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IMPLEMENTATION COMPLETION REPORT
(IDA-34720)

ON A

CREDIT

IN THE AMOUNT OF SDR 27.1 MILLION (US\$37.5 MILLION EQUIVALENT)

TO

THE KINGDOM OF CAMBODIA

FOR A

FLOOD EMERGENCY REHABILITATION PROJECT

December 21, 2005

**Rural Development and Natural Resources Sector Unit
East Asia and Pacific Region**

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 20, 2005)

Currency Unit = Cambodian Riel
1 Cambodian Riel = US\$ 0.000238
US\$ 1.00 = 4,193 Riels

FISCAL YEAR

January 1 - December 31

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
DCA	Development Credit Agreement
DRD	Directorate of Rural Development
ERR	Economic Rate of Return
FERP	Flood Emergency Rehabilitation Project
FWUC	Farmers' Water Users Community
GPS	Global Positioning System
ICB	International Competitive Bidding
ICR	Implementation Completion Report
IS	International Shopping
MAFF	Ministry of Agriculture, Forest, and Fisheries
MEF	Ministry of Economy and Finance
MEF/WBD	Ministry of Economy and Finance/World Bank Division
MOEYS	Ministry of Education, Youth & Sport
MOH	Ministry of Health
MOP	Ministry of Planning
MOWRAM	Ministry of Water Resources and Meteorology
MPWT	Ministry of Public Works and Transportation
MRD	Ministry of Rural Development
MTR	Mid-term Review
NCB	National Competitive Bidding
NCDM	National Committee for Disaster Management
NPCC	National Project Coordinating Committee
NS	National Shopping
O&M	Operation & Maintenance
PAP	Participatory Approach Program
PCU	Passenger Car Unit
PDWRAM	Provincial Department of Water Resources and Meteorology
PIU	Project Implementation Unit or Provincial Implementation Unit
PMCU	Project Monitoring and Coordinating Unit
QAG	Quality Assurance Group
RGOC	Royal Government of Cambodia
SDR	Special Drawing Rights
SOE	Statement of Expenditures

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CAMBODIA

FLOOD EMERGENCY REHABILITATION PROJECT

IMPLEMENTATION COMPLETION REPORT

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Map -IBRD 31287

<i>Project ID:</i> P073394	<i>Project Name:</i> Cambodia: Flood Emergency Rehabilitation Project
<i>Team Leader:</i> Liping Jiang	<i>TL Unit:</i> EASRD
<i>ICR Type:</i> Core ICR	<i>Report Date:</i> December 30, 2005

1. Project Data

Name: Cambodia: Flood Emergency Rehabilitation Project *L/C/TF Number:* IDA-34720

Country/Department: CAMBODIA *Region:* East Asia and Pacific Region

Sector/subsector: Roads and highways (50%); General education sector (24%); Irrigation and drainage (12%); Flood protection (11%); Central government administration (3%)

Theme: Natural disaster management (P); Rural services and infrastructure (S)

KEY DATES

	<i>Original</i>	<i>Revised/Actual</i>
<i>PCD:</i> 01/08/2001	<i>Effective:</i> 06/04/2001	06/04/2001
<i>Appraisal:</i> 01/18/2001	<i>MTR:</i> 02/15/2003	02/24/2003
<i>Approval:</i> 03/13/2001	<i>Closing:</i> 12/31/2004	06/30/2005

Borrower/Implementing Agency: KINGDOM OF CAMBODIA/MINISTRY OF PLANNING

Other Partners:

STAFF	Current	At Appraisal
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2. Principal Performance Ratings

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

Outcome: S
Sustainability: L
Institutional Development Impact: SU
Bank Performance: S
Borrower Performance: S

Quality at Entry: QAG (if available) ICR
S
Project at Risk at Any Time: No

3. Assessment of Development Objective and Design, and of Quality at Entry

3.1 Original Objective:

3.1.1 The main objective of the project was to rehabilitate economic and social infrastructure damaged by the 2000 floods while also indirectly supporting a recovery in rural production and incomes. Another objective was to assist the government in formulating a long-term strategy aimed at reducing the country's vulnerability to flooding.

3.1.2 The objectives were clear and consistent with the Borrower/World Bank Country Assistance Strategy (CAS) for Cambodia which called for poverty alleviation and reconstruction of infrastructure to promote social and economic development in rural areas. The project was designed to meet the urgent needs of a large number (around 6 million) of flood victims after the 2000 floods, and had a very clear target group of people to be assisted and scope of the infrastructure to be rehabilitated under the project.

3.2 Revised Objective:

3.1.2 The original project objectives remained unchanged throughout project implementation.

3.3 Original Components:

3.3.1 The project comprised five components: (a) the rehabilitation of damaged sections of national primary and secondary roads; (b) the rehabilitation of rural infrastructure; (c) the rehabilitation of flood control and irrigation systems; (d) the rehabilitation of primary and secondary schools; and (e) project management and financial assistance to carry out studies to help the Royal Government of Cambodia (RGO) in the development of a long-term strategy to reduce vulnerability to flooding.

3.3.2 These components were well designed as an integrated set of basic actions and activities that supported the achievement of the project objectives. Lessons and experiences were taken into account learned from responsible implementing agencies and similar and past flood emergency projects in reconstruction and recovery work of infrastructure: (a) sub-projects should be simple and suitable for rapid implementation; (b) sub-projects should serve a large number of beneficiaries and promote poverty alleviation; (c) sub-project implementation should get local government support and participation; (d) sub-projects should be the most cost-effective or least-cost solution; (e) sub-projects should be up-graded to avoid similar damage in the future; and (f) sub-projects should comply with the Bank's related safeguard policies.

3.4 Revised Components:

3.4.1 The original components remained largely unchanged throughout the implementation period except for the following aspects: (a) adjustment of investments for flood control and irrigation components; the number of irrigation sub-projects proposed to be rehabilitated at project appraisal was reduced from 85 to 33 at the time of the mid-term review (MTR) because the costs of initially-considered sub-projects were discovered to be under-estimated after the detailed studies were carried out by the international and local consultants; (b) additional funds

(US\$2.5 million) realized from exchange rate gains against the SDR were reallocated to the components that had more pressing demands for sub-projects; and (c) the original budget allocation of US\$40,000 for the study on flood mitigation was increased to US\$60,000 in order that more intensive work could be undertaken to prepare a case study on mitigation of local flash-floods in a small watershed to enhance the government's long-term strategy aimed at reducing the country's vulnerability to flooding (see Annex 1 & 2 for detailed revisions).

3.5 Quality at Entry:

3.5.1 While the project was not subject to a review by the Quality Assurance Group (QAG), the quality at entry is rated as satisfactory. The project objectives were consistent with the CAS, which called for poverty alleviation and reconstruction of infrastructure to promote social and economic development in rural areas. To accomplish the objectives, the project incorporated the following valuable experiences which had been proved to be effective in project management and implementation of the previous Bank-supported projects: (a) the project was strongly coordinated by comprehensive ministries and implemented by line ministries in close cooperation with project-related municipalities and provinces; (b) an operational manual was prepared and adopted prior to effectiveness of the Credit which provided the detailed technical guidelines and operational rules for project management and implementation as well as check-lists for ensuring compliance of project preparation and implementation with the Bank's safeguard policies; and (c) the samples of the representative sub-project proposals for each project implementing agency (including their formats, key contents and approval procedures) were reviewed and agreed by the Bank and Borrower and provided to the implementing agencies as examples to ensure quality at entry.

3.5.2 However, given the emergency nature of the project with a very short preparation/appraisal process, there was insufficient time to prepare a thorough design with field visits to include the project activities as mentioned below, which have been considered to be important and necessary for project management and implementation. With the benefit of hindsight, three activities can be identified that would have improved the project.

3.5.3 The project could have included a component on formal training and capacity building. Successive training of government staff in project management and implementation throughout the period of project implementation, particularly in the Bank's procurement guidelines and financial management as well as project compliance with the Bank's safeguard policies, proved to be necessary to avoid any incompliance or problems. During project implementation, the international consultants provided considerable on-the-job technical training to their counterpart officials and local consultants. However, the time for the training was insufficient. Subsequently, a complementary training program on procurement and financial management was provided to include more project staff with IDA financing to avoid problems during project implementation, which proved to be highly effective. However, no training was provided in the Bank's safeguard policies and compliance with them during project preparation and implementation.

3.5.4 The project could have included a component on agricultural extension services. Based on the analysis of the impact of project components on poverty alleviation in Annex 8, access to irrigation is the closest correlate of lower rural poverty rates, and the poor integration of

agricultural extension and irrigation results in low returns to irrigation investments. Therefore, the agricultural extension services are extremely important to the irrigation component under this project. Lack of the component in the project has contributed to the insufficient irrigation returns and reduced farmer incomes in the areas covered by the irrigation component.

3.5.5 The project could also have included a list of the sub-projects identified through field visits with priorities or ranking for IDA financing at project appraisal, especially for the irrigation, school and rural road components. The lack of such a list made it difficult for the Bank supervision missions to identify, review and make comments on the sub-projects selected by the line ministries and local governments during project implementation due to various unexpected changes afterwards.

4. Achievement of Objective and Outputs

4.1 Outcome/achievement of objective:

4.1.1 The outcome of the project is rated as having been satisfactory.

4.1.2 The project's main objective of restoring essential infrastructure, facilities, services and production was achieved in a rapid and consistent manner. The completed sub-projects restored social services and economic production within the shortest possible time after the floods. The new facilities were made more flood-resilient and also designed to meet the short-term expansion needs (e.g., schools and irrigation systems). In addition, because of the installation and/or reconstruction of early warning systems and flood protection infrastructure and the successful completion of the case study on mitigation of disasters caused by local flash-floods to enhance the national strategy on flood mitigation, the project has directly contributed to reducing the country's vulnerability to future disasters and the risk of future economic losses.

4.1.3 The project benefited an estimated maximum of 5.9 million people (see Annex 8 for detailed calculations of the number of beneficiaries) and was fully appreciated and highly valued by the poor villagers, local governments and general public in the project area. Since most of the selected sub-projects are located in relatively poor rural communities, the rehabilitation of national and rural roads, restoration of irrigation facilities and construction of new school buildings has brought significant social and economic benefits to the rural communities. With the restoration of these critical facilities, the project has had the following substantial outcomes: (a) increased traffic volume on rehabilitated national and provincial roads, which has brought about various opportunities for development; (b) increased yields of farm products, which has improved food security for many rural poor; (c) increased farm-gate prices and improved access to markets, which have increased income generated from agricultural production; and (d) improved access to social services and education, which has increased student enrollments and promoted community participation. These multiple-dimensional changes have contributed with synergy to a reduction of poverty and assurance of food security in the project areas and have provided a solid basis for long-term and sustainable social and economic development in the project areas. This conclusion and the following specific outcomes of the project by component are supported by the detailed analysis in Annex 3 and Annex 8.

4.1.4 One project outcome was generated by restoring damaged national and provincial roads, which greatly improved transport conditions in the project areas. Along with the increase of traffic volume, the rehabilitated roads have brought a range of benefits to local communities, including: (a) eased travel to cities to find jobs; (b) reduced travel time and cost; (c) increased price and reduced cost for farm products; (d) expanded employment for local villagers; and (e) increased land values along the roads.

4.1.5 Similar outcomes and benefits were achieved from restoring damaged rural roads in 162 communes, 46 districts and 20 provinces. Most of them are located in relatively poor communities. A total of 226,541 families and 1.98 million people have benefited from improved access to markets and social facilities, reduced transport cost, increased farm-gate prices and income, and increased employment opportunities during construction. In addition, through implementation of rural infrastructure, the institutional capacity of participating provincial Departments of Rural Infrastructure has been improved.

4.1.6 Another significant outcome was made from rehabilitating irrigation systems and flood control works for 33,706 families and 204,694 individuals from 355 villages. A total of 42,882 ha of farmland has benefited from improved irrigation systems, which resulted in increased yields, food security and incomes among benefited poor villages. This outcome could be used as a generic and valuable experience for the future development of irrigation in Cambodia, which demonstrated that access to irrigation, which covers less than 15 percent of the cropped area in the country, is the closest correlate of lower rural poverty rates. In addition, based on extensive participation by beneficiaries, 33 Farmers' Water Users Communities (FWUCs) have been set up and are operating which provide improved maintenance and repair services to be more sustainable for the irrigation facilities and flood control works. However, to make the FWUCs fully sustainable, immediate actions, including agricultural extension service improvements and government financial support for the overhaul of the irrigation systems, were proposed to be taken as soon as possible.

4.1.7 The last major significant outcome of the project was the enormous impact of restoration of, and improvements to, the damaged facilities for 376 schools. The rehabilitation of school buildings provided direct benefits for 179,645 students by reducing their safety risks and encouraging more participation. Improved learning environments and convenient locations have contributed to an increase of enrollment among these schools and communities. In addition, the project also tried a community-based procurement approach in building the schools which was found to be a better method for local communities in terms of quality control of construction, operation and maintenance (O&M) and sustainable development of the schools. However, in order to make it work properly, more technical training for communities is required, including the selection of experienced local builders and the supervision of construction.

4.2 *Outputs by components:*

4.2.1 **National Road Component** (total actual cost: US\$12.92 million) The achievement of

the output of this component is rated as satisfactory. The component involved the rehabilitation of damaged sections of four national primary and secondary roads to pre-2000 conditions (National Roads Numbers 3, 31, 33, and 61) with a total length of 249 km. The total cost amounted to US\$12.9 million, representing 30 percent of total project costs. The completed rehabilitation has resulted in increasing traffic volumes on these four roads from 6,984 vehicles per day in 2001 to 15,163 vehicles per day in 2005.

