

**The Stakeholder Meeting 3-3
for the Construction
of the Second Mekong Bridge
in the Kingdom of Cambodia**

**Part III Outline of Resettlement Action Plan (RAP)
and
Results of Simple Survey**

January 29, 2006
Bun Rany Hunsen Primary School

Ministry of Public Works and Transport (MPWT)
in cooperation with JICA

**Part III Outline of Resettlement Action Plan and
Simple Survey**

1. Outline of Resettlement Action Plan
2. Results of Simple Survey

1. Outline of Resettlement Action Plan

(1) General

- A full-scale RAP should be prepared as a detailed plan for mitigating the land acquisition impacts, the largest social impact, by the ferry plus bridge option (Route A) of the 2nd Mekong Bridge Project in an attempt:
 - to ensure that the social and economic of the affected people is recovered at least the pre-project level;
 - to provide policy and procedural guidelines for the acquisition of land and other assets, compensation, and resettlement;
 - to identify households that will be adversely affected by the Project, where they are located, what compensation and related alleviating measures are to be provided and how and when these measures will be implemented.
 - to provide a plan on for the community participation of the PAPs could be involved in the various stages of the project, including the implementation of the RP; and
 - to estimate an overall budget of the required resources needed and the actual assessed compensation to implement the RAP.

1. Outline of Resettlement Action Plan

(2) Conditions for Framework for RAP

- Although a draft framework for the RAP is proposed in the Study, the full-scale RAP should be prepared as soon as possible which contains a wide range of information in order to get a clear-cut database of the extent of loss due to the land acquisition.
- Since the socio-economic survey conducted in this Study is not an official census before the feasibility study is completed, the DMS together with the official census should be conducted to prepare the full-scale RAP.

1. Outline of Resettlement Action Plan

(3) Contents of Framework for RAP

- Contents of Framework for RAP are proposed to include:
 - Description of the Project
 - PAPs and Impact Category
 - Utilization of Socio-economic Profile Survey
 - Resettlement Policy Framework
 - Institutional Set-up, Budgetary Arrangement, and Implementation Schedule
 - Information Disclosure and Community Participation
 - Grievance Resolution Mechanism
 - Monitoring, Evaluation and Reporting

1. Outline of Resettlement Action Plan

(3) Contents of Framework for RAP

(a) Description of the Project

The outline of the project should be briefly explained, and the boundary of the project as well as the impact area of the Project should be also indicated on the location map of the Project.

1. Outline of Resettlement Action Plan
(3) Contents of Framework for RAP
(b) PAPs and Impact Category

■ Since the "Construction Area" for the 2nd Mekong Bridge does not belong to the existing ROW, the declaration of ROW as part of the National Route No.1 was provisionally conducted based on the parkas 006.

■ However, although the Bridge will be a part of the National Road No.1, the ROW for the Bridge should be officially declared as the new ROW.

■ On the other hand, the construction yard for the Bridge should be newly declared as the "Construction Area" which is legally based on the Article 13 of the new Land Law 2001 which went effect in 2001.

1. Outline of Resettlement Action Plan
(3) Contents of Framework for RAP
(b) PAPs and Impact Category

There are two broad categories of PAPs for this project: i) Project-Affected Households and ii) Project-Affected Individuals.

No.	Commune	Number of Project Affected Households (PAPs)	Number of Assets (House and Land)	Number of Project Affected Individuals
1	Prek Ksay Ka	69	71	373
2	Prek Ksay Kha	81	88	437
3	Kampong Phnom	110	113	594
Total		260	270	1,404

1. Outline of Resettlement Action Plan
(3) Contents of Framework for RAP
(c) Utilization of Socio-economic Profile Survey

■ Generally, the full-scale census is used to establish baseline information of PAPs, and this census is critical for the clarification of the official eligibilities and entitlements of PAPs.
 ■ Although the socio-economic profile survey for PAPs was conducted during the feasibility study, the survey is not an official census, but a general information on PAPs to tentatively calculate the estimate cost of PAPs.
 ■ A Detailed Measurement Survey (DMS) will be conducted to generate an official inventory/database of households and assets, and the database will provide a detailed information used for resettlement management and implementation of the RAP.

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(d) Resettlement Policy Framework

The eligibility and entitlement policy consists of a set of guidelines and criteria that define the compensation measures for each category of PAPs. It also enables the IRC to classify all identified PAPs and to allocate the appropriate compensation packages. The compensation package includes a wide range of compensation measures which comprise for:

- Loss of land
- Loss of structures
- Loss of productive trees
- Loss of commune and public assets
- Allowances for disruption/resettlement and for vulnerable households

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(d) Resettlement Policy Framework

■ The rates of the compensations of each item will be properly decided in accordance with the Cambodia's laws and regulations at the time of the arrangement. The cost estimate for the compensation in the Study is tentatively calculated by applying the same level of the recently updated compensation rates.
 ■ The Detailed Measurement Survey (DMS) together with the official census will be conducted in order to accurately assess the amount of PAP's assets to be compensated.
 ■ Finally, eligibility and entitlement matrix for the compensations will be officially prepared after the DMS.

1. Outline of Resettlement Action Plan
(3) Contents of Framework for RAP
(d) Resettlement Policy Framework

	Fixed Assets	Kind of Asset		Unit
		1 st Category	2 nd Category	
1		Thatch/Leaf Wall (Screen), Bamboo Floor, and Thatch/Leaf Roof		m ²
2		Wood Wall, Wood Floor, and Zinc Roof		
3		Concrete Wall and Concrete Roof (Platform)		
4		Two-story Concrete House		
5	Well	Dig Well		1
6		Pump Well		
7	Fence	Wood Stand, Barbed Wire		m
8		Rock (Concrete)		

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(d) Resettlement Policy Framework		
9	Fruit Tree	Kind of Asset
10		Mango Tree
11		Tamarind Tree
12		Palm Tree
13		Coconut Tree (Milk-fruit Tree)
14		Bamboo
15		Jackfruit
16		Soursop Tree
17		Custard Tree
18		Papaya
19		Wood Tree
20		Banana
21		Lemon/Lime Tree
		Guava Tree

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(e) Institutional Set-up	i) Resettlement Unit	The functions of the Resettlement Unit are:
		<ul style="list-style-type: none"> • to conduct DMS as well as the associated official baseline census; • to undertake overall planning, management and monitoring of resettlement programs; • to identify all eligible PAPs and promote understandings of their entitlements; • to train resettlement officials at provincial, district and commune level resettlement units; • to supervise the disbursement of compensation to PAPs and ensure that compensation payments are completed on schedule; • to calculate and determine compensation and entitlements; and • to coordinate grievances of PAPs.

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(e) Institutional Set-up	i) Provincial, District and Commune Resettlement Unit	
		<p>■ Provincial Resettlement Units will be established at both Kandal and Prey Veng Provinces, which are headed by Provincial Governors and are located within the Provincial Public Works Departments.</p> <p>■ The Units will be responsible for all aspects of the local resettlement activities within the provinces. District Resettlement Units will be in charge of the identification of resettlement sites and on-site services, while the Commune Resettlement Units will act as facilitators to guarantee the timely implementation of the resettlement activities.</p>

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(f) Budgetary Arrangement		<p>■ The cost for the compensation is tentatively estimated at USD 0.67 million, including the management cost and contingency.</p> <p>■ The cost for the application of the budget should be precisely calculated based on the DMS and the officially applied compensation table at the time of the calculation.</p>

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(g) Implementation Schedule		The detailed and workable implementation schedule should be prepared as soon as possible including the following activities.
i) Preparatory Stage		<ol style="list-style-type: none"> 1.Implementation of Simple Survey 2.Declaration of Cut-off Date 3.Formulation of Draft RAP 4.Establishment of Grievance Redress Committee 5.Selection of External Monitoring Organization 6.Holding Public Information Meetings 7.External Monitoring 8.Holding Stakeholder Meetings 9.Conducting Basic Design Study 10.Implementation of Detailed Measurement Study (DMS) 11.Implementation of Official Census 12.Issue of Certificates of Entitlements

1. Outline of Resettlement Action Plan		
1.2 Contents of Framework for RAP		
(g) Implementation Schedule (Continued)		<ol style="list-style-type: none"> 13.Preparation of Draft Official RAP 14.Prepare Compensation Budget and List Comparison of Grouping of PAPs and Compensation Rights. 15.Government Approval of Draft Official RAP 16.Public Information Campaign to PAPs 17.Preparation of Monitoring Report 18.Preparation of Evaluation
ii) Implementation Stage		<ol style="list-style-type: none"> 19.Cash Disbursement to PAPs 20.Assistance to Relocation of Houses 21.Relocation of Houses to Resettlement Sites
iii) Monitoring and Evaluation Stage		<ol style="list-style-type: none"> 22.Preparation of Monitoring Report 23.Preparation of Evaluation

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(h) Information Disclosure and Community Participation
The transparent information disclosure is a key to promoting effective community participation for planning and implementation of the RAP. The followings are required to be informed to all PAPs.
<ul style="list-style-type: none"> ▪ Definitions of terms in the RAP ▪ Frequently asked questions and answers over the Project ▪ Detailed explanation on the Project ▪ Scope and categories of PAPs and predicted impacts ▪ Details of eligibility and entitlements under the RAP ▪ Implementation schedule together with the timetable for the delivery of entitlements ▪ Compensation policies and rates ▪ Procedures for the grievance redress ▪ Outline of the community participation

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(i) Grievance Resolution Mechanism
Two provincial-level Grievance Committees (GCs) will be established in Kandal and Prey Veng Provinces, and these GCs will be composed of the provincial governors, heads of relevant communes, heads of relevant villages, a staff of MEF, and staff from provincial PWT as a technical advisor/observer , and also a secretary from governor's office.

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(j) Monitoring, Evaluation and Reporting
Monitoring for the implementation of the RAP is of critical importance in terms of the following factors:
<ul style="list-style-type: none"> ■ Measurement of input indicators against proposed timetable and budget including procurement and physical delivery of goods, structures and services; ■ Tracking effectiveness of inputs against baseline indicators and assessment of PAPs' satisfaction with inputs; and ■ Measurement of output indicators such as livelihood restoration and development impact against baseline.

1. Outline of Resettlement Action Plan
1.2 Contents of Framework for RAP
(j) Monitoring, Evaluation and Reporting
The main indicators which should be regularly monitored are:
<ul style="list-style-type: none"> ■Entitlements of PAPs are in accordance with the approved entitlement policies; ■Assessment of compensation is carried out in accordance with agreed procedures; ■Payment of compensation to the affected people in the various categories according to the level of compensation as described in the RAP; ■Public information and public consultation and grievance procedures are followed as described in the RAP; ■Relocation and payment of subsistence and shifting allowances are made in timely manner; and ■Smooth linkage of resettlement and commencement of civil works.

2. Results of Simple Survey
■“Simple Survey” is a survey as a milestone to confirm the PAP’s basic agreement to the Project.
■The Simple Survey was commenced from November 28, 2005 and completed on December 24, 2005. The result of “Simple Survey” was that out of 260 PAPs identified as of December 24, 2005, 98.8% (257 PAPs) were in agreement to the Project.
■The external monitoring was conducted, and the results proved that the Simple Survey has been properly conducted during the whole survey period.



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**Part IV
Procedures for Final Consensus and Decision-Making**

January 29, 2006
Bun Rany Hunsen Primary School

Ministry of Public Works and Transport (MPWT)
in cooperation with JICA

Part IV Procedures for Final Consensus and Decision-Making

1. Basic Requirements for Final Decision-making Process
2. MPWT's Commitments for Public Comment Period
3. Concrete Procedures

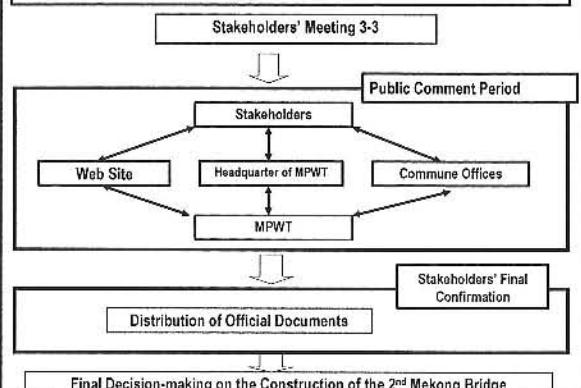
1. Basic Requirements for Final Decision-making Process

- All the information needed for making the consensus on the construction of the 2nd Mekong Bridge should be disclosed to all the stakeholders.
- Negative social and environmental impacts caused by the Project should be fully explained based on the final results of the EIA-level social and environmental considerations studies.

