIHM Capacity Building ($0.7m); (b) Hydrology Information System Development ($1.0m); (c) Small Scale Agricultural Hydraulics ($2.7m); and (d) Medium Scale Agricultural Hydraulics ($0.9m). The four subcomponents are designed with two complementary objectives in mind: to help strengthen the technical, human and physical resources of the GDIHM; and to improve farmer incomes and food security in selected pilot provinces through provision of water for supplementary irrigation as well as fishing, livestock and domestic use.

**Fisheries**

2.11 The overall objective of this component, to be implemented by the Department of Fisheries (DOF), is to help improve Cambodians’ livelihood and nutrition by sustaining the yield of freshwater fisheries through better management of the capture fishery and increasing the production of fingerlings for fish rearing. The specific objectives are to: improve the
conservation and management of the capture fisheries, with a focus on freshwater fisheries; improve the supply of seed for aquaculture, with a focus on indigenous fish species; and strengthen the Department of Fisheries to carry out its mandate. There would be three subcomponents: (a) fisheries conservation and management ($1.5 m), comprising demarcation of fish sanctuaries in the Tonle Sap, habitat improvement, equipping the DOF fisheries inspection units for more effective regulation enforcement, and related information and training activities; (b) rehabilitation of a freshwater fisheries research station at Chriang Chamres on the Tonle Sap River in order to improve the production and supply of fingerlings of indigenous species for local fish raising enterprises ($1.0 m); and (c) DOF capacity building, for which training and short term technical assistance would be supplied in policy, finance and administration, human resource development, fisheries law and statistics ($0.5 m). It is expected that long term technical assistance to the DOF to assist it in carrying out subcomponent (a) will be provided under an extension of an ongoing DANIDA/MRC project for management of the freshwater capture fisheries of Cambodia.

Smallholder Rubber Research

2.12 The component, to be implemented by the Department of Rubber Production (DGPH), is designed to obtain the technical data needed to confirm the country’s suitability for smallholder rubber development, through formulation and implementation of a smallholder rubber research program and training of national research scientists and technicians. The project would comprise technical assistance of a senior rubber research specialist for five years (to be provided and funded by CIRAD, France), vehicles, office and laboratory equipment, and related incremental operating expenses. Total costs are estimated at $1.7 million.

MAFF Strengthening Components

2.13 Three components are situated organizationally at Ministry level:

(a) Human Resource Management (HRM): technical assistance would be provided to establish and train a Human Resource Management Unit attached to the Department of Personnel which would establish a MAFF personnel data base, train HRD managers in the MAFF and departmental personnel departments, carry out organizational and job analyses, carry out training needs assessments, prepare training plans for each department and unit of the Ministry involved in the project, and manage the selection, evaluation and career development of staff selected into project positions. It was agreed during negotiations that the Government would prepare and send for IDA’s comments the annual training programs to be carried out under the Project. This work would provide the information and in-house skills needed to support the ongoing reorganization of the Ministry as well as an expansion and more effective use of training. The cost is estimated at $1.7 million;

(b) Support to Provincial Departments of Agriculture: the component would provide for rehabilitation of buildings, office equipment, training, workshops and
incremental operating expenses for five MAFF provincial offices to support the project’s field activities. The cost is estimated at $0.4 million; and

(c) **Strengthening of Planning and Statistics.** These two subcomponents, to be implemented by the Ministry’s Department of Planning, Statistics & International Cooperation (DPSIC) would provide technical assistance (short and long term), staff training (local and overseas), vehicles, equipment and operating budgets needed to build the capacity of the planning and statistics offices of DPSIC to strengthen the Ministry’s capacity to carry out project and program level public investment planning and to better meet the country’s needs for basic agricultural statistics. Total costs are estimated at $2.9 million.