4.2.2 Rural Infrastructure Component (total actual cost: US\$8.10 million) The achievement of the output of this component is rated as satisfactory. This component comprised the rehabilitation of flood-damaged rural infrastructure facilities, including 110 sub-projects with 567 km of rural roads, 77 bridges and 466 culverts, representing about 19 percent of total project cost. Most of these rehabilitated roads were surfaced with locally-available laterite and compacted to the defined standard. This has improved the road condition to all-year-round use with easy access to market towns and the primary national road network, which have benefited a total of 226,541 families and 1.98 million of population from 1,031 villages, 162 communes, 46 districts and 20 provinces.

4.2.3 Flood Control and Irrigation Systems Component (total actual cost: US\$11.63 million) The achievement of the output of this component is rated as satisfactory. The component rehabilitated 33 flood control and irrigation systems in 30 districts and 15 communes, which provided reliable irrigation and flood protection for 42,822 ha of farmland benefiting 33,706 families and 204,694 individuals from 355 villages and 82 communes. Along with the completion of the physical works, the task of establishing and training 33 FWUCs has also been achieved, which provided a model for sustainable long-term operation though the model needs to be carefully monitored and supported in the future. However, as a result of the under-estimate of project costs for required works by provincial staff of the Ministry of Water Resources and Meteorology (MOWRAM), the project outputs were reduced considerably from 89 to 33 schemes but the total improved farmland was reduced by a lesser extent, from 57,000 ha to 42,822 ha (see Annex 1).

4.2.4 Primary and Secondary Schools Component (total actual cost: US\$9.4 1 million). The achievement of the output of this component is rated as satisfactory. The component has successfully rehabilitated 378 schools with 1,492 classrooms (1,459 new and 33 repaired) benefiting 179,645 students, representing about 22 percent of total project costs. Because of the increase of emphasis on new construction and the diversion of some funds from civil works to the provision of toilets and clean wells, the total number of classrooms actually rehabilitated (repaired and new) is 1,492, which is less than the number of 3,100 classrooms set by the project (see Annex 1). However, in terms of the quality of construction and cost effectiveness, the outputs achieved are higher than those planned. The student population which directly benefited from the project exceeded the original target.

4.2.5 Project Coordination and Management Component (total actual cost: US\$1.34 million) The implementation of this component is rated as satisfactory, given that it has provided strong support to strengthen central project monitoring, procurement and financial management systems, and implementation assistance, as well as financial assistance to carry out the case study on mitigation of the disasters caused by local flash-floods.

4.3 Net Present Value/Economic rate of return:

4.3.1 As an emergency recovery operation, there was no calculation made of the economic rate of return (ERR) at project appraisal and no calculation of the ERR is required at project completion. The project had a significant positive economic impact on beneficiaries associated with all four investment components. The project is estimated to have benefited directly some 5.92 million people in the provinces covered by the project. The detailed analysis on the impact of the project's four investment components on poverty alleviation is given in Annex 8.

4.4 Financial rate of return:

4.4.1 This is not required for an emergency recovery operation. However, financial analysis was conducted for the 15 FWUCs selected from the 15 project-related provinces with the data and information obtained through field surveys and from MOWRAM. Based on the results of the analysis, the annual income for all of the FWUCs was insufficient to cover the annual O&M expenses with overhaul, and two of them were even unable to cover the O&M expenses without overhaul, which shows that none of the FWUCs developed under the project is financially sustainable at present.

4.4.2 The financial analysis indicates that the financial sustainability of the FWUCs depends upon adequate farmer's incomes, which should be increased through enhancing agricultural extension services to support improved production methods and thereby ensure that the FWUCs are sustainable or self-financed. With increased incomes, farmers could afford to pay water charges to the FWUCs, and the FWUCs could then have sufficient income to cover the O&M cost with overhaul.

4.4.3 To ensure the financial sustainability of the FWUCs established and developed under the project, MOWRAM has prepared a detailed O&M plan which made the necessary and urgent funds available for overhaul of irrigation systems and flood control works rehabilitated under this project. But most importantly, MOWRAM and the Ministry of Agriculture, Forest, and Fisheries (MAFF) should cooperate to make the agricultural extension services available for these FWUCs as soon as possible (see Annex 3 for more details).

4.5 Institutional development impact:

4.5.1 As a whole, the project had a substantial institutional development impact. Through implementing construction activities and completing them efficiently within the budget under the four components, the project has enhanced the institutional capacity among four Ministries including the Ministry of Public Works and Transportations (MPWT), MRD, MOWRAM, and the Ministry of Education, Youth & Sport (MOEYS) at the national level and the line agencies at the provincial level.

4.5.2 For the national roads component, such enhancement is limited since MPWT had already been a competent organization at the start of the project with experience in having implemented a number of the Bank-funded projects. However, MPWT learned new experience through

implementation of this project, especially in contract management and construction supervision.

4.5.3 For the rural infrastructure component, considerable improvements were made in enhancing institutional capacity at both national and provincial levels through project planning and implementation by promoting decentralization, restructuring budgets, and involving the private sector. Specifically, these improvements were reflected in the following aspects: (a) raising awareness on road management and financing; (b) clarifying MRD's responsibility for managing certain classes of rural roads; (c) developing procedures of using local contractors for construction through competitive bidding; and (d) strengthening the capacity of MRD staff in monitoring and supervising construction works by private contractors.

4.5.4 For the flood control and irrigation component, through extensive on-the-job training by international consultants, the staff of MOWRAM has gained experience in preparing and implementing individual irrigation projects. The experience gained includes the preparation of project feasibility studies, preliminary and final designs, technical specifications and tender documents; the supervision of civil works construction; the identification of remedial works for hand-over; and the reception and acceptance of engineering works after the defect liability period. Most importantly, the project has introduced a participatory approach to irrigation development and management by actively involving water users at both the project design and construction stage and the project operation stage, which ensured improved sustainable development and management for irrigation projects. Under the project, 33 FWUCs have been established and are now operating irrigation management and maintenance in accordance with the policy for sustainability of O&M of irrigation systems (which was prepared and issued in 2000 by MOWRAM with assistance from the project). This has been and will be of significant and sustainable impact on irrigation development and management in the future for the whole of Cambodia (see Annex 8 for detailed analysis).

4.5.5 For the schools component, one important institutional development was to introduce the community-based procurement method which started in the fifth phase of sub-projects after the amendment to the Development Credit Agreement (DCA) and the provision of the second generation Special Account to the Project Implementation Unit (PIU) of MOEYS. Under community contracting, the communities, through their School Support Committees, were responsible for employing local contractors, supervising construction and making payment to contractors with the assistance of site supervisors and Project Monitoring and Coordinating Unit (PMCU) engineers. This community contracting scheme proved to be both practical and efficient, and paved the way for the institutionalization of construction arrangements of this kind in Cambodia.

4.5.6 Sustainability of the institutional development achieved under the project is likely among four implementing agencies, as well as the Ministry of Economy and Finance (MEF) and the Ministry of Planning (MOP), since some related policies have been issued (e.g., the policy issued by MOWRAM on FWUC development) and related rules and regulations have been formulated. Most importantly, the project has trained many ministry staff who are now experienced and currently working in these Ministries and will apply what they have learned from this project into their future work.

5. Major Factors Affecting Implementation and Outcome

5.1 Factors outside the control of government or implementing agency:

5.1.1 After many years of neglect and war damage, the actual condition of roads was worse than expected in some parts of the project area for the national roads component. This resulted in cost over-runs and contributed to delays in project implementation. Climatic conditions, the presence of land mines in some sections of the roads, and other international political events had also affected the pace of project implementation. Under the requests from local communities, changes in designs occurred for certain sections of road alignments.

5.2 Factors generally subject to government control:

5.2.1 **Rural Infrastructure Component:** There were some coordination issues which delayed project implementation given that the government could not help define responsibility for rural roads between the provincial Department of Rural Development and MRD proper earlier in the life of the project. Project implementation was also delayed at an early stage because there was insufficient commitment and senior-level attention given to the project and to the agreements reached at the time of preparation.

5.2.2 **Flood Control and Irrigation Systems Component:** There were some delays in obtaining approval or clearance from the government for bureaucratic reasons. The government could have increased its work efficiency to avoid these delays.

5.2.3 **Schools Component:** Because of a lack of coordination by the government, some schools identified already by this project were actually rehabilitated with another donor's programs. Meanwhile, some schools which were screened for inclusion in the project could not be rehabilitated because of budgetary and time constraints. Some schools in the flood-prone areas were omitted. The government could have provided the stronger coordination to avoid these issues.

5.3 Factors generally subject to implementing agency control:

5.3.1 **National Roads Component:** Particularly in the early stage of project implementation, procurement was delayed by a lack of coordination and collaboration between MPWT, MOP and MEF. The situation improved, but the problem remained throughout project implementation. Administrative delays in decision making, clearances, contract awards and approval of routine variation orders contributed to slowing down project implementation.

5.3.2 **Rural Infrastructure Component:** Delays in the hiring of consultants hampered the start of activities, specifically in conducting feasibility studies, designing sub-projects, and even in the supervision stage. Faster implementation of sub-projects could have been achieved if supervision of sub-project design had been centralized or if the senior management of the implementing agency had provided the necessary advice to staff and had made a commitment to this component.

5.3.3 **Flood Control and Irrigation Component:** Because of the lack of experience by provincial offices of MOWRAM resulting in under-estimating the cost for rehabilitating individual sub-projects, the actual unit cost was substantially higher than the early estimate. As a result, the total number of sub-projects that could be rehabilitated with the available funds had to be reduced, from 89 at appraisal to only 33 in actual implementation.

5.3.4 **Schools Component:** At the time of its inception, the project had envisaged a reasonable balance between new construction and repair works. However, because of the serious nature of damage to existing school buildings and the unexpectedly high cost for making sound repairs, many classrooms that were originally considered repairable in fact had to be newly constructed. As a result, the total number of classrooms that needed to be repaired under the project was reduced significantly (from 3,100 to 1,492) with 1,459 classrooms newly constructed.

5.4 *Costs and financing:*

5.4.1 Total actual project costs were US\$43.4 million compared to the appraisal estimate of US\$40.4 million. The estimates of costs by component were unchanged between the appraisal and the mid-term review, and by project completion the actual expenditures compared to appraisal estimates were:

Component	Appraisal - MTR Estimate (US\$ million)	Actual (US\$ million)	Actual as % of Appraisal
A. National Roads	12.3	12.92	105
B. Rural Infrastructure	8.1	8.10	100
C. Flood Control and Irrigation Systems	9.3	11.63	125
D. Schools	9.4	9.41	100
E. Project Coordination/Management	1.3	1.34	103
Total	40.4	43.40	107

IDA finance was a total of US\$37.5 million compared to the US\$35.0 million foreseen at appraisal, the difference being the result of exchange rate movements with respect to the SDR.

6. Sustainability

6.1 *Rationale for sustainability rating:*

6.1.1 The sustainability of the project is rated as being likely for the following reasons:

(a) All four investment components prepared O&M plans for various pieces of infrastructure rehabilitated or reconstructed under the project. These plans were reviewed and approved by the corresponding implementing agencies and cleared (or, in some cases, remain to be cleared) by MEF. Although the present situation varies among the four components, good arrangements are either already in place or expected to be put in place in the near future by the implementing agencies, in collaboration with other line ministries.

(b) The budget for the O&M plan has been increased, and responsibility for implementing the plan has been defined and prioritized. This is particularly true for the rural infrastructure component and the flood control and irrigation component. For the national roads component, additional clarifications are being made in order to allocate O&M funds to provincial departments. However, the budget available has still been far from sufficient to cover the cost of O&M for both rural and national roads rehabilitated under this project.

(c) For the schools component, with the involvement of communities in school construction it is expected that even greater success will be achieved in O&M of schools. MOEYS is encouraging this traditional and strong community support for education and O&M of the schools. In the long run, MOEYS will be responsible for securing the special funds for a school maintenance program in the country. Currently, the level of funding is insufficient to meet O&M requirements, and the best strategy is to strengthen community involvement and support so that the schools constructed under the project can be well operated and maintained.

(d) For the flood control and irrigation component, the further development of FWUCs, including intensive technical training of their members on O&M, the introduction of agricultural extension and the government's strong financial support through MOWRAM for overhaul of the irrigation systems, is essential for the sustainability of the component. In this regard, MOWRAM has issued relevant policies on FWUC development and O&M of irrigation and flood control systems. The main farmers in all 33 established FWUCs have been given intensive training on O&M of their irrigation facilities, supported with IDA financing at the completion of the project. In addition to having responsibilities for O&M of physical facilities, the FWUCs are becoming the focal point for receiving agricultural extension services. To make the extension services available to FWUCs, MOWRAM has been cooperating with MAFF and local provinces. To make this component sustainable, MOWRAM and MAFF should cooperate to make agricultural extension services available for the 33 FWUCs to increase farmers' incomes; meanwhile, the MOWRAM should ensure that the necessary and urgent funds are made available to assist these FWUCs in O&M, including overhaul of the irrigation systems, before the FWUCs become sustainable or self-financed.

6.2 Transition arrangement to regular operations:

6.2.1 With full completion of the project, and in particular with the institutional development arrangements at both central and local levels, the transition arrangements to regular operations have been completed for different components and reflected in the likelihood of project sustainability.

6.2.1 For the national roads component, based on the present institutional arrangements, the Provincial Public Works Departments will be in charge of the monitoring and repairs. However, because of the lack of funds and the delay of budget releases from the central government, the capacity for road maintenance at the provincial level is limited. As part of transitional arrangements, the central government has to provide maintenance funding to the current PIU, aside from fees to be collected from the road users. During the transitional period, the Provincial

Department has been allowed to participate in the whole operation on toll collection, wherein an on-the-job training is to be arranged aside from the formal training that has been organized.