2. MPWT's Commitment for Public Comment Period

- MPWT will announce the closing date for the public comments and the procedure during the public comment period.
- MPWT will disclose all the required information to all the stakeholders through the relevant commune offices.
- Questionnaire and comment sheets will be available at the relevant commune offices.
- MPWT will reply to all the questions and comments through the relevant commune offices.
- After the closing date, the documents on the final conclusion of the feasibility study on the 2nd Mekong Bridge will be circulated among all the stakeholders.
- Through these processes, MPWT will finally decide the construction of the 2nd Mekong Bridge.

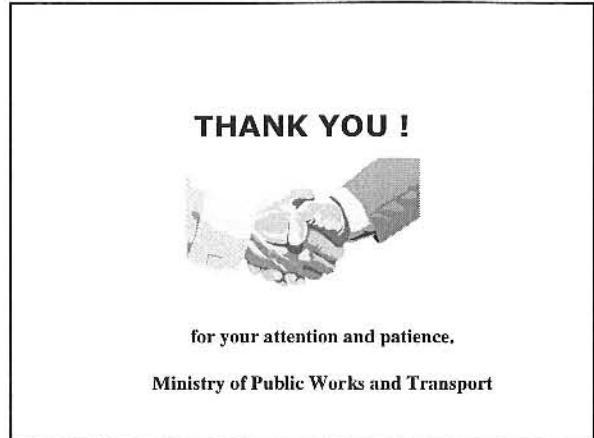
3. Concrete Procedures (1)



Concrete Procedures (2)

- Questionnaire and Comment Sheets are available at the headquarter of MPWT and the relevant commune offices.
- During 1-month period starting from February 1 to March 3, 2006, all the stakeholders are provided with opportunities to ask questions and make comments regarding all the related matters on the project and the Study.
- MPWT will answer those questions and comments through the relevant commune offices within 2 weeks after receiving them.
- All the personal profiles of stakeholders who asked questions and made comments will be strictly confidential, if they hope so.
- All the questions, comments and replies will be distributed among all the stakeholders by MPWT through the official documents for the purpose of the final confirmation.

Sample of Questions and Comments Sheet				
No.	Basic Information		Questions/Comments by Stakeholders	Reply by MPWT
1	Name			
2	Organization			
3	Position			
4	Age			
5	Male/Female			
6	Question No.			
7	Comment No.			
8	Date of Submission			
9	Place of Submission			
10	Date of Reply			



(2) Minutes of Stakeholder Meeting 3-3

1) General

Date: Jan. 24, 2006

Venue: Phnom Penh Hotel

Participants: Ministries and Relevant Agencies, Commune Chiefs and Deputy Chiefs from 6 Communes, Neak Loeung Ferry Staff, Universities and Research Institutes, EoV, EoJ, JICA Cambodia Office, JICA Study team, MPWT Counterparts. 85 participants in total.

2) Q&A Session

Question:

Q1: Mr. Hang Vatha, the First Assistant of Neak Loeung Commune, Peam Ro District, Prey Veng Province.

I have one question. According to Mr. Ogawa, the passengers crossing the river by the Second Mekong Bridge must pay a toll. In this regard, on behalf of my commune, I wonder how you collect the toll. If you collect it, I would like to request to collect only from cars and not from the pedestrians. So, all the pedestrians agree and are happy. Thank you.

A1: Mr. Touch Chankosal, Under Secretary of State, MPWT

I would like to answer this question. Toll collection on the project bridge is still a proposal made by the Study Team. If we collect the toll, I think we should collect only from the cars. However, regarding the toll, we have not yet decided it. I want to gather comments and questions from all participants which help the Ministry to consider it. Thank you.

Q2: Mr. Khim Romny, Staff of Neak Loeung Ferry

I have a question to JICA. I hear that, after the construction of the bridge, you will find another ferry station for us. Is this the new station? And I also want to ask that after construction of the bridge this project will make the gate to collect the toll. So, on behalf of ferry staff, workers will agree in this regard. Thank you.

A2: Mr. T. Ogawa, JICA Study Team

Thank you for this question. This transfer program from Neak Loeung to other crossing points is a proposal by JICA Study Team and the detailed program and its decision will be made by the Ministry of Public Works. Again, it is a proposal by JICA Study Team and based on the proposal the Ministry will solve this problem.

Q3: Mr. Hang Vatha the First Assistant of Neak Loeung Commune, Peam Ro District, Prey Veng Province.

Thank you H.E. Touch Chankosal, for answering my question (Q1). I, on behalf of my commune, would like to request once again: please don't collect the toll from the passengers including bicycles and motorcycles. If you collect the toll, please collect it only from the car. Thank you.

Closing Remarks by H.E. Mr. Tram Iv Tek, Secretary of State, MPWT

Distinguished Participants,

First of all, on behalf of the Ministry, I would like to express my sincere thanks to all the participants who actively participated in this stakeholder meeting 3-3 for the Second Mekong Bridge project. I would like to remind that the study commenced from April 2004 and continued for almost two years. And at the first stage of study, we had not decided yet that we need the bridge or not. So, the result of the study provided three or four reasons to verify the necessity of the project bridge. And JICA Study Team has given the full instruction that we need the construction of the Second Mekong Bridge in the further. And the bridge is bigger than Kizuna Bridge. That total road length is 5,430m, total bridge length is 2,220m. So, this bridge is quite long as Kizuna Bridge has only 1370m. And also the main span length is as large as 5,000 DWT container ship can cross under the bridge. And the size of the bridge is the same to My Thoun Bridge in Vietnam. Consequently, the study provides a good result and we appreciate the best option for the project bridge. We know the size, type and the cost of the bridge which is estimated at US\$ 74 million. And the project cost in terms of the economic price for the proposed bridge is estimated at US\$ 64 million, by converting domestic market. So, we still have not yet known where the source of fund is? From now, we will continue to discuss with the Government of Japan to look for the budget for the construction of the bridge. According to the result of the study, this project will generate as much profit as 23% in terms of the economic internal rate of return, and it is quite a large profit since international organizations recognizes 12% as the opportunity internal rate of return. The study also recommends the construction of the bridge need commence in 2008 or 2009 and finish in 2012. So, we now know that the construction of the Second Mekong Bridge will be essential. As the JICA's new guideline recognizes this project as Category A, so we must study the national and social environmental impacts. And the most important is loss of land, houses, jobs and other assets of the people who are living in Neak Loeung. Also, JICA and MPWT want to collect comments from those who are affected by the project. According to the simple survey, 260 households will be affected and the affected people want the government to well compensate and find an appropriate relocation place. And we make the same living standards of the affected people which they enjoyed before the construction of the bridge. And about the compensation, Inter-Ministry, H.E. Mr. Nhen Leng, Under Secretary of State, Ministry of Economic and Finance will deal with this issue. Today we

share the understanding of the project of the Second Mekong Bridge. And the work that the Government of Cambodia need to do is to continue a discuss with the Government of Japan for financing the construction of the bridge. And we have to consider the location of construction also, so please stop selling/buying the project land and households which may leave a big problem.

In addition to today's meeting, we'll hold another session of the stakeholder meeting 3-3 at Neak Loeung on 29 Jan 2006, inviting 300 stakeholders including project affected persons.

Also, I would like to confirm that the authority will collect a toll for crossing the river by bridge. It is used for the maintenance of the bridge. We must find the budget for repairing it. Taking an example of Kizuna Bridge, it has broken and we need the budget for the maintenance. And at Chrouy Chang Vour Bridge we now see the repairing work. So, we need the money for maintaining the bridge. So, it is necessary to make the gate for toll collection.

Lastly, I would like to thank you very much for your patience to attend this half-day meeting. I would like to officially close the final stakeholder meeting 3-3 today. Thank you very much for your kind attention.

3) List of Attendant

No.	Name	Organization	Position
1	H.E. Mr. Sun Chantol	MPWT	Minister
2	H.E. Mr. Uk Chan	MPWT	Secretary of State
3	H.E. Mr. Tram Iv Tek	MPWT	Secretary of State
4	H.E. Mr. Touch Chankosal	MPWT	Under Secretary of State
5	H.E. Lim Sidenine	MPWT	Under Secretary of State
6	H.E. Mr. Kep Than	MPWT	Under Secretary of State
7	H.E. Mr. Sim Souleng	MPWT	Under Secretary of State
8	H.E. Mr. Track Thai Sieng	Municipality of Phnom Penh	Deputy Governor
9	H.E. Mr. Ung Samy	Prey Veng Province	Governor
10	H.E. Mr. Nhean Leng	MEF	Under Secretary of State
11	Korezumi Tomoaki	Embassy of Japan	Secretary
12	Ono Tomohiro	JICA Cambodia	Assistant Res. Rep
13	Tamagake Mitsue	JICA Cambodia	Program officer
14	Tokuhiro Makita	JICA/MPWT	JICA Expert
15	Seak Pengkeng	JICA Cambodia	Program Office
16	Ngueng Hoang Gian	Vietnam Embassy	
17	Chhin Kong Hean	MPWT	Director General

No.	Name	Organization	Position
18	Try Yorn	Kandal Province	Police
19	Chea Sary	Preak Khsay Kha	Chief of Commune
20	Ann Sam Ol	Phnom Penh Autonomous Port	Deputy General Director
21	Cheah Soo Lye	Muhibbah Engineering	General Manager
22	Un Bontha	MOC	Deputy Director
23	Nuy Iyroun	Neak Loeung Ferry	Staff
24	Khem Romeny	Neak Loeung Ferry	Deputy Chief of Inspector
25	Pok Vanny	Neak Loeung Ferry	Deputy Chief of Inspector
26	Kong Soly	AZ Investment Co., LTD.	Engineer
27	Prom Say Heng	Council Minister	Communication
28	Minch Virak	Council Minister	Staff
29	Kol Leakhana	NGO Forum	Project Officer
30	Vat Totkosal	CNMC	Deputy Director
31	Poeang Kakry	MPWT	Director of Waterway
32	Yamasuma AKIRA	JICA	Project Formulation Advisor
33	Sok Say	Department of Public Work of Prey	Director
34	Nob Navy	Ministry of Environment	Staff
35	Bun Veasna	World Bank	Staff
36	Khun Sokha	MPWT	Staff
37	Horn Din	Ministry of Planning	Deputy of Depart.
38	Diep Leng	CCC	Deputy Director General
39	Dy Narin	Television Kampuchea	Reporter
40	H. Katsuta	MPWT	JICA Expert
41	Vasim Sorya	MPWT	Director of Planning
42	Hour Vany	MPWT	Representative of Director
43	Suy Sopheap	Council of Commune	The first assistant chief
44	Yos Lon	Council of Commune	The first assistant chief
45	Hong Butha	Council of Commune	The first assistant chief
46	Keo Sorphy	Council of Commune	The first assistant chief
47	Chin Ching Hin	Muhibbah	Contract Manager
48	Chan Sopheat	MEME	Director
49	Om Chamreon	Neak Loeung Ferry	Deputy Chief
50	Vong Samart	MPWT	Deputy Director
51	Kheng Gnon	AZ Investment Co., Ltd.	General Manager
52	Om Borith	MLMUPC	Deputy Chief of Department
53	Hem Pholy	MPWT/WBPIU	Staff
54	Tol Gnak	MPTC	Deputy Director
55	Noung Cham Rong	Department of Public work of Prey	Deputy Director

No.	Name	Organization	Position
56	Tol Toing	Banlich Prasat Commune	Council of Commune
57	Im Nimol	Preak Khsay Kha	Secretary
58	Chhorn Sopheap	MEF	Head of Resett Unit
59	Pareck Ngen	MEC	Project Manager
60	Lev Nal	Ministry of Women Affair	Inspector General
61	Pich Dun	CNmc	Dep. Sec. General
62	Ith Someth	EIC	Member
63	Ben Daramony	MEF	Chief of Division
64	Hem Choeun	Reaksmey Kampuchea Newspaper	Reporter
65	On Reaksmey	PWD Dandal	Director Office
66	Sim Samnang	MEF	Assistant
67	Chou Vanny	Resettlement Unit	Deputy Chief
68	Van Ry	Council of Commune	
69	Sorn Tat	First Assistant Chief	
70	Bo Saborn	Council of Commune	
71	Prum Sitha	DOF/MAFF	Deputy Director of Division
72	He Lim Seng	MPWT	Deputy Director
73	Un Sarim	Preak Khsay Ka	Secretary
74	Nhem Vet	Preak Khsay Ka	Chief of Commune
75	Moa Samet	Prey Veng	Police
76	Dr. Phy Lida	MPWT	Director
77	I. Gunji	JICA STUDY TEAM	Team Leader
78	J. Yasui	JICA STUDY TEAM	Bridge Planning
79	T. Ogawa	JICA STUDY TEAM	Environmental Assessment
80	K. Takahashi	JICA STUDY TEAM	Public Consultation 2/ Coordinator
81	Chhim Phalla	MPWT	Counterpart
82	Kry Thong	MPWT	Counterpart
83	Un Vanna	JICA STUDY TEAM	Translator

(3) Minutes of Stakeholder Meeting 3-2 (Neak Loeung Session)

1) General

Date: 29 Jan, 2006

Venue: Neak Loeung

Participants:

JICA Cambodia Office, JICA Study Team, MPWT, MEF, Predicted Project Affected Persons (240), including Mobile Vendors and Restaurant and Shop Owners.