### Project Management Unit

2.14 To assist in implementation of the project and training of local staff a Project Management Unit (PMU) would be established within MAFF, reporting to the Secretary of State for Agriculture, who would chair a Project Steering Committee (PSC). The PMU would be headed by a senior official, of the level of Under Secretary of State, and be staffed by a full-time Deputy Chief and other staff, supported by long and short term technical assistance, including a Project Management Advisor, who would be the chief technical advisor for the Project; a Procurement Specialist; a Finance & Administration Specialist; and short term consultants for establishment of monitoring and evaluation systems and supervision of buildings and civil works. The PMU would coordinate the budgets and implementation plans of all the components of the project, and ensure their appropriate auditing, monitoring, evaluation and progress reporting. The estimated cost of the PMU, including costs for a staff retraining program, is $3.0 million over five years, or about 9% of the base cost estimate. It was agreed that both PSC and PMU would have been established, according to terms of reference satisfactory to IDA, and their key personnel appointed, as conditions of effectiveness.

### D. EXPECTED OUTPUTS

2.15 The project would enable activities to be undertaken as part of coherent work programs in five key sub-sectors to produce outputs needed to achieve the project’s medium term capacity-building objective. Directly productive outputs in terms of increased agricultural production and rural income would also be achieved during the Project.

2.16 **Human Resources.** By project completion, a key output in all sub-sectors would be developed human resources. In MAFF, about 1,000 trained personnel at central and provincial levels would have achieved pre-determined levels of technical and managerial competency.

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3. Kompong Thom, Kompong Cham, Kratie, Prey Veng and Svay Rieng provinces; see map IBRD 27954.
4. including crop production estimates at district, provincial and national level, and monitoring and analysis of producer price developments
5. Agronomy, livestock, fisheries, agricultural hydraulics, and smallholder rubber.
6. (of a total MAFF workforce of about 12,500)
Many more would have acquired better communication and analytical skills and gained on-the-job experience of successful workplan implementation and inter-departmental collaboration. Training courses would have been conducted for staff of the agronomy, livestock and hydrology departments in gender awareness. In four selected provinces about 800 village vets would be trained and licensed; and about 20,000 farmers trained / exposed to new technology: 16,000 rice farmers would have been trained in IPM; a minimum of 500 farmers trained in seed production, and about 2,000 farmers would have participated in supervised on-farm field trials (200 trials per year for 4 years in Soil Fertility Management and Farming Systems/Crop Diversification).

2.17 Physical Outputs. Expected physical outputs contributing to the institutional capacity objective include newly constructed or rehabilitated and equipped departmental and provincial offices, laboratories, research station and seed processing buildings; it is expected that these would be functioning efficiently.

2.18 The Seeds Multiplication Program would start to produce physical outputs within the investment period of the project, including 700 tons/year of improved rice foundation seed produced for multiplication and 15,000 tons/year of rice extension seed processed, labelled and marketed. Other directly productive outputs are 2 million/year doses of cattle vaccine, 2 million/year fish fry/fingerlings, and about 136 small-scale water retention/drainage structures. In all components, physical targets have been set that take account of MAFF's weak initial implementation and absorptive capacity, and the over-riding objective to build up that capacity through various means.

2.19 Information for Future Development of the Sector. By project completion the project would have begun to generate important information outputs. These include information systems which would produce valuable data on Cambodian farming and inland fishing systems, a national agricultural statistics system (DPSIC), an agronomic technology testing and demonstration system (DOA), a hydrology information system (GDIMH), a crop pest database (DOA), a sectoral public investment program database (DPSIC), and a personnel and job description database (HRD). Some information outputs would be the result of one-off studies and surveys such as smallholder rubber research results, evaluations of small-scale agricultural hydraulics schemes, the vaccine production privatisation study, training needs assessments, statistical surveys, farming systems studies and field trial results, a feasibility study of a medium-scale agricultural hydraulics scheme, and component monitoring and evaluation reports. These outputs, together with the technical and analytical skills acquired by MAFF personnel, would contribute to improved prioritisation and decision-making capacity within MAFF and an improved allocation of resources in the agricultural sector. In some cases, information outputs would feed into other project outputs such as field-tested technical recommendations. A critical systems output is expected to be an established information flow involving two-way communications among the different stakeholders in the agricultural sector that will ensure that MAFF promotes technology that responds effectively to real needs.

The scheme proposed is the Prek Tatam canal rehabilitation, in Prey Veng province, one of the priority schemes identified in the 1994 UNDP Irrigation Study.