6.2.2 For the rural infrastructure component, with the recent establishment of the Department of Rural Roads within MRD the government has established a sustainable rural road maintenance system supported by the national O&M strategy. The necessary actions have been taken to ensure timely disbursement of the budgeted funds for effective implementation of the maintenance activities.

6.2.3 For the flood control and irrigation component, the responsibility for O&M of individual sub-projects has been handed over to the FWUCs which are now fully responsible for all activities on O&M of the sub-projects. In the transition period, the provincial office of MOWRAM remains the technical advisor responsible for making site inspections and advisory visits to each of the FWUCs established under the project. There will be a continued need for agronomic extension support from the MAFF and the MOWRAM. This needs to be formally arranged as a defined task within these Ministries so that each registered FWUC receives continuous and regular assistance. Without this support, the individual FWUCs could fail to perform and the sub-projects would not achieve their objective of poverty alleviation and food sufficiency.

6.2.4 Before MOEYS takes full responsibility for organizing and funding school maintenance programs, the current Participatory Approach Program (PAP) model will be adapted and expanded, and the continuous involvement of local communities will be encouraged as the best strategy to improve the maintenance of project-funded schools.

7. Bank and Borrower Performance

Bank

7.1 Lending:

7.1.1 The performance of the IDA is rated as satisfactory. In response to the urgent request by the RGO for financial assistance in overcoming the devastating damage to rural infrastructure caused by the 2000 floods, the Bank performed well in defining and approving the project within a relatively short period. The floods caused wide-spread damage to rural infrastructure and disrupted the lives of the rural poor. The IDA fielded an identification mission in December 2000 and an appraisal mission in late January 2001. Negotiations for the Credit took place in February 2001, and it was approved on March 13, 2001.

7.2 Supervision:

7.2.1 The performance of the IDA is rated as satisfactory. During project implementation, the IDA responded promptly in reviewing and approving bid documents and contract awards, which allowed the project to proceed smoothly. The scope of IDA supervision was generally limited to the various progress review missions and the MTR. However, since progress on the project was good and generally ahead of schedule, there was no requirement for additional intermediate supervision missions.

7.2.2 Throughout the implementation period, supervision missions were carried out on a regular basis with an appropriate skill mix and good staff continuity. The Bank maintained a good relationship with the implementing agencies. Supervision reports gave accurate assessments of progress and constraints. IDA supervision missions took up relevant issues at appropriate times, although they could do little to speed up institutional reform in the water sector. During the initial stages of implementation, IDA supervision was mostly concerned with procurement and administrative issues. In the later stage of project implementation, under recommendation of the IDA supervision missions, project monitoring and evaluation was carried out and project maintenance and operation plans were developed which provide appropriate arrangements for regular and sustainable operation and maintenance after project completion.

7.3 Overall Bank performance:

7.3.1 Based on the above, the overall Bank performance is rated as satisfactory. The total cost of processing the project and carrying out supervision was US\$832,000 equivalent to 2.2 percent of the Credit and 1.9 percent of the total project costs (see Annex 4).

Borrower

7.4 Preparation:

7.4.1 Project preparation by the Borrower is rated as satisfactory. The project was a response to an emergency. To assist the IDA to prepare the project in a timely manner, the Borrower was well organized and committed certain resources to the preparation effort which included collecting information, screening potential sub-projects and conducting field visits with the IDA missions. This resulted in the project being prepared, appraised and negotiated in less than six months. Detailed preparation of individual sub-projects was completed by PIUs under relevant ministries with the assistance of consultants during implementation.

7.5 Government implementation performance:

7.5.1 The government's implementation performance is rated as satisfactory. Project implementation was strongly supported by the government. The PMCU/MOP and IDA/MEF provided coordination between implementing agencies and were responsible for consolidating the various project documents, including progress reports, the Borrower's ICR and O&M plans, although such coordination needed to be further strengthened. In addition, they also provided review and approval of various proposals and the services for reimbursement and disbursement. Most importantly, MEF managed to have allocated 100 percent of the counterpart funding needed for project implementation, despite the financial difficulties with limited national budget for counterpart funding.

7.6 Implementing Agency:

7.6.1 The performance of the implementing agencies is rated as satisfactory. For all four investment components, under the effective management by implementation agencies among relevant ministries, civil works contracts were not only successfully completed within budget but were also of good quality. In addition, all four implementing agencies prepared O&M plans and made institutional arrangements for implementing the plans.

7.7 Overall Borrower performance:

7.7.1 Consistent with the comments in sections 7.4-7.6 above, the overall performance of the Borrower is rated as satisfactory.

8. Lessons Learned

8.1 Based on the ICR review and an assessment of the project over the course of implementation, the following lessons can be documented:

(a) **Capacity Building:** Given that the project did not include a component on formal training and capacity building, the implementation experience suggests that civil works restoration projects generally require adequate programs for capacity building in the implementing agencies. Training of government staff in project management and implementation proved to be necessary throughout the period of project implementation, particularly in the Bank's procurement guidelines and financial management as well as project compliance with safeguard policies. This helped to ensure the timely completion of contractual works, the submission of withdrawal applications and the liquidation of imprest accounts, and also reduced the likelihood of noncompliance with the Bank's procurement guidelines and safeguard policies.

(b) **Sub-Project Selection:** The project did not have a list of sub-projects identified through field visits with priorities or ranking for IDA financing at project appraisal, and this omission was especially important in the irrigation, schools and roads components. This made it difficult for supervision missions to identify, review and approve the sub-projects selected by the line ministries and local governments subsequently during project implementation.

(c) **Agricultural Extension:** An increase in farmers' incomes is extremely important not only for poverty alleviation but also for sustainable O&M for their irrigation facilities rehabilitated under the project. Availability of agricultural extension services is crucial to this. However, the project did not include agricultural extension. The FWUCs developed under the project may not be able to afford to pay the cost of O&M. It is recommended that MOA and MOWRAM cooperate and take the FWUCs as focal points to introduce agricultural extension programs to farmers, as the agricultural extension service is an integral part of the improved irrigation system managed by the FWUCs.

(d) **Insufficient Planning:** The early planning were insufficient to ensure project sustainability. For example, no additional funds were ensured even for a few years until the FWUCs are well established and self sufficient. The farmers clearly have the capacity to manage their projects but do need some initial technical support. Another example is that no requirements were made to stimulate the RGO to finance the maintenance of the rehabilitated/repaired structures (such as roads, levees, schools, bridges, and culverts). Only three years after the original repair, for example, many embankments again need repair but no funds are available.

(e) **Community Training:** Community contracting under the schools component with a

participatory approach has been proved to be the most efficient means of procurement for large numbers of schools to be constructed simultaneously over geographically dispersed areas. The communities, after the necessary training at all critical stages of project implementation to increase their knowledge and empowerment, were able not only to identify the smaller regionally-based construction companies which were experienced in school construction but also to perform good supervision of school rehabilitation and construction. However, such training of communities was inadequate given the constraints of the project budget. This was also true for the FWUCs developed under the irrigation and flood control component.

(f) **Project Cost Estimates:** Generally, more time should be spent estimating project costs. In this case, the costs were estimated incorrectly largely because the local contract sums were based on fixed, predetermined rates imposed on the local contractors. For example, the number of irrigation sub-projects proposed to be rehabilitated was reduced from 85 at project appraisal to 33 at the MTR because the costs of the initially considered sub-projects were discovered to be under-estimated once the detailed studies had been carried out by the international and local consultants. In addition, for a flood rehabilitation project, contingencies should have been planned for additional rehabilitation needs that new floods cause during project implementation.

(g) **Log-Framework:** Even an emergency project benefits from an explicit, well-prepared logical framework, but this project did not have one. A good logical framework would have helped IDA to administer the project better.

9. Partner Comments

(a) Borrower/implementing agency:

9.1 A workshop on the draft ICR was held and the detailed comments received were included in Annex 9 *verbatim*. In summary, the Borrower agreed that the draft ICR is a fair, reasonable and objective assessment and evaluation of the overall achievement of the PDOs and that the ratings given by the Bank to each project component and to their performance are appropriate. The Borrower assessed the Bank's performance as satisfactory.

(b) Cofinanciers:

9.2 There were no cofinanciers of the project.

(c) Other partners (NGOs/private sector):

9.3 There were no other partners involved in the project.

10. Additional Information

Annex 1. Key Performance Indicators/Log Frame Matrix

Outcome/Impact indicators

Indicators/Matrix	At Appraisal	Actual Estimate
National Road		
(1) Total length of roads	139 km	249 km
(2) Traffic volume catered	6,984 vehicles/day	15,163 vehicles/day
(3) Surface condition improved	5,000 mm/km for roughness	2,000 mm/km for roughness
Rural Infrastructure		
(1) Average value of farm-gate sales increased		Average value of farm-gate sales increased by over 30%
(2) Average traffic volume	1,008 sets/week	1,260 set/week
Flood Control and Irrigation		
(1) Flood mitigation study		Completed
(2) Farmer Water User Community (FWUC)	Establish 30 FWUC on all sub-projects	33 FWUC established and all of them were formally registered, and Department of Irrigation issued certificates with all sub-projects
(3) Paddy yield increased	1.7t/ha	2.3t/ha
School		
Numoer of enrolled students	164,739	174,500

Output Indicators

Indicator/Matrix	At Appraisal	At MTR	Actual	% of MRT
National Road				
NR3,61 (km)	59	152	152	100.0
NR31,33 (km)	80	97	97	100.0
Rural Infrastructure				
Length of Road (km)	730	538	5674	105.5
Number of Bridges	45	66	77	116.7
Number of Culverts	300	312	466	149.4
Flood Control and Irrigation				
Number of Irrigation Schemes	67	30	33	110.0
Irrigation Area (ha)	41,200	30,290	41,969	138.6
School				
Number of Provinces	10	10	10	100.0
Number of Districts	50	82	82	100.0
Number of Schools	330	376	376	100.0
Number of new Classrooms	1,100	1,459	1,459	100.0
Number of repaired Classrooms	2,000	33	33	100.0

Annex 2. Project Costs and Financing

Project Cost by Component (in US\$ million equivalent)

Project Component	Appraisal Estimate				MTR Estimate				Actual				% Of MTR Total Cost	% Of MTR IDA Financing
	US\$ million				US\$ million				US\$ million					
	Local	Foreign	Total	IDA Financing	Local	Foreign	Total	IDA Financing	Local	Foreign	Total	IDA Financing		
A. National Roads	7.6	4.7	12.3	10.6	7.6	4.7	12.3	10.6	7.98	4.94	12.92	11.20	105%	106%
B. Rural Infrastructure	5.5	2.6	8.1	7.0	5.5	2.6	8.1	7.0	5.50	2.60	8.10	6.96	100%	99%
C. Flood Control and Irrigation Systems	6.2	3.1	9.3	8.1	6.2	3.1	9.3	8.1	7.75	3.88	11.63	10.00	125%	123%
D. Schools	6.3	3.1	9.4	8.1	6.3	3.1	9.4	8.1	6.31	3.10	9.41	8.10	100%	100%
E. Project Coordination and Management	1.0	0.3	1.3	1.2	1.0	0.3	1.3	1.2	1.03	0.31	1.34	1.24	103%	103%
Total Project Cost	26.6	13.8	40.4	35.0	26.6	13.8	40.4	35.0	28.57	14.82	43.40	37.50	107%	107%

Project Cost by Category (in US\$ million equivalent)

Project Category	Appraisal Estimate			MTR Estimate			Actual			% Of MTR
	US\$ million			US\$ million			US\$ million			
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	
A. Civil Works	24.6	9.2	33.8	24.6	9.2	33.8	26.22	9.81	36.03	107%
B. Equipment and Materials	0.2	0.9	1.1	0.2	0.9	1.1	0.22	0.99	1.21	110%
C. Vehicles	0.1	0.6	0.7	0.1	0.6	0.7	0.07	0.41	0.48	69%
D. Project Staff	0.4	0	0.4	0.4	0	0.4	0.32	0.00	0.32	80%
E. Technical Assistance	0.0	2.7	2.7	0.0	2.7	2.7	0.00	3.97	3.97	147%
F. Training	0.4	0.1	0.5	0.4	0.1	0.5	0.11	0.03	0.14	27%
G. Studies	0.0	0	0	0.0	0	0	0.00	0.13	0.13	0%
H. Recurrent Costs	0.9	0.3	1.2	0.9	0.3	1.2	0.85	0.28	1.13	94%
Total Project Cost	26.6	13.8	40.4	26.6	13.8	40.4	27.78	15.62	43.40	107%

Project Costs by Procurement Arrangement (in US\$ million equivalent)

Expenditure Category	At Appraisal				At MTR				Actual			
	Procurement Method/a			Total	Procurement Method/a			Total	Procurement Method/a			Total
	ICB	NCB	Other/b		ICB	NCB	Other/b		ICB	NCB	Other/b	
A. Civil Works	9.57	13.00	11.20	33.77	9.57	13.00	11.20	33.77	11.20	23.86	0.97	36.03
	(9.07)	(10.50)	(9.144)	(28.71)	(9.07)	(10.50)	(9.144)	(28.71)	(9.52)	(20.29)	(0.66)	(30.46)
B. Goods	0.47		1.30	1.77	0.47		1.30	1.77	0.29	0.00	1.40	1.69
	(0.47)		(1.04)	(1.51)	(0.47)		(1.04)	(1.51)	(0.29)	-	(1.23)	(1.52)
C. Technical assistance (consultants and training)			3.74	3.74			3.74	3.74	0.00	0.00	4.54	4.54
			(3.74)	(3.74)			(3.74)	(3.74)	-	-	(4.54)	(4.54)
D. Incremental Oper. Cost			1.15	1.15			1.15	1.15	0.00	0.00	1.13	1.13
			(1.04)	(1.04)			(1.04)	(1.04)	-	-	(0.97)	(0.97)
Total	10.04	13.00	17.39	40.43	10.04	13.00	17.39	40.43	11.49	23.86	8.05	43.40
	(9.54)	(10.50)	(14.96)	(35.00)	(9.54)	(10.50)	(14.96)	(35.00)	(9.81)	(20.29)	(7.41)	(37.50)

a/ Figures in parenthesis are the amounts to be financed by Bank credit. All final costs include contingencies.

b/ Includes civil works and goods to be procured through national shopping, force account, consulting services, training, technical assistance services.