2) Q&A Session

Morning Session:

Q1: Mr. Mach Sovanna, Phum Muy, Preak Khsay Kha Commune, Peam Ro District, Prey Veng Province.

I have some comments as follows:

I and all people are very happy if the government constructs the bridge. Because the bridge will reduce the poverty and also reduce the travel time to cross the river without any traffic jam. And the sick people can cross the river on time to the hospital. So, I, on behalf of my commune, fully agree to the construction of the Second Mekong Bridge.

But, I have requests to the government as below:

1-Regarding the impacts such as: loss of land, houses and jobs. For example, my house is on the right of way. So, I want to know the extent to how much land is affected?

2-For the people who are affected by the project, I want the government to ensure to provide enough compensation for re-construction of houses. And also, I want the government to solve the people whose business is affected by the project.

3-I want to request the government to make compensation quickly.

Q2: Name not known

I wonder the location between Stn No. 3-750 and 3-850. Because my land is affected by both road construction and construction yard. So, I want to lease my land within the construction yard. Thank you.

Q3: Name not known

I am worried about the compensation on this project from the experience of National Road No.1 project. Because during the National Road No. 1 project, I should have gotten US\$5000 but they gave me only US\$ 1000 and I don't receive the rest of money until now.

Answer by under Secretary of State, Ministry of Economic and Finance, H.E. Mr. Nhan Leng.

Before I answer to Mr. Mach Sovanna, I would like to confirm that, the study for the Second Mekong Bridge project is supported by JICA in cooperation with the Ministry of Economic and Finance and the Ministry of Public Works and Transport. We have collected the information for the study location of the bridge from the end of 2003 until now. And also the

stakeholder meeting has collected the attendance of the people who are affected by the project.

Someone said: Why they construct the bridge in Preak Khsay Ka commune? And why they don't construction at the ferry station? So, I want to tell about the social problem. If we construct the bridge at the ferry station, the impacts are too large then we construct it at Preak Khsay Ka and Preak Khsay Kha through to Kampong Commune. And about the economic viewpoints, if we construction the bridge at the ferry station, we need to construct many piers so that we spend a lot of costs, maybe exceeding US\$ 100 million. And now the construction of the bridge affects 260 families and 270 assets. And we have three families they don't agree to the project. So, more than 90% of the people support the project.

And about the compensation to the people, we'll start to work after Feb. 2006, to investigate how much one family have and after we finish survey we submit to the Government of Japan and also NGO Forum. So, I hope that if you need the full compensation in accordance with the compensation list, all of you need to attend and not be absent and cooperation with our organization. And about what Mr. Sovanna said: he has agreed to the construction the bridge. It so good because our country never has such a bridge and we have only two bridges for crossing the river such as: Kizuna and Chrouy Chang Vour Bridge. So, this is the third bridge and I think that for all of you it is very important project and also the government will mitigate the adverse impacts and maintain the livelihood of the people with full compensation. And the procedure and the rate of compensation follow the regulation of the Royal Government of Cambodia. So, we need all of you to help, if we need the bridge.

Now, I want to answer the question and the worries about the National Road No.1 Project. This problem is caused because she lives within the right of way and she still live in the same place even after the construction. So, IRC asked her to move the house with a full amount of compensation. If all of you have any problems, please let me know to solve them. Also, if any worries and problems, please provide your comments on the public comments sheets that Ministry of Public Works and Transport will provide to the commune hall. Thank you.

Afternoon Session:

Q1: Name not known

My house is already affected by the National Road No. 1 project. So, when I move to a new place? Because my house is affected by the Second Mekong Bridge project again. So, how many years does the construction of bridge require? So, can I re-construction my house or not?

A1: Mr. Chhim Phalla, Counterpart, MPWT

If we follow the declaration by the Prim Minister, we cannot construction this house. However, I don't have a clear answer on this question. I'll submit your issue by the public comment sheet to IRC and expect the answer soon. Thank you.

(4) Photographs



Photograph AP8.3.1 Stakeholder Meeting (Phnom Penh Session)



Photograph AP8.3.2 Stakeholder Meeting (Neak Loeung Session)

APPENDIX 9

ECONOMIC AND FINANCIAL ANALYSIS

APPENDIX 9 ECONOMIC AND FINANCIAL ANALYSIS

AP 9.1 Economic Evaluation of the Project

(1) Project Cost

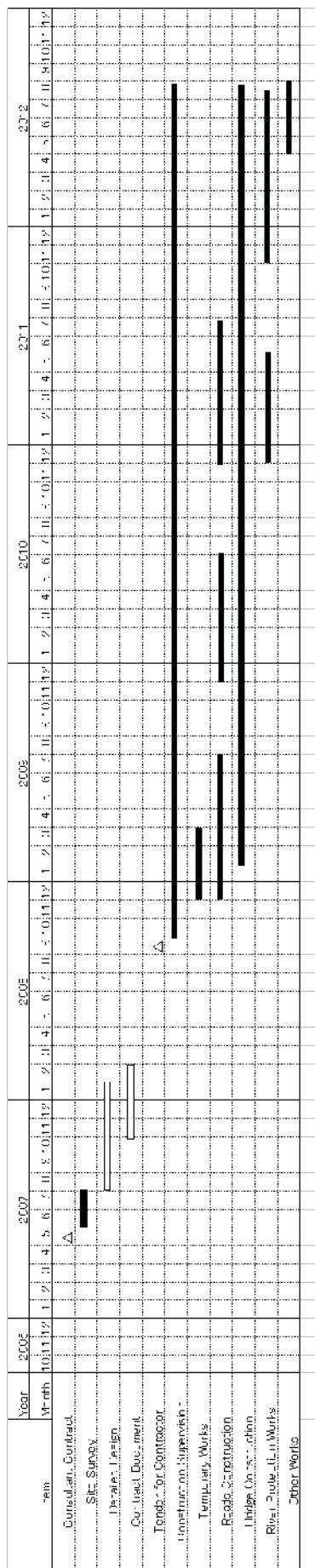
Project costs are estimated in the process of the cost estimates in chapter six. Table AP 9.1.1 shows the annual distribution of the project costs in terms of economic price.

Table AP 9.1 Construction Cost (Economic Price)

Cost Items	Unit: US\$ million			2007			2008			2009			2010			2011			
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	
Direct Cost																			
Temporary Works Cost	0.26	1.61	1.87				0.07	0.40	0.20	1.21							0.26	1.61	
Roads Construction Cost	1.4% 5.70	80% 1.65	7.34				0.25	0.07	1.98	0.57	1.73	0.50	1.73	0.50			5.70	1.65	
Bridge Construction Cost	78% 6.56	22% 29.09	35.65					1.68	7.44	1.83	8.12	1.83	8.12	1.22	5.41	6.56	29.09		
River Protection Works Cost	1.8% 0.16	82% 0.02	0.18							0.01	0.00	0.07	0.01	0.08	0.01	0.16	0.02		
Other Works Cost	88% 0.00	12% 2.08	2.08												0.00	0.08	0.00	2.08	
Direct Cost Total (1)	12.68	34.45	47.13				0.31	0.47	3.85	9.22	3.57	8.62	3.64	8.63	1.30	7.50	12.68	34.45	
Indirect Cost																			
Common Temporary Works Cost	0.38	0.37	0.75				0.02	0.02	0.10	0.09	0.10	0.09	0.10	0.09	0.07	0.07	0.06	0.38	
Site Expences	51% 0.23	49% 2.69	2.92				0.01	0.17	0.06	0.69	0.06	0.69	0.06	0.69	0.04	0.46	0.23	2.69	
Overhead	8% 0	92% 3.37	3.37				0.00	0.22	0.00	0.86	0.00	0.86	0.00	0.86	0.00	0.57	0.00	3.37	
Indirect Cost Total (2)	0.62	6.43	7.05				0.04	0.41	0.16	1.64	0.16	1.64	0.16	1.64	0.11	1.09	0.62	6.43	
Tax (3)	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Contingency (10%) (4)=(1)+(2)+(3)+(4)	1.33	4.09	5.42				0.08	0.26	0.34	1.04	0.34	1.04	0.34	1.04	0.23	0.70	1.33	4.09	
Construction Cost (5)=(1)+(2)+(3)+(4)	14.62	44.97	59.59				0.44	1.15	4.35	11.91	4.07	11.31	4.13	11.31	1.63	9.29	14.62	44.97	
Engineering Service																			
Detailed Design	0.00	1.54	1.55				0.00	1.39	0.00	0.15							0.00	1.54	
Construction Supervision	0.30	2.15	2.45				0.02	0.14	0.08	0.55	0.08	0.55	0.08	0.55	0.05	0.37	0.30	2.15	
Engineering Service Total (6)	1.2% 0.31	88% 3.69	4.00				0.00	1.39	0.02	0.29	0.08	0.55	0.08	0.55	0.05	0.37	0.31	3.69	
Tax (7)	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Contingency (0%) (8)=(6)+(7) X 0%	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Engineering Cost(9)=(6)+(7)+(8)	0.31	3.69	4.00				0.00	1.39	0.02	0.29	0.08	0.55	0.08	0.55	0.05	0.37	0.31	3.69	
Project Cost (5)+(9)	14.93	48.66	63.59				0.00	1.39	0.46	1.44	4.43	12.46	4.15	11.85	4.21	11.86	1.68	9.66	14.93

Source: JICA Study Team

Table AP 9.1.1-b Project Schedule and Cost Allocation



(2) Economic Analysis

Based on the traffic survey vehicle types are classified into eight categories and typical model for each category is selected referring the car dealers in Phnom Penh and the study report, The Feasibility Study on the Improvement of National Road No.1 (Phnom Penh ~ Neak Loueng Section) March 2003. Classified categories are, Motorbike, Sedan, Jeep, Pickup, Short Body Bus, Long Body Bus, Short Body Truck and Long Body Truck.

Prices are studied at car-dealers, petroleum stations, petroleum companies, tax regulations, statistic yearbooks and recent report and converted into economic prices.

Table AP 9.1.2 Vehicle Prices (2005)

	Typical Model	Retail Price	Tax	Economic Cost	Unit: US \$
Motorbike	Honda 125 Suzuki 125	1,000	155	845	
Sedan	Corolla 1500	32,000	9,227	22,773	
Sedan	Camry 2200	42,000	17,300	24,700	
Jeep	Pajero 2800 Diesel	45,000	17,300	27,700	
Pickups	Toyota Hilux	20,000	4,698	15,302	
Short Body Bus	Toyota Hiace (15pax)	34,000	5,481	28,519	
Long Body Bus	Toyota Coaster	62,350	10,179	52,171	
Short Body Truck	Hyundai, 2.5ton	38,000	7,047	31,000	
Long Body Truck	Hino, 8ton	53,000	8,222	44,778	

Source: Car dealers in Phnom Penh

Table AP 9.1.3 Tyre Prices

	Tyre Size	Year	Unit Retail Price	Retail Price	VAT	VAT Amount	Import Duty	Import Duty Amount	CIF Price	Economic Cost	No. of Tyres	Unit: US \$
Motor Cycle	100/17	2005	10	20	10%	1.5	15%	2.2	14.8	16.3	2	
Cars	185/14	2005	30	120	10%	6.0	15%	9.0	60.2	105.0	4	
Pickups	185/14	2005	35	140	10%	9.5	15%	14.2	94.8	116.3	4	
Minibuses	185/14	2005	30	120	10%	7.7	15%	11.6	77.0	100.7	4	
Buses	315-80 R22.	2005	145	870	10%	41.5	15%	62.2	414.8	766.3	6	
2-3 axle trucks	650-16	2005	50	300	10%	21.3	15%	32.0	213.3	246.7	6	
4 axle trucks	1000-20	2005	145	1,450	10%	103.7	15%	155.6	1,037.0	1,190.7	10	

Notes: Information obtained from various car dealers in Phnom Penh

Fuels and lubricants prices were obtained by the tax information from the interview with TOTAL Cambodge company.