Financial Summary (appraisal estimate in US\$ million equivalent)

Sources	2001	2002	2003	2004	2005	Total	% of Total
Project Costs							
Investment Costs	5.2	14.2	13.6	6.3		39.3	97.3%
Recurrent Costs	0.3	0.4	0.3	0.1		1.1	2.7%
Total Project Costs	5.5	14.6	13.9	6.4		40.4	100.0%
Financing							
IDA	4.9	12.6	12.0	5.5		35.0	86.6%
Government	0.6	2.0	1.9	0.9		5.4	13.4%
Total Project Financing	5.5	14.6	13.9	6.4		40.4	100.0%

Financial Summary (actual in US\$ million equivalent)

Sources	2001	2002	2003	2004	2005	Total	% of Total
Project Costs							
Investment Costs	5.2	14.2	13.6	6.3		39.3	97.3%
Recurrent Costs	0.3	0.4	0.3	0.1		1.1	2.7%
Total Project Costs	5.5	14.6	13.9	6.4		40.4	100.0%
Financing							
IDA	4.9	12.6	12.0	5.5		35.0	86.6%
Government	0.6	2.0	1.9	0.9		5.4	13.4%
Total Project Financing	5.5	14.6	13.9	6.4		40.4	100.0%

Project Financing by Component (in US\$ million equivalent)

Project Component	Appraisal Estimate			Actual Estimate			% Of Appraisal		
	Bank	Govt.	CoF.	Bank	Govt.	CoF.	Bank	Govt.	CoF.
A. National Roads	10.6	1.7		11.20	1.7		105.7	100.0	
B. Rural Infrastructure	7.0	1.1		6.96	1.1		99.4	100.0	
C. Flood Control and Irrigation Systems	8.1	1.2		10.00	1.6		123.5	133.3	
D. Schools	8.1	1.3		8.10	1.3		100.0	100.0	
E. Project Coordination and Management	1.2	0.1		1.24	0.1		103.3	100.0	
Total Project Cost	35.0	5.4		37.50	5.9		107.1	109.3	

Annex 3. Economic Costs and Benefits

For this emergency recovery operation, no economic analysis was conducted either at project appraisal or at completion. However, the benefits and outcomes were analyzed in general in terms of changes in economic data or performance indicators before and after the project. In addition, financial analysis for FWUC sustainability was conducted based on the data collected from 33 FWUCs established under the project.

The economic and social development in the project areas was rapidly restored through implementing the project components, including rehabilitation of damaged sections of national primary and secondary roads; rehabilitation of rural infrastructures; rehabilitation of flood control and irrigation systems; and rehabilitation of primary and secondary schools.

(a) National Primary and Secondary Roads

A total of 249 km of national primary and secondary roads were reconstructed and restored to their previous condition in 2000. Based on the analysis of the information provided by MPWT, a total of 258,000 households with 1.3 million poor people have directly benefited from the project, taking into consideration that all four national roads rehabilitated under the project pass through 65 communes in 16 districts and 7 provinces or municipalities.

The completed roads have restored the vital traffic access to various social and economic activities from the traffic flow of 2,943 vehicles per day in 2000 to 15,163 in 2005, while reducing operating costs and raising working efficiencies of the vehicles. This component linked production to markets and opened trading opportunities to remote areas of the country that used to be unable to access outside markets. Increased mobility of people, goods and services, in turn, created a positive circle of market dynamics. In addition, these completed roads have also ensured the access to future flood evacuation.

(b) Rural Infrastructure

A total of 560 km of flood-damaged roads, 77 bridges and 466 culverts were rehabilitated to the national standards stipulated by MRD. Based on the analysis of the information provided by MRD, rehabilitation of these rural roads directly benefited 226,541 households with about 1.98 million poor people in 162 communes and 1,032 villages. The numbers of benefited households and poor people could reach up to 679,777 and 3.52 million, respectively, if the total population of the relevant districts is taken into account. As a result, the rural road conditions have been greatly improved to ease all-round traffic movements from poor rural areas to market towns or to the primary traffic network. In addition, the traffic flow measured in PCUs (passenger car units) increased by 20 percent on average and the farm-gate sales per household increased by over 30 percent in average value.

(c) Primary and Secondary Schools

The construction of a total of 1,492 primary and secondary classrooms, including the building of

1,459 new ones and the repair of 33 old ones, was completed. These classrooms serve a total of 179,645 students in 376 schools (371 rebuilt schools and 5 repaired ones). The schools were identified at project appraisal as the most severely damaged ones in ten provinces.

The layout and design of classrooms and schools were in line with the standards stipulated by MOEYS. About 380 toilets and 161 water wells have been built for the rehabilitated schools so that each of the schools has toilets (in comparison with 58 percent of the schools which have toilets on a national average). The classrooms often have double shifts, about 59 students per class on average. School buildings are made more flood resilient, on a higher base and constructed with concrete frames instead of the timber frames and earth foundations used in the past. Among the benefited students 95 percent are primary school students. A total of 179,645 families and 898,225 persons have benefited from school rehabilitation (assuming each family has five family members with only one student).

These schools now have been equipped with adequate educational facilities for a large number of the students affected by the flood in the poor rural and remote areas. The enrollment of students in these areas has been restored to the level pre-flood.

Compared with the “direct-contract” approach to build schools, it was evident through the field surveys that the community participation approach has more advantages, including: (i) it has further strengthened the tradition which places value on education; (ii) it ensured quality of construction; (iii) it enhanced the sense of ownership; and (iv) it ensured that the school built by the community is well maintained.

(d) Flood Control and Irrigation

A total of 33 irrigation schemes, with irrigation works and flood protection works including 16 spillways, 7 flood gates and 18 km of dykes in 30 districts of 15 provinces, have been rehabilitated and completed. In addition, the FWUC has been established and developed for each of 33 rehabilitated irrigation schemes and is now responsible for the O&M of these schemes.

The irrigation and flood control works provide direct flood protection and irrigation for about 42,882 ha of farmland including 22 percent of dry land and 78 percent of improved irrigated land. It has benefited a total of 33,706 families and 204,694 poor people from 355 villages and 82 communes, according to the results of field surveys. In addition, the case study of flood mitigation in the small watersheds provides warnings and prioritized options of evacuation when flash floods occurs, which serves as a supplementary study on mitigation of local floods to the strategic studies on mitigation of the major Mekong floods.

The total area of irrigated land covered by the 33 schemes rehabilitated under the project from 2000 to 2004 is 42,882 ha. As a result of the project, production of the major crops was increased during the period. For example, the total production of paddy in the area increased by 98,600 tons in 2004 compared with 1998. The paddy yield kept increasing during the period as well. The yield for wet paddy increased by 35 percent from 1,700 kg/ha in 2000 to 2,300 kg/ha in 2004. The yield for dry paddy also increased by 47 percent from 1,500 kg/ha in 2000 to 2,200

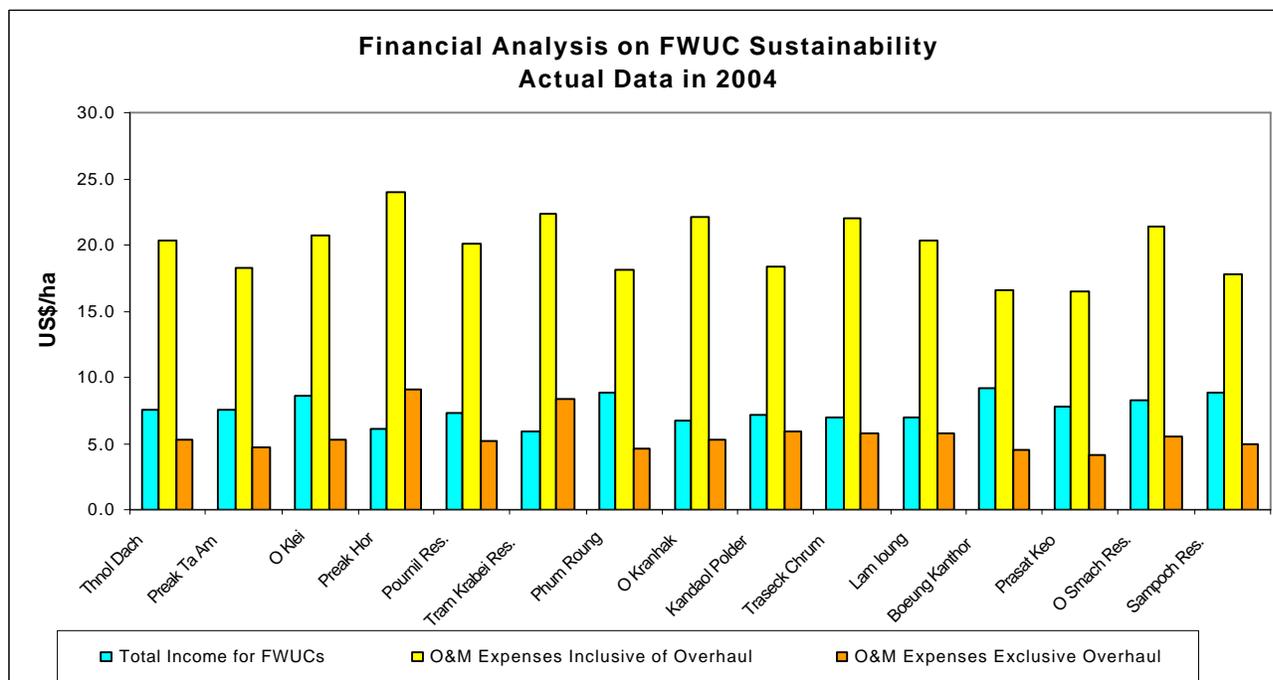
kg/ha in 2004, though it is still at a low level. The following table shows the average annual agricultural production per capita and average annual agricultural income per capita by project-related provinces in 2000 and 2004. Annual agricultural production per capita in the area was increased by 35-53 percent, of which the project contributed about 17-26 percent. The annual farmer agricultural income per capita was increased by 73-97 percent, of which the project contributed about 35-43 percent. The project contribution was estimated with replacement cost methods assuming the benefit generated from the project could be shared between the fixed assets of the original irrigation works and incremental investment by this project with an allocation factor 0.4 of project investment.

Province	2000		2004		Increase in %	
	Production /Capita	Income /Capita	Production /Capita	Income /Capita	Production /Capita	Income /Capita
	Kg	US\$	Kg	US\$	%	%
B M Chey	203.8	17	240.9	23.3	18.2	37.2
Battambang	677.7	56.5	793.0	76.6	17.0	35.6
Kampot	476.8	39.7	563.7	54.5	18.2	37.3
Kandal	95.6	8	111.8	10.8	17.0	35.6
Kg Cham	335	27.9	399.6	38.7	19.3	38.7
Kg Chnang	551.2	45.9	660.6	64.0	19.8	39.4
Kg speu	93.7	7.8	111.2	10.7	18.6	37.7
Kg Thom	905.6	75.5	1066.4	103.1	17.8	36.6
Koh Kong	60.9	5.1	71.3	6.9	17.1	35.0
Kratie	252.1	21	310.2	30.1	23.0	43.4
Prey Veng	164.6	13.7	206.9	20.1	25.7	46.8
Pursat	319.5	26.6	375.8	36.3	17.6	36.4
Siemreap	1385.3	115.4	1646.0	159.3	18.8	38.0
Svay Rieng	374.8	31.2	444.0	42.9	18.5	37.6
Takeo	266	22.2	315.5	30.5	18.6	37.6

Financial Sustainability of FWUC

One FWUC was selected from each of the 15 project-related provinces for financial analysis, based on actual data in 2004 and projected data for 2010. The annual incomes of FWUC (water charges and other incomes) and the annual expenses for O&M of FWUCs (salaries, routing repair and overhaul) were calculated. The depreciation of the works under FWUCs was not considered.