There is a fixed custom duty per tonne for gasoline and diesel (\$284 and \$103) and VAT is levied based on CIF and this custom duty (10%). Additional tax also applied for the road maintenance purpose. For lubricants the system bit differs. 15% of custom duty on invoice value and a specific tax of 10% on invoice plus custom duty then a further 10% VAT applies. Table AP 9.1.4 shows the current level of fuel and lubricant prices in Phnom Penh area.

Table AP 9.1.4 Fuel and Lubricants Costs

	Year	Gasoline		Diesel	Lubricant	<i>Unit: US\$</i>
		Super	Regular			
Retailed Prices	2005	0.863	0.838	0.641	2.762	
Tax Total	2005	0.382	0.382	0.197	1.050	
Custom Duty	2005	0.284	0.284	0.103	0.402	
Specific Tax	2005	-	-	-	0.309	
Additional Tax /litter	2005	0.020	0.020	0.040	-	
VAT	2005	0.078	0.078	0.054	0.339	
Economic Cost	2005	0.481	0.456	0.444	1.712	

Source; TOTAL Cambodge

Spa

re parts costs are also consulted with car dealers, owners and drivers in Phnom Penh and summarized in the Table AP 9.1.5.

Table AP 9.1.5 Spare Parts Cost

	Motorbike	Sedan	Jeep	Pickups	Short Body Bus	Long Body Bus	Short Body Truck	Long Body Truck	<i>Unit: US \$</i>	Semi/Full Trailer
Vehicle Prices (Economic Cost)	845	22,773	27,700	15,302	28,519	52,171	31,000	44,778	55,000	
Spare Parts Rate (%)	1	0.83	0.83	0.8	1	1	0.83	0.83	0.83	
Spare Parts Cost (Economic Cost)	8.5	189.0	229.9	122.4	285.2	521.7	257.3	371.7	456.5	

Note; Study team estimation based on the survey

Table AP 9.1.6 summarizes the unit vehicle operating cost by vehicle types in economic price.

Table AP 9.1.6 Unit Cost of Vehicle Operating Cost by Vehicle Types

	Motorbike	Sedan	Jeep	Pickups	Short Body Bus	Long Body Bus	Short Body Truck	Long Body Truck	Semi/Full Trailer
Representative Vehicle	Honda 125	Toyota Corolla	Mitsubishi Pajero	Toyota Hi-lux	Toyota Hi-ace	Toyota Coaster	Hyundai (2.5 t)	Hino (8 t)	Benz 2024
New Vehicle Prices	845	22,773	27,700	15,302	28,519	52,171	31,000	44,778	55,000
Service Life (yrs)	10	12	12	10	10	10	12	14	14
Hours Driven per Year	400	550	1200	1,200	1,200	1,750	1,200	2,050	2,050
Kilometers Driven per Year	10,000	25,000	30,000	36,000	30,000	70,000	40,000	86,000	86,000
Life time Running Kilometers	100,000	300,000	360,000	360,000	300,000	700,000	480,000	1,204,000	1,204,000
Tire Cost	16.1	104.8	116.1	116.1	100.6	763.7	246.3	1,188.80	1,188.80
Running Kilometers	20,000	40,000	50,000	50,000	40,000	50,000	50,000	50,000	50,000
Tire Cost per 1000 Kilometer	0.81	2.62	2.32	2.32	2.52	15.27	4.93	23.78	23.78
Fuel Type Used	Petrol	Petrol	Diesel	Diesel	Petrol	Diesel	Diesel	Diesel	Diesel
Fuel Costs (US\$/L)	0.4561	0.4561	0.4439	0.4439	0.4561	0.4439	0.4439	0.4439	0.4439
Fuel Consumption Rate (l/km)	0.02	0.14	0.17	0.17	0.15	0.3	0.17	0.3	0.3
Oil Costs	3.42	6.85	8.56	8.56	8.56	34.25	23.97	53.09	53.09
Distance between Oil Changes	5000	10000	10000	7500	7500	8000	9000	10000	10000
Annual Maintenance Cost- Spare Parts	8.5	189.0	229.9	122.4	285.2	521.7	283.9	257.3	422.9
Annual Maintenance Cost- Labour	3.5	30.8	30.8	30.8	49.2	95.5	95.5	95.5	95.5
Insurance Cost per year	114	616	616	528	616	572	528	352	352
Crew Cost	0	0	0	499	1,237	1,804	1,237	2,113	2,113
Relicited Value	100	2,277.30	2,770.00	1,530.20	2,851.90	5,217.10	3,100.00	4,981.00	5,462.00
Time Related Depreciation	35%	35%	35%	35%	35%	35%	35%	35%	35%
Distance Related Depreciation	65%	65%	65%	65%	65%	65%	65%	65%	65%
Overhead Cost(%)	0	0	0	10	10	10	10	10	10

Source; ADB Key Indicator, Cambodian Statistic Yearbook 2003 and Study Team Survey

1) Cost-Benefit Stream for Sensitivity Analysis

Table AP 9.1.7 and 9.1.8 show the cost benefit stream for the sensitivity analysis.

Table AP 9.1.7 Cost-Benefit Stream for Sensitivity Case (10% increase in costs)

Unit; 000US\$ (Economic Price)

Year	Cost						Total Cost	Benefit			Net Cash Flow		
	Investment Cost			Maintenance Cost				VOC Saving	Time Cost Saving	Freight Time			
	Bridge	Ferry	Total	Bridge	Ferry	Total							
2005	0	0	0	0	0	0	0	0	0	0	0		
2006	0	0	0	0	0	0	0	0	0	0	0		
2007	1,696	1,696	0	0	0	-1,696	0	0	0	0	-1,696		
2008	2,126	2,126	0	0	0	-2,126	0	0	0	0	-2,126		
2009	18,577	18,577	0	0	0	-18,577	0	0	0	0	-18,577		
2010	17,604	17,604	0	0	0	-17,604	0	0	0	0	-17,604		
2011	17,681	17,681	0	0	0	-17,681	0	0	0	0	-17,681		
2012	12,469	12,469	-77	616	539	-11,929	-264	1,760	149	1,645	-10,285		
2013	0	0	-230	1,848	1,618	1,618	-288	2,461	205	2,378	3,997		
2014	0	0	-230	1,848	1,618	1,618	-312	3,774	310	3,773	5,391		
2015	0	0	-230	1,848	1,618	1,618	1,279	7,317	598	9,194	10,813		
2016	0	0	-230	1,848	1,618	1,618	3,883	11,863	958	16,705	18,323		
2017	0	0	-230	1,848	1,618	1,618	6,587	13,032	1,050	20,670	22,288		
2018	0	0	-230	1,848	1,618	1,618	9,395	14,245	1,146	24,786	26,405		
2019	0	0	-230	1,848	1,618	1,618	12,310	15,503	1,245	29,059	30,677		
2020	0	0	-230	1,848	1,618	1,618	15,336	16,808	1,349	33,492	35,110		
2021	0	0	-230	1,848	1,618	1,618	18,475	18,160	1,415	38,050	39,668		
2022	0	0	-230	1,848	1,618	1,618	21,732	19,562	1,481	42,775	44,393		
2023	0	0	-230	1,848	1,618	1,618	25,109	21,015	1,547	47,671	49,289		
2024	0	0	-230	1,848	1,618	1,618	28,611	22,520	1,614	52,744	54,363		
2025	0	0	-230	1,848	1,618	1,618	32,241	24,079	1,680	58,000	59,618		
2026	0	0	-230	1,848	1,618	1,618	36,004	25,693	1,746	63,444	65,062		
2027	0	0	-230	1,848	1,618	1,618	39,904	27,365	1,812	69,081	70,700		
2028	0	0	-230	1,848	1,618	1,618	43,944	29,096	1,878	74,918	76,537		
2029	0	0	-230	1,848	1,618	1,618	48,129	30,887	1,945	80,961	82,579		
2030	0	0	-230	1,848	1,618	1,618	52,463	32,741	2,011	87,215	88,833		
2031	0	0	-230	1,848	1,618	1,618	56,951	34,659	2,077	93,687	95,306		
2032	0	0	-230	1,848	1,618	1,618	61,598	36,643	2,143	100,384	102,002		
2033	0	0	-230	1,848	1,618	1,618	66,359	38,358	4,845	109,563	111,181		
2034	0	0	-230	1,848	1,618	1,618	71,386	40,152	7,683	119,221	120,839		
2035	0	0	-230	1,848	1,618	1,618	76,692	42,028	10,660	129,380	130,999		
2036	0	0	-230	1,848	1,618	1,618	82,292	43,990	13,782	140,065	141,683		
2037	0	0	-230	1,848	1,618	1,618	88,201	46,043	17,054	127,262	128,880		
Total	70,153	0	70,153	-5,815	46,810	40,995	-29,158	898,021	619,755	82,383	1,576,123	1,546,965	
NPV	43,969	0	43,969	-951	7,654	6,703	-37,266	68,621	63,568	6,035	137,508	100,243	
B/C	at discounted rate of	12%										3.69	
EIRR	at discounted rate of	12%										22.6%	

Source; JICA Study Team

Table AP 9.1.8 Cost-Benefit Stream for Sensitivity Case (10% decrease in demand)

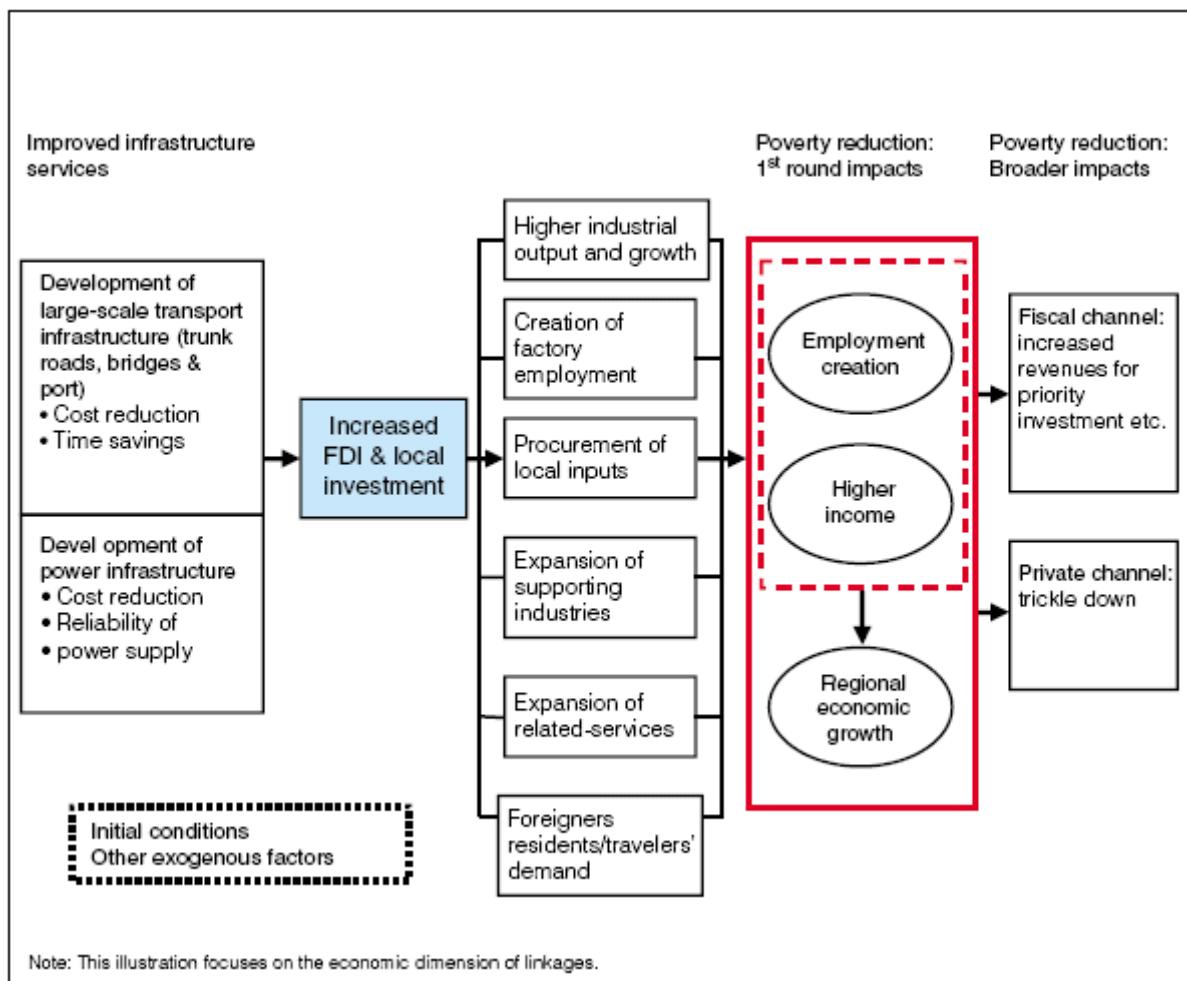
Unit; 000US\$ (Economic Price)