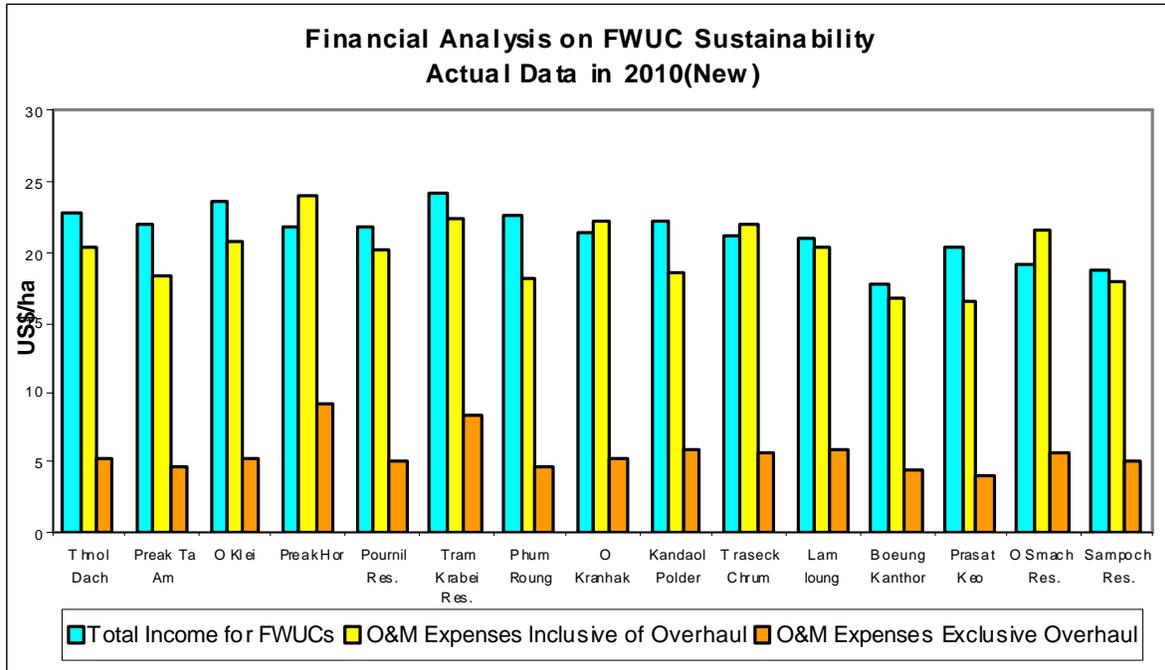
The following chart shows the comparison of annual income per ha, annual O&M expenses with overhaul per ha, and annual O&M expense without overhaul per ha for the 15 FWUCs in 2004. The annual income of all the FWUCs was far from sufficient to cover the annual O&M expenses with overhaul, and two of them were not even able to cover O&M expenses without overhaul, which shows that all the FWUCs developed under the project are not financially sustainable at present.



The following table shows the increase of agricultural production with increase of inputs on agricultural extension in future years. It was assumed that the seed quality is improved and its quantity increases slightly, fertilizer increases significantly in the future years and management in the field is improved (e.g., adopting irrigation scheduling, etc.). As a result, the paddy yield increases from the current level of 3,000 kg per ha to 5,850 kg per ha within four years and keeps the same yield after the 4th year.

Items	Without Extension	With Extension			
	now	1st	2nd	3rd	4th-20th
	kg/ha	kg/ha	kg/ha	kg/ha	kg/ha
(1) Paddy Rice	3000	3713	4425	5138	5850
(2) Seed	200	206	213	219	225
(3) Fertilizer	100	263	425	588	750

The following chart shows that by introducing agricultural extension from now until 2010, the annual income of the FWUCs in 2010 increases significantly and is sufficient to cover the annual O&M expenses with overhaul, except for four FWUCs with their annual income slightly lower than the O&M expenses with overhaul. This shows that with agricultural extension for four years from now on, most of the FWUCs developed under the project are going to be financially sustainable.



In order for the FWUCs to be sustainable or self-financed within five years (by 2010), the annual income of each FWUC should cover the annual O&M expenses with overhaul as shown in the chart above. The sustainability of FWUCs depends upon the following requirement: to increase farmer incomes in the first five years to ensure that farmers could afford to pay water charges to FWUCs (FWUC could then have sufficient income to cover the O&M expenses with overhaul by 2010). Specifically, the average annual income of FWUCs should be increased from US\$7.6 per ha in 2004 to US\$19.4 per ha in 2010. In this regard, availability of agricultural extension services is crucial as the only way to help increase farmer incomes, which should be available for all FWUCs developed under this project. The important role of the agricultural extension services as an integral part of the improved irrigation system should be strongly emphasized, given the poor integration of extension and irrigation which resulted in low returns to irrigation investments. To ensure the financial sustainability of the FWUCs developed under the project, MOWRAM has prepared a detailed O&M plan which makes the necessary and urgent funds available for overhaul of the irrigation systems rehabilitated under the project. Most importantly, MOWRAM and MAFF should cooperate with each other to make the agricultural extension services available for the FWUCs as soon as possible.

Given the irrigation works were just rehabilitated and may not need overhaul during the first 3-4 years, the ordinary O&M without overhaul should be sufficient in most of the new or rehabilitated irrigation schemes. However, the funds to be used for overhaul should be collected annually the sooner the better to be ready for the overhaul when it is needed.

Conclusions

With restoration of critical facilities (national roads, rural infrastructure, flood control and irrigation, schools), the economic benefits of the project are substantial and relate to various

aspects of social and economic development reflected by: (a) increased yields of farm products through irrigation components, which play the crucial role of ensuring food security for many rural poor; (b) FWUCs play an important role in daily management and maintenance of the irrigation and flood control facilities rehabilitated under the project to ensure sustainable operation and management of these facilities. However, for long-run sustainability, the agricultural extension services should be available for all FWUCs as soon as possible; (c) increased farm-gate prices and improved access to market, which improve the poor's income from agricultural production; (d) increased non-farm employment and income-generation activities in the project areas; and (e) improved access to social services and education. These multiple-dimensional changes will contribute greatly to the reduction of poverty and provide the basis for long-term and sustainable social and economic development in the project areas.

Annex 4. Bank Inputs

(a) Missions:

Stage of Project Cycle	No. of Persons and Specialty (e.g. 2 Economists, 1 FMS, etc.)		Performance Rating	
	Month/Year	Count	Specialty	Implementation Progress
Preparation/Appraisal 01/2001	13	IRRIGATION SPEC.(2) PROCUREMENT SPEC. (2) ECONOMIST(1) RURAL DEVELOPMENT SPEC.(2) LEGAL ASPECTS(1) SOCAIL ASPECTS(1) EDUCATION SPEC.(1) FINANCIAL MANAGEMENT(1) PROJECT MANAGEMENT (2)		
Appraisal/Negotiation 02/2001	4	PROCUMENT SPEC.(1) FINANCIAL MANGEMENT SPEC. (1) LEGAL ASPECTS (1) PROJECT MANAGEMENT (1)		
Supervision 05/2001	7	PROCUMENT SPEC.(1) FINANCIAL MANGEMENT SPEC. (1) SOCAIL SPEC.(1) ECONOMIST (1) WATER RESOURCES SPEC.(1) RURAL INFRASTRUCTURE SPEC. (1) PROJECT MANAGEMENT (1)	S S	S S
10/2001	3	IRRIGATION SPEC. (1) FINANCIAL MANAGEMENT SPEC.(1) PROJECT MANGEMENT SPEC.(1)	S	S
05/2002	7	PROJECT MANAGEMENT (1) EDUCATION SPEC.(1) FINANCIAL MANAGEMENT SPEC(1) IRRIGATION SPEC.(1)	S	S

			PROCUREMENT SPEC(1) RURAL INFRASTRUCTURE SPEC.(1) ARCHITECT(1)		
	02/2003	7	PROJECT MANAGEMENT(1) PROCUREMENT SPEC.(1) TRANSPORTATION SPEC(1) IRRIGATION SEPC.(1) ECOLOGIST(1)	S	S
	02/2004	8	PROJECT MANAGEMENT(1) PROCUREMENT SPEC.(2) TRANSPORTATION SPEC.(1) EDUCATION SPEC. (1) IRRIGATION SPEC. (1) FINANCIAL MANAGEMENT SPEC.(1)	S	S
	10/2004	9	PROCUREMENT SPEC.(2) IRRIGATION SPEC. (1) TRANSPORTATION SPEC.(1) OPERATION OFFICER(2) FINANCIAL MANAGEMENT SPEC.(1) SOCIAL SPEC.(1) ECONOMIST(1)	S	S
ICR	05/2005	5	IRRIGATION SPEC. (1); PROCUREMENT SPEC.(1) FINANCIAL MANAGEMENT SPEC.(1) ECONOMIST(1) SOCIAL SPEC.(1)	S	S
	11/2005	1	IRRIGATION SPEC. (1)	S	S

(b) Staff:

Stage of Project Cycle	Actual/Latest Estimate	
	No. Staff weeks	US\$ ('000)
Preparation/Appraisal		
Appraisal/Negotiation	30.00	235.63
Supervision	88.90	255.28
ICR	5.33	5.13
Total	124.23	496.04

Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

	<u>Rating</u>				
<input checked="" type="checkbox"/> <i>Macro policies</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input checked="" type="checkbox"/> <i>Sector Policies</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Physical</i>	<input type="radio"/> H	<input checked="" type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Financial</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Institutional Development</i>	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Environmental</i>	<input type="radio"/> H	<input type="radio"/> SU	<input checked="" type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
 <i>Social</i>					
<input checked="" type="checkbox"/> <i>Poverty Reduction</i>	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Gender</i>	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input checked="" type="checkbox"/> <i>Other (Please specify)</i>	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<i>Formation and fostering of</i>					
<i>FWUCs</i>					
<input type="checkbox"/> <i>Private sector development</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA
<input type="checkbox"/> <i>Public sector management</i>	<input checked="" type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input type="radio"/> NA
<input type="checkbox"/> <i>Other (Please specify)</i>	<input type="radio"/> H	<input type="radio"/> SU	<input type="radio"/> M	<input type="radio"/> N	<input checked="" type="radio"/> NA

Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

6.1 Bank performance

Rating

- | | | | | |
|---|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input checked="" type="checkbox"/> Lending | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input checked="" type="checkbox"/> Supervision | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input checked="" type="checkbox"/> Overall | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

6.2 Borrower performance

Rating

- | | | | | |
|---|--------------------------|------------------------------------|-------------------------|--------------------------|
| <input checked="" type="checkbox"/> Preparation | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input checked="" type="checkbox"/> Government implementation performance | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input checked="" type="checkbox"/> Implementation agency performance | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |
| <input checked="" type="checkbox"/> Overall | <input type="radio"/> HS | <input checked="" type="radio"/> S | <input type="radio"/> U | <input type="radio"/> HU |

Annex 7. List of Supporting Documents

- Aide Memoire of the ICR Mission
- Consolidated Borrower's ICR by CPMU
- ICR for National Primary and Secondary Roads Component by MPWT
- ICR for Rural Infrastructure Component by RMD
- ICR for Flood Control and Irrigation Component by MOWRAM
- ICR for Primary and Secondary Schools Component by MOEYS
- O&M Plan by MPWT
- O&M Plan by RMD
- O&M Plan by MOWRAM
- O&M Plan by MOEYS
- Flood Mitigation Study Report by MOWRAM

Additional Annex 8. Social and Poverty Impact Assessment

A. Introduction

1. The Cambodia Flood Emergency Rehabilitation Project (FERP), was prepared in 2001, was designed to address the serious impacts and damages caused by the 2000 floods. The main objective of the project was to rehabilitate economic and social infrastructures including national primary and secondary roads, rural infrastructure, flood control and irrigation schemes, and primary and secondary schools. The total cost of the project was estimated at US\$40.6 million with US\$35 million being financed by IDA.

2. The Credit was approved in May 2001, and became effective in June 2001. The actual project implementation began in later 2001, and by the end of March 2005 the physical investment of four components was basically completed with all planned targets achieved. They included rehabilitation of four sections of national roads with 249 kilometers, 110 sections of rural roads with 567.4 kilometers, 77 bridges and 466 culverts, 33 flood control and irrigation schemes. This benefited 41,969 ha of farmland, and 376 primary and secondary schools with 1,459 new classrooms and 33 existing classrooms, benefiting 174,500 students.

3. These rehabilitated facilities not only restored their basic functions to prior flood disaster level but also created employment opportunities and brought economic and social benefits to affected communities which contributed to economic development and poverty reduction in the project areas. This annex assesses the social and poverty impacts of these project activities, and is based on available data and selected surveys conducted by project sponsors or consultants during project planning and implementation.

B. Project Scope at Appraisal

4. The FERP consisted of four physical components plus the project coordination and management component. The physical components were:

- (1) The rehabilitation of damaged sections of national primary and secondary roads (about 259km along NR3, 31, 33, and 61 and other road infrastructure) with a total of US\$12.3 million equivalent, representing 30 percent of total project costs;
- (2) The rehabilitation of rural infrastructure, predominantly all-weather rural roads (about 730km, 45 bridges and 300 culverts) with a total cost of US\$8.1 million, representing 20 percent of total project cost;
- (3) The rehabilitation of flood control and irrigation systems (89 schemes covering a total of about 57,000 irrigated hectares) with a total cost of US\$9.3 million, representing about 23 percent of total project cost; and
- (4) The rehabilitation of primary and secondary schools and the provision of school furniture and equipment (for a total of about 3,100 class rooms) with a total cost of US\$9.4 million, representing about 24 percent of total project cost.

C. Distribution of Project Components

5. In a social and poverty assessment, one important task is to identify project areas and project beneficiaries for four different components. However, due to the emergency nature of the project, no social assessment was conducted during project preparation. Only for the flood control and irrigation component, a brief social economic survey was carried out based on a small sample household survey during the preparation of each sub-project. Therefore, in order to develop a basic social economic profile of project beneficiaries, the first step is to define project areas for each component based on the different nature and characteristics of physical components.

Project Areas

6. The project area refers to the areas directly impacted and benefited. For the education component, the project area for each school sub-project refers to the geographical or administrative area where the school serves or where its primary and secondary students come from. For the flood control and irrigation component, the project area of each sub-project refers to the areas or administrative units directly benefited by the project either in terms of irrigation or flood protection. For both the national road component and rural infrastructure component, the project area of each sub-project refers to the areas or administrative units located along the proposed road alignments. Based on information collected by project implementation agencies, the project areas for four different components have been identified.