Year	Cost						Total Cost	Benefit				Net Cash Flow		
	Investment Cost			Maintenance Cost				VOC Saving	Time Cost Saving	Freight Time	Total Benefit			
	Bridge	Ferry	Total	Bridge	Ferry	Total								
2005	0	0	0	0	0	0	0	0	0	0	0	0		
2006	0	0	0	0	0	0	0	0	0	0	0	0		
2007	1,556		1,556	0	0	0	-1,556	0	0	0	0	-1,556		
2008	1,937		1,937	0	0	0	-1,937	0	0	0	0	-1,937		
2009	16,888		16,888	0	0	0	-16,888	0	0	0	0	-16,888		
2010	16,004		16,004	0	0	0	-16,004	0	0	0	0	-16,004		
2011	16,074		16,074	0	0	0	-16,074	0	0	0	0	-16,074		
2012	11,335		11,335	-77	616	539	-10,796	-238	1,584	95	1,441	-9,355		
2013	0		0	-230	1,848	1,618	1,618	-259	2,215	184	2,140	3,759		
2014	0		0	-230	1,848	1,618	1,618	-280	3,397	279	3,395	5,014		
2015	0		0	-230	1,848	1,618	1,618	-303	6,426	521	6,644	8,262		
2016	0		0	-230	1,848	1,618	1,618	171	10,629	859	11,659	13,277		
2017	0		0	-230	1,848	1,618	1,618	2,542	11,680	941	15,163	16,781		
2018	0		0	-230	1,848	1,618	1,618	5,004	12,770	1,027	18,802	20,420		
2019	0		0	-230	1,848	1,618	1,618	7,562	13,901	1,117	22,580	24,198		
2020	0		0	-230	1,848	1,618	1,618	10,217	15,074	1,209	26,501	28,119		
2021	0		0	-230	1,848	1,618	1,618	12,974	16,290	1,269	30,533	32,151		
2022	0		0	-230	1,848	1,618	1,618	15,834	17,551	1,329	34,713	36,332		
2023	0		0	-230	1,848	1,618	1,618	18,802	18,857	1,388	39,047	40,665		
2024	0		0	-230	1,848	1,618	1,618	21,880	20,211	1,448	43,539	45,157		
2025	0		0	-230	1,848	1,618	1,618	25,073	21,612	1,507	48,193	49,811		
2026	0		0	-230	1,848	1,618	1,618	28,383	23,064	1,567	53,015	54,633		
2027	0		0	-230	1,848	1,618	1,618	31,815	24,568	1,627	58,009	59,627		
2028	0		0	-230	1,848	1,618	1,618	35,371	26,124	1,686	63,181	64,800		
2029	0		0	-230	1,848	1,618	1,618	39,056	27,735	1,746	68,537	70,155		
2030	0		0	-230	1,848	1,618	1,618	42,874	29,402	1,805	74,081	75,700		
2031	0		0	-230	1,848	1,618	1,618	46,828	31,127	1,865	79,820	81,438		
2032	0		0	-230	1,848	1,618	1,618	50,924	32,911	1,925	85,759	87,378		
2033	0		0	-230	1,848	1,618	1,618	55,148	34,453	1,984	91,585	93,204		
2034	0		0	-230	1,848	1,618	1,618	59,611	36,066	2,044	97,722	99,340		
2035	0		0	-230	1,848	1,618	1,618	64,324	37,753	2,107	104,185	105,803		
2036	0		0	-230	1,848	1,618	1,618	69,301	39,518	2,172	110,991	112,609		
2037	0		0	-230	1,848	1,618	1,618	74,555	41,363	2,238	94,121	95,739		
Total	63,794	0	63,794	-5,815	46,810	40,995	-22,799	717,172	556,282	35,938	1,285,355	1,262,557		
NPV	39,988	0	39,988	-951	7,654	6,703	-33,285	50,850	57,000	4,067	111,201	77,916		
B/C at discounted rate of	12%											3.34		
EIRR at discounted rate of	12%											21.4%		

Source; JICA Study Team

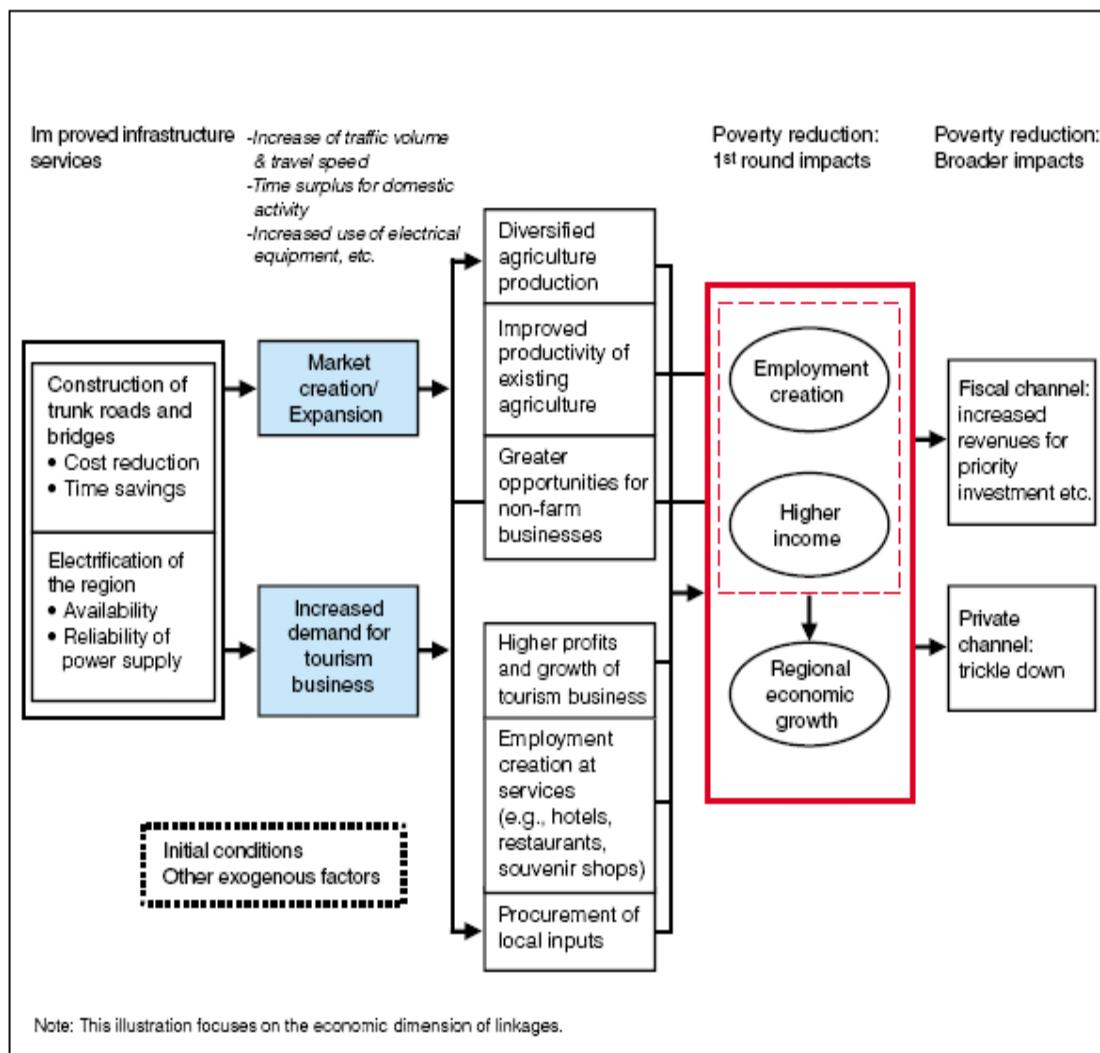
2) Unquantifiable Costs and Benefits

Three detailed linkage schemes for the linkage model for large-scale infrastructure, growth and poverty reduction are mentioned in the GRIPS development forum report. These linkage schemes are shown in Figure AP 9.1.1 – 9.1.3 and were referred to show the importance of the establishment of road network for the regional economic development even though it is hard to show its benefit quantitatively.



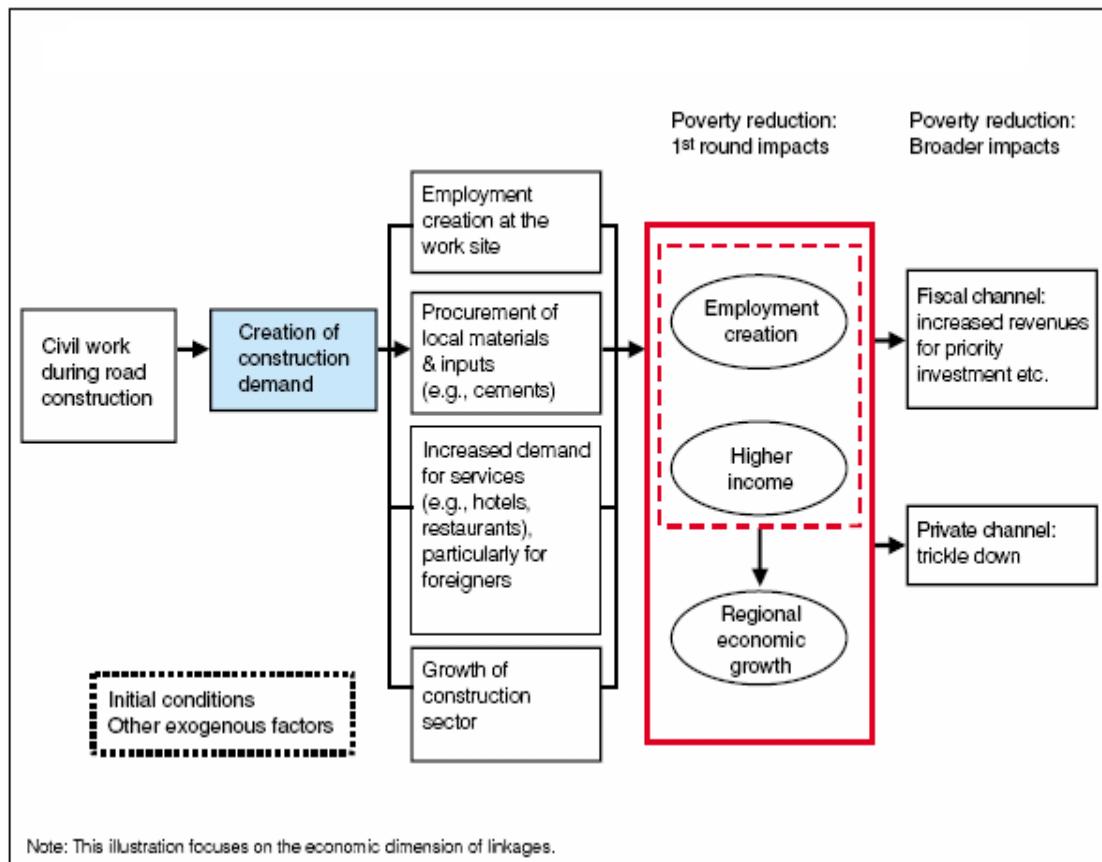
Source: *Linking Economic Growth and Poverty Reduction – Large-Scale Infrastructure in the Context of Vietnam's CPRGS- November 2003 GRIPS Development Forum*