Project Beneficiaries

7. The project beneficiaries refer to those people who reside within the defined geographical areas or administrative units. For the national road component and rural infrastructure component, the benefited populations are those from districts along the alignments. Although for the rural infrastructure component, the population from affected communes might be a better estimate of project beneficiaries, there were no such data available. For the flood control and irrigation component, the beneficiaries refer to those who receive either irrigation benefit or flood protection from proposed sub-projects; and for the education component the beneficiaries will be those living in the project areas and having their children go to the project schools. Based on such criteria and information provided by project implementation agencies, a preliminary estimate of project beneficiaries for the four components was made.

8. For the national road components, the project area is defined as those communes, districts and provinces located along the selected national roads. Based on the information provided by MPWT, four national roads pass through 65 communes, 16 districts and 7 provinces or municipalities. Assuming that the total population of the concerned districts would directly benefit from the rehabilitation of these four national roads, the project would benefit a total of 258,000 households and 1.3 million people (Table 1). Since those national roads will benefit a wide area along the alignment, such assumption seems to be appropriate. In addition, the number of people from benefited communes is not available. Table 2 provides project beneficiaries for four road

sub-projects.

Table 1: Project Beneficiaries by District for National Road Component

Provinces	District	Road Number	No. of Households for District	Total Population for District	No. of communes
Kampong Cham	Batheay	61	17,020	87,183	1
Kampong Speu	Bor Set	3	21,239	107,935	2
Kampong Speu	Kong Pisey	3	18,938	95,946	8
Kampot	Angkor Chay	31	14,842	71,859	6
Kampot	Chhouk	3	15,925	78,100	5
Kampot	Dong Tong	3	9,992	49,612	2
Kampot	Kampong Baay	3, 33	5,991	32,265	3
Kampot	Kampong Trach	31, 33	15,925	82,179	5
Kampot	Kampot	3, 33	16,803	87,298	9
Kampot	Touk Meas	31	16,812	80,713	4
Kandal	Kandal Steung	3	16,103	75,499	3
Kandal	Phonhea Leou	61	17,288	90,159	1
Kep Municipality	Damnak Chang Eu	33	3,330	18,067	3
Phnom Penh	Dangkor	3	16,800	85,536	4
Takeo	Bati	3	22,403	112,175	1
Takeo	Tram Kok	3, 31	28,644	142,485	8
Total	16		258,055	1,297,011	65

Source: PMO from Ministry of Public Works and Transport.

Table 2: Project Beneficiaries by Different Roads for National Road Component

No. of NR	Provinces	District	No. of Households for District	Total Population for District	No. of communes	Percent of Total	Length (km)
61	2	2	34,308	177,342	2	3.08%	16
3	4	10	172,838	866,851	45	69.23%	136
31	2	4	76,223	377,236	23	35.38%	55
33	2	4	42,049	219,809	20	30.77%	42
Total *	7	16	258,055	1,297,011	65	100.00%	249

Note: The total number of provinces, districts and communes does not include those overlap ones.

Source: PMO from Ministry of Public Works and Transport.

9. For the flood control and irrigation component, by the end of March 2005 a total of 33 irrigation or flood control schemes had been implemented. They are located in 30 districts and 15 provinces. According to the statistics from implementation agency from MOWRM, the 33 irrigation and flood control works would directly provide flood protection and irrigation for 42,882 ha of farmland, including 21.8 percent dry season farmland, and 78.2 percent of wet season farmland. They would benefit a total of 33,706 families and 204,694 individuals from 355 villages and 82 different communes (Table 3). Here, the number of benefited families, population and villages are based on detail estimate of the amount of benefited farmland.

10. For the rural infrastructure component, a total of 110 sub-projects were completed,

including 79 sections of rural roads, with 567.44 kilometers, averaging 5.16 kilometers per each sub-project. The rehabilitated rural roads are located mainly in flood affected areas, specifically in 46 districts from 20 provinces or municipalities. Based on the information provided by Ministry of Rural Development (MRD), the rehabilitation of these rural roads directly benefited 226,541 households and 1.98 million of population in 162 communes and 1,032 villages (Table 4). The numbers of directly benefited households and individuals were provided by MRD. It is not clear whether these figures were based on the total population from 1,032 benefited villages or the total population from 162 benefited communes. The average family size is 8.7 persons, which is significantly larger than district average (5.2 persons). If using total population from relevant districts, the numbers of total benefited households and population would be 679,777 and 3.52 million respectively.

Table 3: Project Beneficiaries of the Irrigation Component

No.	Sub-Project	Province	District	No of Commune	No of Village	HHS	Population	Irrigated Farmland ha
1	Pournil Res.	Kg Cham	Tboung Khmum	1	3	309	835	123
2	Chumnum Pol	Kg Cham	Memut	1	3	530	2650	790
3	Chitock Irrigation	Kg Cham	Ponhea Krek	1	2	429	2105	155
4	Preak Ta Am	Battambang	Moung Rosey	2	7	898	4490	1790
5	Phum Klong Polder	Koh Kong	Botum Sakor	2	4	1924	10363	232
6	Kandaol Polder	Koh Kong	Peam Chor	1	2	145	738	166
7	Boeung Kanthor	Pursat	Bakan	1	8	2371	6555	2290
8	Kampang Res	Purast	Bakan	2	11	2008	10040	858
9	Takoy	Kg Chhnang	Chul Kiri	5	10	492	1959	1603
10	Trey Po.	Kg Chhnang	Chul Kiri	3	3	152	935	115
11	Tram Krabei Res.	Kg Chnang	Chul Kiri	1	1	997	4322	723
12	Phnum Voir	Kg Cham	Poung Toeuk	2	6	444	756	373
13	O Krasar	Kg Cham	O Krasar	2	2	604	3020	469
14	O Klei	Kampot	Chhouk	1	3	443	756	457
15	M Lech Res.	Kampot	Chum Kiri	1	4	1294	6234	2639
16	Kampong Kronhoung	Kampot	Kampong Trach	3	8	997	4985	325
17	Sampoch Res.	Takeo	Baty	2	4	1145	680	213
18	Pich sar Polder	Takeo	Koh Andet	9	78	684	37962	8872
19	Koh kandaol Res	Takeo	Koh Andet	3	17	1183	6267	1057
20	Thom Ney Res	Takeo	Sam Roung	2	9	425	2150	412
21	Tonlop Res	Takeo	Chum Kiri	4	15	4776	32134	2136
22	O Smach Res.	Svay Rieng	Svay Chrum	3	8	1303	6515	1466
23	Sre thmey	Kratie	Chloun	1	2	296	1480	208
24	Traseck Chrum	Kratie	Preak Prosop	1	2	95	570	124
25	Po Borey Res.	Prey Veng	Preah Sdach	3	11	1402	7226	412
26	Koh Check	Prey Veng	Sithor Kandal	1	2	220	1244	414
27	Lam loung	Prey Veng	Kampong Leav	3	4	405	1950	245
28	Boeung Chakay	Prey Veng	Preak Prosop	3	7	317	1473	234
29	Preak Hor	Kandal	Ta Khmav	1	2	1020	4821	271
30	Prasat Keo	Siemreap	Pouk	9	66	2476	12380	10367
31	Thnol Dach	B M Chey	Thmor Pouk	1	3	1352	6760	825
32	O Kranhak	Kg Thom	San Dan	2	11	568	2840	1530
33	Phum Roung	Kg speu	Chba Morn	5	37	2002	17499	988
	Total	15	30	82	355	33,706	204,694	42,882

Source: PMO of Ministry of Water Resources

Table 4: Project Beneficiaries for the Rural Infrastructure Component

No.	Province	No. of District	No Roads	Length Km	No. of Commune	No. of Villages	Number of Families	Population
1	Banteay Meanchey	2	5	41.33	11	208	31,819	191,027
2	Battambang	2	3	24.00	4	14	11,711	664,168
3	Kampong Cham	3	4	21.95	12	107	13,413	68,992
4	Kg Chhnang	1	4	20.70	7	19	3,120	13,222
5	Kampong Speu	3	3	20.30	5	19	5,878	94,989
6	Kampong Thom	2	2	12.50	6	78	8,856	48,600
7	Kampot	2	3	12.90	6	13	3,362	15,099
8	Kandal	5	11	50.10	25	159	34,723	148,123
9	Koh Kong	1	1	10.00	2	4	1,591	8,602
10	Kratie	4	10	80.20	15	55	23,256	120,898
11	Pailin	1	1	15.00	0	0	n.a.	20,229
12	Phnom Penh	3	7	32.70	11	30	25,020	195,221
13	Preah Vihea	1	1	9.00	0	0	1,168	6,625
14	Prey Veng	2	3	19.16	8	21	2,685	13,553
15	Pursat	3	5	49.35	14	43	3,625	24,207
16	Rattanakiri	1	2	23.35	4	10	2,140	57,000
17	Siem Reap	3	3	35.00	8	112	22,497	137,030
18	Sihanouk Ville	2	2	25.90	4	10	2,887	15,337
19	Svay Rieng	1	1	18.50	5	19	1,805	10,833
20	Takeo	4	8	45.50	15	110	26,985	121,586
	Total	46	79	567.44	162	1,031	226,541	1,975,341

Source: PMO of Ministry of Rural Development.

11. For the education component, according to the information from the PMO from at the MOEYS, 376 schools were rehabilitated, which included the construction of 1,495 new classrooms and repairs for 33 classrooms, which directly benefited 179,645 students from these schools. Assuming each family has only one student with five family members, a total of 179,645 families and 898,225 persons would be benefited from school rehabilitation. Most of the 376 schools are located in the flood affected area, covering the 71 districts in 10 provinces. The total population for 71 districts is 1 million households and 5.3 million people. Assuming each commune includes only one project school, and each school serves at least 2 villages, at least 376 communes and 1,128 villages would benefit from school rehabilitation projects. Given the fact that each school will only serve those villages nearby, the figure of 179,645 families and 898,225 persons in project areas seems to be a more suitable estimate for the beneficiaries of the education component, even though this might slightly underestimate total population in project areas. Since not all households have school age children, such estimate dose not include those families without school students.

12. In summary, the four project components with rehabilitation of national and provincial roads, rural roads, irrigation and flood protection facilities, and school buildings would benefit

2,771 villages, 682 communes, in 116 districts and 20 provinces. The total number of benefited districts from four components was 163, with 47 of them being overlapped among different project components. They account for 83 percent of total provinces, 63 percent of total districts, and 42 percent of total communes in Cambodia. The total number of project beneficiaries would amount to 1.15 million households and 5.9 million persons, accounting for 36.4 percent and 43.5 percent of national totals. The FERP covers a wide geographical area and benefits a large portion of provinces, districts and population (Table 6).

Table 5: Project Beneficiaries for School Component

No.	Province	No. of District	No. of School	Total Enrollment	Total HH in PA	Total Population in PA
1	Banteay Meanchey	7	50	18,626	18,626	93,130
2	Battambang	11	56	20,347	20,347	101,735
3	Kampong Cham	6	33	18,654	18,654	93,270
4	Kampong Chhnang	7	41	11,714	11,714	58,570
5	Kampong Speu	7	29	21,402	21,402	107,010
6	Kampong Thom	7	45	10,421	10,421	52,105
7	Kandal	9	54	45,053	45,053	225,265
8	Kratie	5	28	7,202	7,202	36,010
9	Phnom Penh	2	2	1,287	1,287	6,435
10	Takeo	10	40	24,939	24,939	124,695
	Total	71	378	179,645	179,645	898,225

Source: PMO of Ministry of Education, Youth, and Sports.

Table 6: Summary of Project Beneficiaries for Four Project Components

Project Component	Province	District	Commune	Villages	Households	Population
National Road	7	16	65	264*	258,055	1,297,011
Flood Control & Irrigation	15	30	82	355	33,706	204,694 *
Rural Infrastructure	20	46	162	1,031	679,777	3,517,330
School	10	71	376	1,128	179,645	898,225
Total	20	116	685	2,514	1,151,183	5,917,260
National Total	24	183	1,609	13,406	3,164,435	13,607,069
Percent	83.3%	63.4%	42.6%	18.8%	36.4%	43.5%

Note: (1) Those * are directly beneficiaries. The others are total population from benefited districts.

(2) Number of benefited people for irrigation component is based on families and population from irrigated areas.

(3) Number of communes and villages for school component was estimated based on assumption that each commune would include one project school and each school would at least benefit three villages.

(4) The estimated direct beneficiaries for rural road component are 226,541 households and 1.98 million people.

(5) The estimated direct beneficiaries for school component are 898,225 persons assuming 5 persons per family

for each benefited student. The total benefited students are 179,645.

(6) The total number of households was based average family size (4.3) and total population of 13.6 million.

D. Social Economic Profile of Project Beneficiaries

National Poverty Situation

13. Cambodia ranks 121st out of 162 countries in the 2001 Human Development Report. Approximately 36 percent of Cambodia's population falls below the poverty line. The rural population has substantially lower social indicators than the urban population, and poverty is widely distributed throughout the country. Since Cambodia's reentry into the international community in 1991, the country has made significant advances in both human and economic terms. Since 1993, GDP has grown 40 percent and the country has developed a vibrant and growing export industry. This has led to a reduction in poverty and an increase in human development. In spite of such progress, poverty incidence remains at a relatively high level. Recognizing that poverty is multi-dimensional, the government is using a consumption-based poverty line based on the daily consumption of 2,100 calories or US\$14 per person per month. Following the adopted poverty line, the poverty incidence for the whole country is still quite high, estimated at 36.1 percent in 2002 with 11.9 percent for Phnom Penh Municipal Area, 30 percent for other urban areas, and 43 percent for most rural areas. Most of poverty incidence figures came from *Estimation of Poverty Rates at Commune-Level in Cambodia*, which was prepared by the Ministry of Planning and the United Nations World Food Program.