Figure AP 9.1.1: Investment-inducement Effect (FDI and Domestic Investment)



Source: *Linking Economic Growth and Poverty Reduction – Large-Scale Infrastructure in the Context of Vietnam's CPRGS- November 2003 GRIPS Development Forum*

Figure AP 9.1.2: Regional Economy Activation Effect



Source: *Linking Economic Growth and Poverty Reduction – Large-Scale Infrastructure in the Context of Vietnam's CPRGS- November 2003 GRIPS Development Forum*

Figure AP 9.1.3: Effective Demand Effect of Infrastructure Construction

AP 9.2 Financial Evaluation of the Project

Table AP 9.2.1 Alternative Case Cash Flow

Case1-a: Base + Level to cover \$0.5 million Surplus

Loan/Equity: 100/0 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00	2.37	0.00	2.37	0.00	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.05	19.40	-0.05	24.33	0.05	-0.07	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	0.24	18.67	-0.24	42.75	0.24	-0.31	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	0.43	18.93	-0.43	61.25	0.43	-0.74	0.000
2012	0.00	12.77	0.23	13.00	12.77	0.08	0.00	0.62	13.46	-0.47	74.02	0.47	-1.21	0.000
2013		0.75	0.75			0.25	0.00	0.75	1.00	-0.25	74.02	0.25	-1.46	0.000
2014		0.81	0.81			0.25	0.00	0.75	1.00	-0.20	74.02	0.20	-1.66	0.000
2015		0.87	0.87			0.26	0.00	0.75	1.01	-0.14	74.02	0.14	-1.80	0.000
2016		0.94	0.94			0.26	0.00	0.75	1.01	-0.07	74.02	0.07	-1.88	0.000
2017		1.02	1.02			0.27	0.00	0.75	1.02	-0.00	74.02	0.00	-1.88	0.000
2018		1.10	1.10			0.27	0.11	0.75	1.14	-0.04	73.91	0.04	-1.92	0.112
2019		1.18	1.18			0.28	0.24	0.75	1.27	-0.09	73.67	0.09	-2.01	0.241
2020		1.27	1.27			0.29	0.21	0.75	2.25	-0.98	72.46	0.98	-2.99	1.209
2021		1.36	1.36			0.29	2.13	0.75	3.17	-1.81	70.33	1.81	-4.80	2.130
2022		1.45	1.45			0.30	3.06	0.74	4.09	-2.64	67.27	2.64	-7.44	3.055
2023		1.54	1.54			0.30	3.69	0.72	4.71	-3.17	63.58	3.17	-10.61	3.694
2024		1.64	1.64			0.31	3.69	0.68	4.69	-3.05	59.88	3.05	-13.66	3.694
2025		1.74	1.74			0.32	3.69	0.65	4.66	-2.92	56.19	2.92	-16.58	3.694
2026		1.84	1.84			0.32	3.69	0.61	4.63	-2.78	52.50	2.78	-19.36	3.694
2027		1.95	1.95			0.33	3.69	0.57	4.60	-2.65	48.80	2.65	-22.01	3.694
2028		2.06	2.06			0.34	3.69	0.54	4.57	-2.50	45.11	2.50	-24.51	3.694
2029		2.18	2.18			0.34	3.69	0.50	4.54	-2.36	41.42	2.36	-26.87	3.694
2030		2.30	2.30			0.35	3.69	0.46	4.51	-2.21	37.72	2.21	-29.08	3.694
2031		2.42	2.42			0.36	3.69	0.43	4.48	-2.06	34.03	2.06	-31.14	3.694
2032		2.55	2.55			0.37	3.69	0.39	4.45	-1.90	30.34	1.90	-33.03	3.694
2033		2.69	2.69			0.37	3.69	0.35	4.42	-1.73	26.64	1.73	-34.77	3.694
2034		2.83	2.83			0.38	3.69	0.32	4.39	-1.56	22.95	1.56	-36.33	3.694
2035		2.97	2.97			0.39	3.69	0.28	4.36	-1.39	19.25	1.39	-37.72	3.694
2036		3.12	3.12			0.40	3.69	0.24	4.33	-1.21	15.56	1.21	-38.93	3.694
2037		3.28	3.28			0.41	3.69	0.20	4.30	-1.02	11.87	1.02	-39.95	3.694
2038		3.44	3.44			0.41	3.58	0.17	4.16	-0.72	8.29	0.72	-40.68	3.581
2039		3.61	3.61			0.42	3.45	0.13	4.01	-0.40	4.83	0.40	-41.08	3.452
2040		3.78	3.78			0.43	2.48	0.09	3.01	0.77	2.35	0.00	-40.31	2.485
2041		3.95	3.95			0.44	1.56	0.06	2.07	1.89	0.79	0.00	-38.42	1.563
2042		4.14	4.14			0.45	0.64	0.04	1.12	3.01	0.15	0.00	-35.41	0.638
Total	0.0	74.0	65.0		74.0	10.2	74.0	16.3	172.0		41.1			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case1-b: Base + Level to cover \$0.5 million Surplus

Loan/Equity: 85/15 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00	2.25	0.00	2.01	0.00	0.00	0.000	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	2.59	-0.02	4.22	0.02	-0.02	0.000	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.04	19.40	-0.04	20.68	0.04	-0.06	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	0.21	18.63	-0.21	36.34	0.21	-0.27	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	0.36	18.87	-0.36	52.07	0.36	-0.63	0.000
2012	1.91	10.85	0.23	13.00	12.77	0.08	0.00	0.53	13.37	-0.37	62.92	0.37	-1.01	0.000
2013		0.75	0.75			0.25	0.00	0.64	0.89	-0.14	62.92	0.14	-1.14	0.000
2014		0.81	0.81			0.25	0.00	0.64	0.89	-0.09	62.92	0.09	-1.23	0.000
2015		0.87	0.87			0.26	0.00	0.64	0.90	-0.03	62.92	0.03	-1.26	0.000
2016		0.94	0.94			0.26	0.00	0.64	0.90	0.04	62.92	0.00	-1.22	0.000
2017		1.02	1.02			0.27	0.00	0.64	0.91	0.11	62.92	0.00	-1.11	0.000
2018		1.10	1.10			0.27	0.10	0.64	1.01	0.09	62.82	0.00	-1.02	0.096
2019		1.18	1.18			0.28	0.20	0.64	1.12	0.06	62.62	0.00	-0.96	0.205
2020		1.27	1.27			0.29	0.13	0.64	1.95	-0.68	61.59	0.68	-1.64	1.028
2021		1.36	1.36			0.29	1.81	0.64	2.74	-1.38	59.78	1.38	-3.03	1.811
2022		1.45	1.45			0.30	2.60	0.63	3.52	-2.07	57.18	2.07	-5.10	2.597
2023		1.54	1.54			0.30	3.14	0.61	4.05	-2.51	54.04	2.51	-7.61	3.140
2024		1.64	1.64			0.31	3.14	0.58	4.03	-2.39	50.90	2.39	-10.00	3.140
2025		1.74	1.74			0.32	3.14	0.55	4.01	-2.27	47.76	2.27	-12.27	3.140
2026		1.84	1.84			0.32	3.14	0.52	3.98	-2.14	44.62	2.14	-14.41	3.140
2027		1.95	1.95			0.33	3.14	0.49	3.96	-2.01	41.48	2.01	-16.41	3.140
2028		2.06	2.06			0.34	3.14	0.46	3.93	-1.87	38.34	1.87	-18.28	3.140
2029		2.18	2.18			0.34	3.14	0.43	3.91	-1.73	35.20	1.73	-20.01	3.140
2030		2.30	2.30			0.35	3.14	0.39	3.88	-1.59	32.06	1.59	-21.60	3.140
2031		2.42	2.42			0.36	3.14	0.36	3.86	-1.44	28.92	1.44	-23.03	3.140
2032		2.55	2.55			0.37	3.14	0.33	3.84	-1.29	25.78	1.29	-24.32	3.140
2033		2.69	2.69			0.37	3.14	0.30	3.81	-1.13	22.65	1.13	-25.45	3.140
2034		2.83	2.83			0.38	3.14	0.27	3.79	-0.96	19.51	0.96	-26.41	3.140
2035		2.97	2.97			0.39	3.14	0.24	3.77	-0.79	16.37	0.79	-27.20	3.140
2036		3.12	3.12			0.40	3.14	0.21	3.74	-0.62	13.23	0.62	-27.82	3.140
2037		3.28	3.28			0.41	3.14	0.17	3.72	-0.44	10.09	0.44	-28.26	3.140
2038		3.44	3.44			0.41	3.04	0.14	3.60	-0.16	7.04	0.16	-28.42	3.044
2039		3.61	3.61			0.42	2.93	0.11	3.47	0.14	4.11	0.00	-28.28	2.935
2040		3.78	3.78			0.43	2.11	0.08	2.62	1.15	2.00	0.00	-27.13	2.112
2041		3.95	3.95			0.44	1.33	0.05	1.82	2.13	0.67	0.00	-25.00	1.329
2042		4.14	4.14			0.45	0.54	0.03	1.02	3.11	0.13	0.00	-21.88	0.543
Total	11.1	62.9	65.0		74.0	10.2	62.9	13.9	158.5		28.7			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case1-c: Base + Level to cover \$0.5 million Surplus

Loan/Equity: 100/0 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.25	19.60	-0.25	24.33	0.25	-0.36	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	1.23	19.65	-1.23	42.75	1.23	-1.59	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	2.21	20.71	-2.21	61.25	2.21	-3.80	0.000
2012	0.00	12.77	0.23	13.00	12.77	0.08	0.00	3.25	16.09	-3.09	74.02	3.09	-6.89	0.000
2013		0.75	0.75			0.25	0.00	4.05	4.29	-3.54	74.02	3.54	-10.43	0.000
2014		0.81	0.81			0.25	0.00	4.05	4.30	-3.49	74.02	3.49	-13.93	0.000
2015		0.87	0.87			0.26	0.00	4.05	4.30	-3.44	74.02	3.44	-17.36	0.000
2016		0.94	0.94			0.26	0.00	4.05	4.31	-3.37	74.02	3.37	-20.73	0.000
2017		1.02	1.02			0.27	0.00	4.05	4.31	-3.30	74.02	3.30	-24.02	0.000
2018		1.10	1.10			0.27	0.11	4.05	4.43	-3.33	73.91	3.33	-27.36	0.112
2019		1.18	1.18			0.28	0.24	4.05	4.57	-3.38	73.67	3.38	-30.74	0.241
2020		1.27	1.27			0.29	0.21	4.04	4.53	-4.27	72.46	4.27	-35.01	1.209
2021		1.36	1.36			0.29	2.13	4.03	4.65	-5.09	70.33	5.09	-40.10	2.130
2022		1.45	1.45			0.30	3.06	3.97	7.32	-5.87	67.27	5.87	-45.97	3.055
2023		1.54	1.54			0.30	3.69	3.86	7.86	-6.32	63.58	6.32	-52.29	3.694
2024		1.64	1.64			0.31	3.69	3.71	7.71	-6.07	59.88	6.07	-58.36	3.694
2025		1.74	1.74			0.32	3.69	3.52	7.53	-5.79	56.19	5.79	-64.16	3.694
2026		1.84	1.84			0.32	3.69	3.34	7.36	-5.51	52.50	5.51	-69.67	3.694
2027		1.95	1.95			0.33	3.69	3.15	7.18	-5.23	48.80	5.23	-74.89	3.694
2028		2.06	2.06			0.34	3.69	2.97	7.00	-4.94	45.11	4.94	-79.83	3.694
2029		2.18	2.18			0.34	3.69	2.78	6.82	-4.64	41.42	4.64	-84.47	3.694
2030		2.30	2.30			0.35	3.69	2.60	6.64	-4.35	37.72	4.35	-88.82	3.694
2031		2.42	2.42			0.36	3.69	2.42	6.47	-4.05	34.03	4.05	-92.86	3.694
2032		2.55	2.55			0.37	3.69	2.23	6.29	-3.74	30.34	3.74	-96.60	3.694
2033		2.69	2.69			0.37	3.69	2.05	6.11	-3.43	26.64	3.43	-100.03	3.694
2034		2.83	2.83			0.38	3.69	1.86	5.94	-3.11	22.95	3.11	-103.14	3.694
2035		2.97	2.97			0.39	3.69	1.68	5.76	-2.79	19.25	2.79	-105.93	3.694
2036		3.12	3.12			0.40	3.69	1.49	5.58	-2.46	15.56	2.46	-108.39	3.694
2037		3.28	3.28			0.41	3.69	1.31	5.41	-2.13	11.87	2.13	-110.51	3.694
2038		3.44	3.44			0.41	3.58	1.12	5.12	-1.68	8.29	1.68	-112.19	3.581
2039		3.61	3.61			0.42	3.45	0.94	4.81	-1.21	4.83	1.21	-113.40	3.452
2040		3.78	3.78			0.43	2.48	0.76	3.68	0.10	2.35	0.00	-113.30	2.485
2041		3.95	3.95			0.44	1.56	0.59	2.59	1.36	0.79	0.00	-111.93	1.563
2042		4.14	4.14			0.45	0.64	0.46	1.55	2.59	0.15	0.00	-109.35	0.638
Total	0.0	74.0	65.0		74.0	10.2	74.0	90.2	246.0		113.3			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case1-d: Base + Level to cover \$0.5 million Surplus

Loan/Equity: 85/15 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.37	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.21	19.57	-0.21	20.68	0.21	-0.31	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	1.04	19.47	-1.04	36.34	1.04	-1.35	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	1.88	20.38	-1.88	52.07	1.88	-3.23	0.000
2012	1.91	10.85	0.23	13.00	12.77	0.08	0.00	2.76	15.60	-2.61	62.92	2.61	-5.83	0.000
2013		0.75	0.75			0.25	0.00	3.44	3.69	-2.94	62.92	2.94	-8.77	0.000
2014		0.81	0.81			0.25	0.00	3.44	3.69	-2.89	62.92	2.89	-11.66	0.000
2015		0.87	0.87			0.26	0.00	3.44	3.70	-2.83	62.92	2.83	-14.49	0.000
2016		0.94	0.94			0.26	0.00	3.44	3.70	-2.76	62.92	2.76	-17.25	0.000
2017		1.02	1.02			0.27	0.00	3.44	3.71	-2.69	62.92	2.69	-19.93	0.000
2018		1.10	1.10			0.27	0.10	3.44	3.81	-2.71	62.82	2.71	-22.64	0.096
2019		1.18	1.18			0.28	0.20	3.44	3.92	-2.74	62.62	2.74	-25.38	0.205
2020		1.27	1.27			0.29	1.03	3.43	4.75	-3.48	61.59	3.48	-28.86	1.028
2021		1.36	1.36			0.29	1.81	3.42	5.53	-4.17	59.78	4.17	-33.03	1.811
2022		1.45	1.45			0.30	2.60	3.37	6.27	-4.82	57.18	4.82	-37.85	2.597
2023		1.54	1.54			0.30	3.14	3.28	6.72	-5.18	54.04	5.18	-43.03	3.140
2024		1.64	1.64			0.31	3.14	3.15	6.60	-4.96	50.90	4.96	-48.00	3.140
2025		1.74	1.74			0.32	3.14	3.00	6.45	-4.71	47.76	4.71	-52.71	3.140
2026		1.84	1.84			0.32	3.14	2.84	6.30	-4.46	44.62	4.46	-57.17	3.140
2027		1.95	1.95			0.33	3.14	2.68	6.15	-4.20	41.48	4.20	-61.36	3.140
2028		2.06	2.06			0.34	3.14	2.52	6.00	-3.94	38.34	3.94	-65.30	3.140
2029		2.18	2.18			0.34	3.14	2.37	5.85	-3.67	35.20	3.67	-68.97	3.140
2030		2.30	2.30			0.35	3.14	2.21	5.70	-3.40	32.06	3.40	-72.37	3.140
2031		2.42	2.42			0.36	3.14	2.05	5.55	-3.13	28.92	3.13	-75.50	3.140
2032		2.55	2.55			0.37	3.14	1.90	5.40	-2.85	25.78	2.85	-78.35	3.140
2033		2.69	2.69			0.37	3.14	1.74	5.25	-2.57	22.65	2.57	-80.92	3.140
2034		2.83	2.83			0.38	3.14	1.58	5.10	-2.28	19.51	2.28	-83.19	3.140
2035		2.97	2.97			0.39	3.14	1.43	4.95	-1.98	16.37	1.98	-85.18	3.140
2036		3.12	3.12			0.40	3.14	1.27	4.81	-1.68	13.23	1.68	-86.86	3.140
2037		3.28	3.28			0.41	3.14	1.11	4.66	-1.38	10.09	1.38	-88.24	3.140
2038		3.44	3.44			0.41	3.04	0.95	4.41	-0.97	7.04	0.97	-89.21	3.044
2039		3.61	3.61			0.42	2.93	0.80	4.16	-0.55	4.11	0.55	-89.76	2.935
2040		3.78	3.78			0.43	2.11	0.65	3.19	0.59	2.00	0.00	-89.17	2.112
2041		3.95	3.95			0.44	1.33	0.50	2.27	1.69	0.67	0.00	-87.48	1.329
2042		4.14	4.14			0.45	0.54	0.39	1.39	2.75	0.13	0.00	-84.73	0.543
Total	11.1	62.9	65.0		74.0	10.2	62.9	76.7	221.4		89.7			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case2-a: Level at 80% of User's Benefit

Loan/Equity: 100/0 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.05	19.40	-0.05	24.33	0.05	-0.07	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	0.24	18.67	-0.24	42.75	0.24	-0.31	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	0.43	18.93	-0.43	61.25	0.43	-0.74	0.000
2012	0.00	12.77	0.41	13.18	12.77	0.08	0.00	0.62	13.46	-0.29	74.02	0.29	-1.03	0.000
2013		1.33	1.33			0.25	0.00	0.75	1.00	0.33	74.02	0.00	-0.70	0.000
2014		1.43	1.43			0.25	0.00	0.75	1.00	0.43	74.02	0.00	-0.27	0.000
2015		1.54	1.54			0.26	0.00	0.75	1.01	0.53	74.02	0.00	0.26	0.000
2016		1.67	1.67			0.26	0.00	0.75	1.01	0.66	74.02	0.00	0.92	0.000
2017		1.81	1.81			0.27	0.00	0.75	1.02	0.79	74.02	0.00	1.71	0.000
2018		1.95	1.95			0.27	0.11	0.75	1.14	0.81	73.91	0.00	2.52	0.112
2019		2.10	2.10			0.28	0.24	0.75	1.27	0.83	73.67	0.00	3.35	0.241
2020		2.25	2.25			0.29	0.21	0.75	2.25	0.01	72.46	0.00	3.36	1.209
2021		2.41	2.41			0.29	2.13	0.75	3.17	-0.76	70.33	0.76	2.60	2.130
2022		2.57	2.57			0.30	3.06	0.74	4.09	-1.52	67.27	1.52	1.09	3.055
2023		2.74	2.74			0.30	3.69	0.72	4.71	-1.97	63.58	1.97	-0.88	3.694
2024		2.91	2.91			0.31	3.69	0.68	4.69	-1.77	59.88	1.77	-2.66	3.694
2025		3.09	3.09			0.32	3.69	0.65	4.66	-1.56	56.19	1.56	-4.22	3.694
2026		3.28	3.28			0.32	3.69	0.61	4.63	-1.35	52.50	1.35	-5.57	3.694
2027		3.47	3.47			0.33	3.69	0.57	4.60	-1.13	48.80	1.13	-6.70	3.694
2028		3.67	3.67			0.34	3.69	0.54	4.57	-0.90	45.11	0.90	-7.59	3.694
2029		3.88	3.88			0.34	3.69	0.50	4.54	-0.66	41.42	0.66	-8.26	3.694
2030		4.09	4.09			0.35	3.69	0.46	4.51	-0.42	37.72	0.42	-8.67	3.694
2031		4.31	4.31			0.36	3.69	0.43	4.48	-0.17	34.03	0.17	-8.84	3.694
2032		4.54	4.54			0.37	3.69	0.39	4.45	0.09	30.34	0.00	-8.76	3.694
2033		4.78	4.78			0.37	3.69	0.35	4.42	0.36	26.64	0.00	-8.40	3.694
2034		5.03	5.03			0.38	3.69	0.32	4.39	0.64	22.95	0.00	-7.76	3.694
2035		5.29	5.29			0.39	3.69	0.28	4.36	0.93	19.25	0.00	-6.83	3.694
2036		5.56	5.56			0.40	3.69	0.24	4.33	1.22	15.56	0.00	-5.61	3.694
2037		5.83	5.83			0.41	3.69	0.20	4.30	1.53	11.87	0.00	-4.08	3.694
2038		6.12	6.12			0.41	3.58	0.17	4.16	1.96	8.29	0.00	-2.12	3.581
2039		6.42	6.42			0.42	3.45	0.13	4.01	2.41	4.83	0.00	0.29	3.452
2040		6.72	6.72			0.43	2.48	0.09	3.01	3.71	2.35	0.00	4.00	2.485
2041		7.04	7.04			0.44	1.56	0.06	2.07	4.97	0.79	0.00	8.97	1.563
2042		7.36	7.36			0.45	0.64	0.04	1.12	6.24	0.15	0.00	15.20	0.638
Total	0.0	74.0	115.6		74.0	10.2	74.0	16.3	172.0		13.2			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case2-b: Level at 80% of User's Benefit

Loan/Equity: 85/15 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.25	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.59	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.04	19.40	-0.04	20.68	0.04	-0.06	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	0.21	18.63	-0.21	36.34	0.21	-0.27	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	0.36	18.87	-0.36	52.07	0.36	-0.63	0.000
2012	1.91	10.85	0.41	13.18	12.77	0.08	0.00	0.53	13.37	-0.19	62.92	0.19	-0.83	0.000
2013		1.33	1.33			0.25	0.00	0.64	0.89	0.45	62.92	0.00	-0.38	0.000
2014		1.43	1.43			0.25	0.00	0.64	0.89	0.54	62.92	0.00	0.16	0.000
2015		1.54	1.54			0.26	0.00	0.64	0.90	0.64	62.92	0.00	0.80	0.000
2016		1.67	1.67			0.26	0.00	0.64	0.90	0.77	62.92	0.00	1.58	0.000
2017		1.81	1.81			0.27	0.00	0.64	0.91	0.90	62.92	0.00	2.48	0.000
2018		1.95	1.95			0.27	0.10	0.64	1.01	0.94	62.82	0.00	3.42	0.096
2019		2.10	2.10			0.28	0.20	0.64	1.12	0.98	62.62	0.00	4.40	0.205
2020		2.25	2.25			0.29	1.03	0.64	1.95	0.30	61.59	0.00	4.70	1.028
2021		2.41	2.41			0.29	1.81	0.64	2.74	-0.33	59.78	0.33	4.38	1.811
2022		2.57	2.57			0.30	2.60	0.63	3.52	-0.95	57.18	0.95	3.43	2.597
2023		2.74	2.74			0.30	3.14	0.61	4.05	-1.31	54.04	1.31	2.12	3.140
2024		2.91	2.91			0.31	3.14	0.58	4.03	-1.12	50.90	1.12	1.00	3.140
2025		3.09	3.09			0.32	3.14	0.55	4.01	-0.91	47.76	0.91	0.09	3.140
2026		3.28	3.28			0.32	3.14	0.52	3.98	-0.70	44.62	0.70	-0.61	3.140
2027		3.47	3.47			0.33	3.14	0.49	3.96	-0.49	41.48	0.49	-1.10	3.140
2028		3.67	3.67			0.34	3.14	0.46	3.93	-0.26	38.34	0.26	-1.36	3.140
2029		3.88	3.88			0.34	3.14	0.43	3.91	-0.03	35.20	0.03	-1.40	3.140
2030		4.09	4.09			0.35	3.14	0.39	3.88	0.20	32.06	0.00	-1.19	3.140
2031		4.31	4.31			0.36	3.14	0.36	3.86	0.45	28.92	0.00	-0.74	3.140
2032		4.54	4.54			0.37	3.14	0.33	3.84	0.70	25.78	0.00	-0.04	3.140
2033		4.78	4.78			0.37	3.14	0.30	3.81	0.97	22.65	0.00	0.92	3.140
2034		5.03	5.03			0.38	3.14	0.27	3.79	1.24	19.51	0.00	2.17	3.140
2035		5.29	5.29			0.39	3.14	0.24	3.77	1.52	16.37	0.00	3.69	3.140
2036		5.56	5.56			0.40	3.14	0.21	3.74	1.81	13.23	0.00	5.50	3.140
2037		5.83	5.83			0.41	3.14	0.17	3.72	2.11	10.09	0.00	7.62	3.140
2038		6.12	6.12			0.41	3.04	0.14	3.60	2.52	7.04	0.00	10.14	3.044
2039		6.42	6.42			0.42	2.93	0.11	3.47	2.95	4.11	0.00	13.08	2.935
2040		6.72	6.72			0.43	2.11	0.08	2.62	4.10	2.00	0.00	17.18	2.112
2041		7.04	7.04			0.44	1.33	0.05	1.82	5.21	0.67	0.00	22.39	1.329
2042		7.36	7.36			0.45	0.54	0.03	1.02	6.34	0.13	0.00	28.73	0.543
Total	11.1	62.9	115.6		74.0	10.2	62.9	13.9	158.5		6.9			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case2-c: Level at 80% of User's Benefit