Poverty Conditions in Project Areas

14. The FERP covers a relatively wide area of the country, which accounts for 83 percent of total provinces and 63 percent of total districts in the country. Due to project selection criteria (aiming at the flood impacted areas and relatively poor communities) the poverty incidence for the project area of four components was 39.9 percent, which was 10.5 percent higher than national average (Table 7). Project beneficiaries tended to be relatively poor people from rural communities. The poverty incidence was highest for the flood control and irrigation component, which was 44.3 percent, followed by the schools component with 39 percent, and national road and rural infrastructure components with 38.4 percent, respectively.

Table 7: Comparison of Poverty Incidence in Project Areas of Four Components

Locations	National Average	National Road	Irrigation	Rural Infrastructure	School
Phnom Penh	11.9%	23.9%	n.a.	16.8%	19.6%
Other Urban	30.0%	27.3%	20.5%	35.5%	34.9%
Rural	43.0%	40.0%	45.4%	39.0%	40.2%
Average	36.1%	38.4%	44.3%	38.4%	39.0%

Note: For four project components, poverty incidence is based on poverty incidence for the project districts, including

districts under Phnom Penh, other urban areas, and other rural areas.

Source: The Ministry of Planning and the United Nations World Food Program, *Estimation of Poverty Rates at Commune-Level in Cambodia*, 2002.

15. This poverty incidence was based on average figures from project districts. The actual poverty ratio seems to be higher among those actual project beneficiaries. According to a small sample survey from 10 sub-projects under the irrigation component, the people in poverty

accounted for 65 to 70 percent of total beneficiaries, followed by 18 to 25 percent of medium farmers and 5 to 12 percent of rich farmers. The average monthly income among sample households under these 10 sub-projects was only US\$12 per person before the project, lower than the national poverty line of US\$14 per person per month.

Social and Economic Profile of Affected People

16. Cambodia is a predominantly agrarian society with agriculture accounting for 39 percent of GDP. At least 70 percent of the rural population directly depends on agriculture for their livelihood. The sector has an important role to play in reducing rural poverty, meeting the expected population growth, and improving nutrition requirements. Agricultural productivity remains low compared with that in the other Southeast Asian countries with similar agro-climate conditions. It is constrained by soil fertility, limited access to farm inputs (particularly quality seed material, fertilizers, and chemicals), the uncertainty of rainfall and the frequent occurrence of droughts and flooding, the inability to manage extreme water flows, and a weak agricultural extension service that limits farmer exposure to and adoption of improved agricultural techniques. Furthermore, the poor rural roads network results in high transport costs, restricted access to markets, market information, and credit, and generally lower farm gate prices for farmers. Rice, the staple crop of Cambodia, covers about 90 percent of the 2.6 million ha cropped area, contributing 46 percent of agricultural output and providing 70 percent of nutrition intake. In average to good years, Cambodia is considered barely self-sufficient in rice, but this is only true nationally and sufficiency at provincial level varies considerably. In 2001, 13 out of 24 provinces reported a deficit. Many rural households, especially in the northwest region, continued to suffer rice deficits for up to 6 months of the year.

17. Although no systematic baseline survey was conducted for the four project components, various secondary survey data were collected to develop a general social economic profile of the affected people. They included small sample household survey for individual irrigation schemes, social economic surveys conducted in preparing the resettlement action plans for the same national roads, and a socio-economic impact study for similar rural roads under TRIP-Phase III Program. The social economic conditions of project beneficiaries were quite representative of most rural communities in Cambodia.

18. The family size tends to be large, with more than 50 percent of families having more than five members. For example, the average family size was 8.7 persons for beneficiaries under the rural infrastructure component and 6.1 persons under the irrigation component. These figures confirm the general trend of poorer households, which are bigger in size than the national average (4.3 members – National Statistics, 2003).

19. The education background among project beneficiaries was relatively low. More than 60 percent of male and 70 percent of female farmers never attended school or had any formal education of at least a year. Among those who attended some school are those with ages between 20 and 30 years old. However, the percentage of children attending school shows a significant increase after the improvement of rural infrastructure.

20. A majority of rural people rely on agriculture as their main source of income and most of them own their farmland, which was obtained by distribution from the authorities. Although the size of land holding varies among different project areas, the average land holding was relatively small. It was 1.63 ha per family, or 0.27 ha per person under the irrigation component. (N.B. removing one special case with 15 ha, the average land holding became 1.33 ha per family or 0.22 ha per person). Based on the small sample household survey, there were 24 percent of families with per capita land holding below 0.1 ha, 30 percent with per capita land holding between 0.1 and 0.2 ha, 18 percent with per capita land holding between 0.2 and 0.3 ha, and 28 percent with per capita land holding above 0.3 ha.

21. There has been a clear and consistent stratification within the villages into three general groups based on a small survey under the irrigation component. The “poor” farmers, who generally own no land or a small amount of land less than 0.1 ha, own few if any large livestock (buffalo or cattle) or other assets, and who are short of food for periods ranging from 3-6 months per year; “medium” farmers who generally own between 1.0-2.0 ha of land, at least two large livestock sufficient for draught power and some electrical/mechanical equipment, and who only suffer food shortages during bad years; and “rich” farmers who own more than 2 ha of land, have several large livestock, often are becoming mechanized in their farming and have motorcycles and other assets.

22. The average yield of rice, particularly before irrigation facilities were rehabilitated, was relatively low, ranging from 1.37 ton per ha for wet season crops and 1.98 ton per ha for dry season crops. Given the average annual food consumption requirement of 266 kg per person, and average yields before rehabilitation, at least 0.19 ha of wet season cultivated land or 0.13 ha of dry season cultivated land would be required in order to meet basic food security. Based on existing limited land holding with 54 percent having less than 0.19 ha of farmland, it is not surprising to see that over 50 percent of families had food shortage, ranging from 10 percent to 70 percent; and food shortage often lasted for 4.3 months, ranging from 2 to 8 months. Such shortage became very acute during drought or flooding years.

23. The relatively poor condition among project beneficiaries was also reflected by the annual income level. Based on the same sample survey under the irrigation component, the average per capita income was US\$143, which was 15 percent less than the national poverty line with US\$14 per person per month or US\$168 per year. Similar income levels were also reported in project areas of the rural road component with per capita monthly income being only US\$10 in 2002. The income figure for rural road component is based on *Social Economic Impact Study of Roads Constructed during TRIP-Phase III, October 2002 – April 2004*. This means that a considerable proportion of project beneficiaries are under the national poverty line. Among the total income, planting accounted for more than 56 percent, animal husbandry accounted for 22 percent, and various non-land based activities, such as daily labor and small business, accounted for 22 percent.

Flood Impacts and the Objective of the Project

24. A large proportion of the population is clustered around the poverty line, indicating a potential for a significant increase in the incidence of poverty when the country is hit by disasters such as the 2000 floods, thought to be the worst in 40 years. The rivers around Phnom Penh were well above emergency levels for the entire month of September and a large part of October. While breaches in the dike protecting Phnom Penh were avoided and the capital city was saved from serious flood damages, the record high level of the river systems and unusually long floods seriously damaged Cambodia's infrastructure, causing extensive damages to crops and livestock, and caused people extensive suffering as a result of displacement, food shortage, interruption of economic livelihood and disease. It is reported that 347 people died and a total of 760,000 families representing more than 3.4 million people were affected, with more than 84,000 families evacuated and approximately 7,200 houses destroyed.

25. The total direct cost of damages from the floods was estimated by the government as US\$161 million, which underestimated the actual cost because of the exclusion of many indirect costs. In terms of economic losses, the greatest damage was to agriculture with US\$71 million. Of this, US\$62 million of the losses was in rice damage covering 600,000 ha of paddy, of which 350,000 ha were reported to have been destroyed completely. In addition, an estimated US\$9 million was lost in damage to 47,000 ha of subsidiary crops, and a loss of 2,300 oxen/buffaloes and 1,620 pigs. The national rice deficit for 2001 was around 44,000 tons. The impact on poverty was significant as the majority of people in rural areas are living below the poverty line.

26. The second most heavily damaged sector was the national and provincial transport network where damage was estimated at US\$64 million. In addition, substantial damage was confirmed in several important sectors, including flood control and irrigation systems, the education sector, rural infrastructure (mainly rural roads) and the health sector. School enrollments substantially decreased as many schools had to close for several weeks. The overall impact of the floods reduced GDP growth by 1.0 percent from the government growth estimate of 5.5 percent.

E. Social and Poverty Benefits for the Project

Methodology

27. The project physical components were implemented by agencies from four different ministries. They are MPWT for National and Provincial Road Component, MRD for Rural Infrastructure Component, MWRM for Flood Control and Irrigation Component, and MOEYS for School Rehabilitation Component. In preparing project implementation completion reports, all four agencies collected some project benefits data. Most of them were economic indicators, such as traffic count information for the national road component and the rural infrastructure component, irrigated farmland area for the irrigation component, and enrollment of students for the school component. Although these indicators could demonstrate broad social and economic benefits brought by different project components, they are not able to demonstrate social and poverty benefits to the project beneficiaries. Such benefits could only be reflected through a social

and economic survey among project beneficiaries.

28. Unfortunately, due to the emergency nature of the project, no project benefit monitoring and evaluation system had been established during the project implementation. Facing such constraint, a limited scope of survey among project beneficiaries was proposed and carried out in order to have a better understanding of the social and poverty impacts of the project. The limited scope of the social assessment was based on a combination of various participatory rural appraisal techniques with different methods adopted for different project components. They include a key informants interviews, a focus group discussions and a sample household survey. In terms of key informant interviews, they varied among different project components such as commune officials, village chiefs, shop owners and bus drivers for road projects, school principals and community leaders for the education component, and representatives of farmer water user committees for irrigation component.

National Road Component

29. Four national roads were completed rehabilitated under the national road component.. The alignments of these four national roads cover 7 provinces, 15 districts and 64 communes, benefiting a large number of families and individuals. The completion of these sub-projects greatly improved transport conditions along these national roads and related road networks. In terms of benefit monitoring, the only available information in the current ICR report is traffic count among these four roads. Table 10 and Table 11 provided traffic count before (2001) and after the project (2005) conducted by the WB-PIU2 from MPWT. According to the traffic counts between 2001 and 2005, the traffic volume has increased considerably after rehabilitation of national roads. The high volume of traffic increase for NR 31, 33, and 61 is because those three roads were extremely difficult to travel prior to the rehabilitation.

Table 10: Traffic Count Data on Project Roads (Vehicles Per Day in 2001)

Road	NMT	MT								Total	
	Animal Carts and Bicycles	Motor-cycles	Motor-Cycles & towed cart	Car, Jeep, Pick-up, Truck	Light Truck	Medium Truck	Medium Bus	Heavy Trucks	Large Bus		
NR 3	1,676	3,731	n/a	816				180		6,403	
NR 31	n/a	n/a	n/a	24	29	12	10	20	-	95	
NR 33	n/a	n/a	n/a	352							352
NR 61	n/a	n/a	n/a	26	23	18	49	18	0	134	
Total										6,984	

Source: WB-PIU2, MPWT

Note: NMT = non-motorized transport; MT = motorized transport.

Table 11: Traffic Count Data on Project Roads (Vehicles Per Day in 2005)

Road	NMT	MT								Total
	Animal Carts and Bicycles	Motor-cycles	Motor-Cycles & towed cart	Car, Jeep, Pick-up, Truck	Light Truck	Medium Truck	Medium Bus	Heavy Trucks	Large Bus	
NR 3	1,222	3,822	362	1,080	456	208	204	365	13	7,732
NR 31	1,303	1,699	29	347	80	55	38	195	12	3,758
NR 33	395	1,846	103	492	105	53	10	85	12	3,101
NR 61	23	329	0	52	50	29	11	78	0	572
Total	2,943	7,696	494	1,971	691	345	263	723	37	15,163

Source: WB-PIU2, MPWT

Note: NMT = non-motorized transport; MT = motorized transport.

30. According to interviews among key stakeholders, such as local villagers, community officials, bus and truck drivers and small shoppers, along with increase of traffic volume, the rehabilitated roads have brought considerable benefits to their daily lives. They include:

Rural Infrastructure Component

31. The rehabilitation of rural roads has brought considerable benefits to local communities and individuals, ranging from easy access to the market and social facilities to lower transport cost.

32. The first benefit is to assist Cambodia to repair and restore damaged rural infrastructure. Most these rehabilitated roads have been surfaced with locally-available laterite and compacted to the defined standard. This has improved the road condition to all-year-round with access to market towns and the primary national road network. Through implementation of these rural

infrastructures, the institutional capacity of 20 Participating Provincial Departments of Rural Infrastructure (PDRDs) has been improved remarkably, although there is room for further improvement. The successful implementation of these projects also indicated that the local construction contractors have the capability of carrying out construction and rehabilitation of local roads. Bridges and culverts have also been built by small contractors to acceptable standards.

33. The second benefit is to provide direct income-enhancing opportunities in economically depressed communities through labor-intensive construction and maintenance. Many rural road construction activities, such as clearing a narrow right of way through villages, tree and grass planting along roads, roadside drainage and maintaining completed earth-works before spraying laterite, as well as small-scale civil works generated local employment. Future maintenance of rehabilitated roads is expected to create additional employment, albeit on a much smaller scale. These employment opportunities provided cash incomes for local farmers.

34. Other employment and income generation accrued to local traders (roadside shops and traveling traders). During construction of local roads, the roadside shops experienced an increase in turnover and profit with sale to the construction workers, averaging 24 percent. After completion of road construction, even though turnover and profit were lower than during construction, they are still higher than before the project. The traveling traders interviewed were mainly sellers of food and drinks to the project workers. About 65 percent were female. All of them came from nearby villages and most of them had been in business before the road construction started. Based on selected interviews, small traders experienced about 14 percent increase their turnover and profit during road rehabilitation.

35. The third benefit was to restore rural road conditions to pre-flood levels among relative poor communities. Depending on the damage caused by the floods, the access ability of rural roads was reduced considerably, causing complete stoppage of vehicles and a change to slower and more expensive means of transport. The direct consequence was the difficult to bring farm products to the market which led to lower prices for local farm products and higher prices of essential commodities. The restoration of access ability to pre-flood level has already begun to reverse these adverse effects, reflected in increased traffic volume in the rehabilitated roads and a shift to cheaper and faster mode of transport.

36. Table 12 provides the result of traffic count survey before and after the implementation of rural roads, based on a survey among a sample of rehabilitated roads in 20 provinces. According to the survey, the traffic volume in general has grown by about 27 percent among completed rural roads. The rapid increase of traffic volume and change of transport mode indirectly indicated increasing economic activities in the project areas.

Table 12: Traffic Growth Rate for Rural Roads

Description	Before Project		After Project		Change
	Total Count in Surveyed Roads	Average Count Per Road	Total Count in Surveyed Roads	Average Count Per Road	
1. Oxcart	653	29	714	29	-0.5%
2. Bicycle	6,392	315	6,005	281	-10.9%
3. Motorbike	17,955	543	24,110	778	43.5%
4. Motor-trailer	947	39	1,249	53	35.5%
5. Car	1,115	27	1,822	43	58.2%
6. Light truck	652	19	1,327	36	88.6%
7. Four Wheel Truck	855	22	1,260	34	57.2%
8. Six Wheel Truck	601	13	946	22	63.4%
Total	29,170	1,007	37,433	1,276	26.7%

Source: WB PMO of Ministry of Rural Development.

37. Although the results of the supplemental survey for the rural infrastructure component was not available during the preparation of this report, based on the household survey and analysis from the similar rural road projects, the rehabilitation of rural roads brought a range of changes on social and economic aspects in the rural communities which closely related with increasing traffic volumes on the upgraded roads. On the one hand, there is an impressive increase in the numbers of children attending school in the study area. Access to clean water has also improved considerably, as well as an extensive use of the improved roads for the sale of agricultural products. The rehabilitation of rural roads has improved the overall living situation of the villages in all areas. The number of household assets, the sale of agricultural produce and average household incomes have all increased in the project areas. Discussions with local villagers show that villages are now better organized and more able to deal with the daily problems by themselves. The construction of rural roads has had an overall impact on the development in the areas. Traders now visit the area to buy farm products, shops have been opened along the roads and farmers have better access to health clinic centers. The project areas have been opened up with improved roads, and villages have increased opportunities to benefit from improved access and different services and facilities.

Flood Control and Irrigation Component

38. There are 33 irrigation schemes completed under the flood control and irrigation component, which provide irrigation or flood protection benefits to 42,882 ha of farmland in 355 villages, 82 communes, 30 districts and 15 provinces. A total of 33,706 families and 204,694 individuals will benefit from improved irrigation and flood protection. The potential benefited farmland according to the project design would be 47,959 ha. In other words, the actual irrigated farmland is about 90 percent of total design capacity. During the construction of the irrigation sub-projects, 33 FWUCs were set up with 602 water user groups. In setting up each FWUC, a set of baseline information was collected based on five sample households, which covered basic social economic background, demographic profile, farmland production status before the irrigation scheme. Such baseline information was collected for all 33 sub-projects.

39. The sub-projects selected for rehabilitation were generally in areas previously identified as having extreme poverty. The effect of the floods in 2000 and probably some years of deferred maintenance resulted in farmers losing the ability to plant sufficient crops to obtain food for their families. As a result there were reports of a need for food subsidies and continuous support. The rehabilitation of the irrigation and flood control schemes not only provided water supply for irrigated rice during the dry season and some supplementary irrigation during wet season, but also provided protection to ensure that farmers can produce crops without risks of floods. The successful implementation of these irrigation and flood control schemes has significantly improved the economic and social conditions in the sub-project areas. The direct benefit of irrigation rehabilitation was the increase of both irrigated areas and average yield in the project areas. On average, the irrigated area increased by 24 percent with 28 percent for wet season crop and 23 percent for dry season crops. Yield increased by 40 percent with 26 percent for wet season crops and 50 percent for dry season crops. Such change directly contributed to the rise of incomes among project beneficiaries.

40. The project beneficiary groups generally consisted of 65-70 percent “poor” farmers, 18-25 percent “medium” farmers and 5-12 percent rich farmers. For the poor farmers, the project has essentially been a “food security” project that has reduced or eliminated the amount of time they are short of grain. According to survey among focus groups in selected sub-projects, the percentage of families with grain shortage was reduced by more than 50 percent, from 51 percent before project to only 22 percent after rehabilitation, and the length of shortfall was also reduced by half, from average 4.3 months to average 2.3 months. In addition, the available irrigation water also provided them with alternative sources of food through catching aquatic animals (fish, snails, small mollusks) and edible plants while improving their domestic and drinking water supply. For the “medium” and “rich” farmers, the project has eliminated any food shortage periods and produced a surplus of rice, some of which is sold, reduced large livestock mortality and provided additional sources of protein and income generation. According to the survey, the proportion of families having enough grain was increased from only 22 percent before the project to 76 percent after the project, and the percent of families selling surplus grain was increased from 23 percent to 77 percent.

41. The sub-projects were in all cases examined considered to be beneficial, even where

problems were noted by farmers. The increases in the rice yields varied between 0.5-1.0 ton/ha and more areas were brought into production, or double-cropped, than before. The nursery crops were able to be put in on time so the growing season was not delayed and there were fewer losses from drought or flooding. Additional garden crops were grown, more fish were caught, additional food sources grown or gathered within or near the reservoirs, and livestock health was generally improved (although this is not the case in 2005 when epidemics and drought have killed many animals). The sub-projects provided better road access in all cases, protected against flooding, brought saline soils back into production and formed what in many places are the first farmer organizations.

42. Clearly the benefits of the project will accrue to all members of families which include women and children, but evaluation of the benefits has not been carried out. One indication of improvement in the status of women in the project areas is that quite a few women were elected as part of the FWUCs or Farmer Water User Groups. However, since women carry out most of the labor intensive activities in rice production, they need to have a larger role in the management of the sub-projects. Some emphasis has been given to increase the number of women, but this may only occur during the second election of office bearers, when the farmers recognize the need for fairer representation of women on the committees.

43. In conclusion, according to the supplementary socio-economic survey, the flood control and irrigation component of the FERP has achieved far more than the initial estimated rates of return and can be considered a success in terms of economic benefits and farmer satisfaction. It appears that the primary benefit of the project is increased food security for the poorest farmers in the areas who comprise at least two-thirds of the project beneficiaries. The benefiting farmers who are better off will likely form a focal point for economic development in the area providing employment, models for increasing production and diversification and a market for goods and services that will increase the overall economy in the rural areas.

School Component

44. Under the school component, there are 378 schools, which benefited from reconstruction of new school buildings and repairs of existing school buildings (5 schools). The rehabilitation was carried out in six phases. They include the completion of 1,492 classrooms, with 1,459 new classrooms and 33 existing ones, and has directly benefited 179,645 students in 378 communes from 71 districts and 10 provinces. The number of benefited communes is estimated, based on the assumption that each benefited commune only includes one project school. In terms of the number of benefited population in local villages, it could also be estimated based on the number of enrolled students: assuming each family has 4.5 persons including one student, the total benefited population would be 808,403 persons.

45. The rehabilitation of school buildings provided direct benefits to the students by reducing their safety risks and encouraging more participation. One direct indication of such benefit is the increase in enrollment. Based on benefit monitoring of the first three phases with 183 schools, the student enrollment increased from 63,554 students before school rehabilitation to 78,321 students after the school rehabilitation. The percent of girl students increased from 45 percent to 46 percent. However, for the Phase 4 to the Phase 6 of 193 schools, since the projects were

completed in 2004, no benefit monitoring has been conducted. Following the ICR mission, a supplemental survey was carried out based on a small sample of schools completed in the last three phases. According to this survey, student enrollment increased by 6 percent after school rehabilitation. Since these schools were completed only in 2004, the enrollment might continue to increase in the next few years.

46. The findings of the Benefit Monitoring Survey can be summarized as follows:

- The parents, teachers, village chiefs and commune chiefs were, as a whole, very positive about the school rehabilitation and reported an improved learning environment for students leading to a better future for their children. Students found the buildings spacious, comfortable and very strong. With better locations, many students do not need to travel very far and students can go to school alone without parents accompanying them. Teachers found teaching more enjoyable. The classrooms were more secure because of the grill windows. There was more wall space to put up teaching materials. One commune chief even said that the school building was one of the best quality buildings he had seen and was an asset to the community. During construction, many of the local people found jobs as laborers.
- Significant increases in student numbers were reported across the entire project, since most students need less time to go to school. There was less absenteeism. Students were more willing to go to school. In many cases, students did not have to buy bicycles to commute to schools. The few exceptions, where student numbers dropped, were due to the construction of additional school facilities in adjacent villages to reduce overcrowding.
- The new school buildings also resulted in improvements in the numbers and experience of the teachers assigned to the schools. It is noteworthy that in some schools a reduction in the number of students repeating, presumably because of better teaching, had beneficial effects in reducing overcrowding.
- There was a better environment for students to study, including clean drinking water and sanitation in the schools.
- Parents reported that their children are better motivated to go to schools when the buildings and environment are improved.

47. In the process of school rehabilitation, two procurement methods were used. In the case of national shopping, the schools were awarded to contractors/builders based on sealed bidding amongst pre-qualified contractors. In the initial phases, the bidding process was advertised in the local papers. Under the community contracting modality, the project signed contracts with the Schools Support Committees (SSCs) at the standardized site-specific costs. Subsequently, SSCs signed contracts with contractors or local builders. The SSCs were provided with some basic training to enable them to undertake site supervision. The contractors/local builders were also provided training to enable them to comply with the contract documents. Most agreed that community contracting was the better procurement method, but to make it work properly more technical training was required including the selection of experienced local builders and the supervision of the construction. For quality construction, the training of good foremen was also important.

F. Conclusion

48. In summary, the FERP achieved the objective of the project design. It has not only restored the basic functions of damaged transport, irrigation and school facilities in the project areas but also provided a solid basis for sustainable development in the project areas. Since most of the selected sub-projects are located in relatively poor rural communities, the rehabilitation of national and local roads, restoration of irrigation facilities and construction of new school buildings have brought significant social and economic benefits to the rural communities. With restoration of these critical facilities, here has seen (i) an increase yields of farm products, which have improved food security for many rural poor; (ii) an increase in farm gate prices and improved access to market (iii) an increase in non-farm employment and income activities in the project areas; and (iv) improved access to social services and education. These multi-dimensional changes will contribute to the reduction of poverty in the project areas and provide the basis for the long-term sustainable development in the project areas.

Additional Annex 9. Borrower's Comments in Detail

M O P

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Ministry of Planning

KINGDOM OF CAMBODIA
NATION RELIGION KING

29 November 2005

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Subject: Comments on the Draft ICR prepared by the World Bank Cambodia Flood
Emergency Rehabilitation Project, IDA Credit 3472-KH

Dear Mr. Jiang:

All the project implementation agencies were pleased to review the draft ICR submitted by the World Bank and were also able to attend the workshop where the draft ICR was presented and explained in detail on November 8, 2005.

We agreed with the Bank' assessment of the overall achievement of the Project Objectives, Outputs and Outcomes of the project components. We have also reviewed the ratings of the project performance and are in full agreement with the Bank's assessment.

We concur particularly with the conclusion that with the restoration of the critical facilities, the Project has had the following substantial outcomes: (a) increased traffic volume rehabilitated national and provincial roads, which has brought about the opportunity for development; (b) increased yields of farm products, which has improved food security for many rural poor; (c) increased farm-gate prices and improved access to market, which have increased income generated from agriculture production; and (d) improved access to services and education, which has increased student enrollments and promoted community participation. These multiple-dimensional changes have contributed with synergy to reduction of poverty and assurance of food security in the project areas, and provided the solid basis for long-term and sustainable social and economic development in the project areas.

We would like to thank the Bank ICR Mission for interacting closely with all the implementing agencies while preparing the draft ICR and all the Bank officials, specialists, consultants, and in particular, the Task Team Leaders, who have worked in a spirit of partnership and have assisted with the successful implementation of the project during the last 4 years.

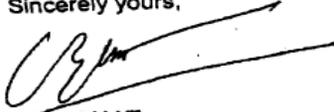
We look forward to working with the Bank in future projects in the same spirit of partnership and co-operation.

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With our best and warm regards,

Sincerely yours,



H.E. VONGSEY VISSO
Secretary of State
and Overall Project Director
Flood Emergency Rehabilitation Project
(IDA Credit No. 3472-KH)

Encl: a/s

cc: H.E Vongsey Vissoth, Deputy Secretary General, MEF
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CAMBODIA FLOOD EMERGENCY REHABILITATION PROJECT

- PROJECT AREA
- SELECTED CITIES
- PROVINCE CAPITALS
- NATIONAL CAPITAL
- RUINS
- MAIN ROADS
- RAILROADS
- RIVERS
- PROVINCE BOUNDARIES
- INTERNATIONAL BOUNDARIES

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