Loan/Equity: 100/0 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.25	19.60	-0.25	24.33	0.25	-0.36	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	1.23	19.65	-1.23	42.75	1.23	-1.59	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	2.21	20.71	-2.21	61.25	2.21	-3.80	0.000
2012	0.00	12.77	0.41	13.18	12.77	0.08	0.00	3.25	16.09	-2.91	74.02	2.91	-6.71	0.000
2013		1.33	1.33			0.25	0.00	4.05	4.29	-2.96	74.02	2.96	-9.67	0.000
2014		1.43	1.43			0.25	0.00	4.05	4.30	-2.86	74.02	2.86	-12.53	0.000
2015		1.54	1.54			0.26	0.00	4.05	4.30	-2.76	74.02	2.76	-15.30	0.000
2016		1.67	1.67			0.26	0.00	4.05	4.31	-2.64	74.02	2.64	-17.93	0.000
2017		1.81	1.81			0.27	0.00	4.05	4.31	-2.50	74.02	2.50	-20.44	0.000
2018		1.95	1.95			0.27	0.11	4.05	4.43	-2.48	73.91	2.48	-22.91	0.112
2019		2.10	2.10			0.28	0.24	4.05	4.57	-2.46	73.67	2.46	-25.38	0.241
2020		2.25	2.25			0.29	0.21	4.04	4.53	-3.28	72.46	3.28	-28.66	1.209
2021		2.41	2.41			0.29	2.13	4.03	4.65	-4.04	70.33	4.04	-32.70	2.130
2022		2.57	2.57			0.30	3.06	3.97	7.32	-4.75	67.27	4.75	-37.44	3.055
2023		2.74	2.74			0.30	3.69	3.86	7.86	-5.12	63.58	5.12	-42.56	3.694
2024		2.91	2.91			0.31	3.69	3.71	7.71	-4.80	59.88	4.80	-47.36	3.694
2025		3.09	3.09			0.32	3.69	3.52	7.53	-4.44	56.19	4.44	-51.80	3.694
2026		3.28	3.28			0.32	3.69	3.34	7.36	-4.08	52.50	4.08	-55.88	3.694
2027		3.47	3.47			0.33	3.69	3.15	7.18	-3.71	48.80	3.71	-59.58	3.694
2028		3.67	3.67			0.34	3.69	2.97	7.00	-3.33	45.11	3.33	-62.91	3.694
2029		3.88	3.88			0.34	3.69	2.78	6.82	-2.95	41.42	2.95	-65.86	3.694
2030		4.09	4.09			0.35	3.69	2.60	6.64	-2.56	37.72	2.56	-68.41	3.694
2031		4.31	4.31			0.36	3.69	2.42	6.47	-2.16	34.03	2.16	-70.57	3.694
2032		4.54	4.54			0.37	3.69	2.23	6.29	-1.75	30.34	1.75	-72.32	3.694
2033		4.78	4.78			0.37	3.69	2.05	6.11	-1.33	26.64	1.33	-73.66	3.694
2034		5.03	5.03			0.38	3.69	1.86	5.94	-0.91	22.95	0.91	-74.57	3.694
2035		5.29	5.29			0.39	3.69	1.68	5.76	-0.47	19.25	0.47	-75.04	3.694
2036		5.56	5.56			0.40	3.69	1.49	5.58	-0.03	15.56	0.03	-75.06	3.694
2037		5.83	5.83			0.41	3.69	1.31	5.41	0.43	11.87	0.00	-74.64	3.694
2038		6.12	6.12			0.41	3.58	1.12	5.12	1.00	8.29	0.00	-73.63	3.581
2039		6.42	6.42			0.42	3.45	0.94	4.81	1.60	4.83	0.00	-72.03	3.452
2040		6.72	6.72			0.43	2.48	0.76	3.68	3.04	2.35	0.00	-68.99	2.485
2041		7.04	7.04			0.44	1.56	0.59	2.59	4.44	0.79	0.00	-64.54	1.563
2042		7.36	7.36			0.45	0.64	0.46	1.55	5.81	0.15	0.00	-58.73	0.638
Total	0.0	74.0	115.6		74.0	10.2	74.0	90.2	246.0		75.0			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case2-d: Level at 80% of User's Benefit

Loan/Equity: 85/15 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.37	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.21	19.57	-0.21	20.68	0.21	-0.31	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	1.04	19.47	-1.04	36.34	1.04	-1.35	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	1.88	20.38	-1.88	52.07	1.88	-3.23	0.000
2012	1.91	10.85	0.41	13.18	12.77	0.08	0.00	2.76	15.60	-2.43	62.92	2.43	-5.65	0.000
2013		1.33	1.33			0.25	0.00	3.44	3.69	-2.35	62.92	2.35	-8.01	0.000
2014		1.43	1.43			0.25	0.00	3.44	3.69	-2.26	62.92	2.26	-10.27	0.000
2015		1.54	1.54			0.26	0.00	3.44	3.70	-2.16	62.92	2.16	-12.42	0.000
2016		1.67	1.67			0.26	0.00	3.44	3.70	-2.03	62.92	2.03	-14.45	0.000
2017		1.81	1.81			0.27	0.00	3.44	3.71	-1.90	62.92	1.90	-16.35	0.000
2018		1.95	1.95			0.27	0.10	3.44	3.81	-1.85	62.82	1.85	-18.20	0.096
2019		2.10	2.10			0.28	0.20	3.44	3.92	-1.82	62.62	1.82	-20.02	0.205
2020		2.25	2.25			0.29	1.03	3.43	4.75	-2.49	61.59	2.49	-22.51	1.028
2021		2.41	2.41			0.29	1.81	3.42	5.53	-3.11	59.78	3.11	-25.63	1.811
2022		2.57	2.57			0.30	2.60	3.37	6.27	-3.69	57.18	3.69	-29.32	2.597
2023		2.74	2.74			0.30	3.14	3.28	6.72	-3.98	54.04	3.98	-33.31	3.140
2024		2.91	2.91			0.31	3.14	3.15	6.60	-3.69	50.90	3.69	-36.99	3.140
2025		3.09	3.09			0.32	3.14	3.00	6.45	-3.36	47.76	3.36	-40.35	3.140
2026		3.28	3.28			0.32	3.14	2.84	6.30	-3.02	44.62	3.02	-43.37	3.140
2027		3.47	3.47			0.33	3.14	2.68	6.15	-2.68	41.48	2.68	-46.05	3.140
2028		3.67	3.67			0.34	3.14	2.52	6.00	-2.33	38.34	2.33	-48.38	3.140
2029		3.88	3.88			0.34	3.14	2.37	5.85	-1.97	35.20	1.97	-50.36	3.140
2030		4.09	4.09			0.35	3.14	2.21	5.70	-1.61	32.06	1.61	-51.97	3.140
2031		4.31	4.31			0.36	3.14	2.05	5.55	-1.24	28.92	1.24	-53.21	3.140
2032		4.54	4.54			0.37	3.14	1.90	5.40	-0.87	25.78	0.87	-54.07	3.140
2033		4.78	4.78			0.37	3.14	1.74	5.25	-0.47	22.65	0.47	-54.55	3.140
2034		5.03	5.03			0.38	3.14	1.58	5.10	-0.07	19.51	0.07	-54.62	3.140
2035		5.29	5.29			0.39	3.14	1.43	4.95	0.33	16.37	0.00	-54.29	3.140
2036		5.56	5.56			0.40	3.14	1.27	4.81	0.75	13.23	0.00	-53.53	3.140
2037		5.83	5.83			0.41	3.14	1.11	4.66	1.18	10.09	0.00	-52.36	3.140
2038		6.12	6.12			0.41	3.04	0.95	4.41	1.71	7.04	0.00	-50.65	3.044
2039		6.42	6.42			0.42	2.93	0.80	4.16	2.26	4.11	0.00	-48.39	2.935
2040		6.72	6.72			0.43	2.11	0.65	3.19	3.53	2.00	0.00	-44.86	2.112
2041		7.04	7.04			0.44	1.33	0.50	2.27	4.77	0.67	0.00	-40.09	1.329
2042		7.36	7.36			0.45	0.54	0.39	1.39	5.98	0.13	0.00	-34.12	0.543
Total	11.1	62.9	115.6		74.0	10.2	62.9	76.7	221.4		54.5			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case3-a: Level at 100% of User's Benefit

Loan/Equity: 100/0 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.05	19.40	-0.05	24.33	0.05	-0.07	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	0.24	18.67	-0.24	42.75	0.24	-0.31	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	0.43	18.93	-0.43	61.25	0.43	-0.74	0.000
2012	0.00	12.77	0.51	13.28	12.77	0.08	0.00	0.62	13.46	-0.19	74.02	0.19	-0.93	0.000
2013		1.66	1.66		0.25	0.00	0.75	1.00	0.66		74.02	0.00	-0.27	0.000
2014		1.78	1.78		0.25	0.00	0.75	1.00	0.78		74.02	0.00	0.51	0.000
2015		1.92	1.92		0.26	0.00	0.75	1.01	0.91		74.02	0.00	1.42	0.000
2016		2.08	2.08		0.26	0.00	0.75	1.01	1.07		74.02	0.00	2.49	0.000
2017		2.25	2.25		0.27	0.00	0.75	1.02	1.23		74.02	0.00	3.72	0.000
2018		2.43	2.43		0.27	0.11	0.75	1.14	1.29		73.91	0.00	5.02	0.112
2019		2.62	2.62		0.28	0.24	0.75	1.27	1.34		73.67	0.00	6.36	0.241
2020		2.81	2.81		0.29	0.21	0.75	2.25	0.56		72.46	0.00	6.92	1.209
2021		3.00	3.00		0.29	2.13	0.75	3.17	-0.17		70.33	0.17	6.76	2.130
2022		3.20	3.20		0.30	3.06	0.74	4.09	-0.88		67.27	0.88	5.87	3.055
2023		3.41	3.41		0.30	3.69	0.72	4.71	-1.30		63.58	1.30	4.57	3.694
2024		3.63	3.63		0.31	3.69	0.68	4.69	-1.06		59.88	1.06	3.51	3.694
2025		3.85	3.85		0.32	3.69	0.65	4.66	-0.81		56.19	0.81	2.71	3.694
2026		4.08	4.08		0.32	3.69	0.61	4.63	-0.54		52.50	0.54	2.16	3.694
2027		4.32	4.32		0.33	3.69	0.57	4.60	-0.27		48.80	0.27	1.89	3.694
2028		4.57	4.57		0.34	3.69	0.54	4.57	0.00		45.11	0.00	1.90	3.694
2029		4.83	4.83		0.34	3.69	0.50	4.54	0.29		41.42	0.00	2.19	3.694
2030		5.09	5.09		0.35	3.69	0.46	4.51	0.58		37.72	0.00	2.77	3.694
2031		5.37	5.37		0.36	3.69	0.43	4.48	0.89		34.03	0.00	3.66	3.694
2032		5.65	5.65		0.37	3.69	0.39	4.45	1.20		30.34	0.00	4.86	3.694
2033		5.95	5.95		0.37	3.69	0.35	4.42	1.53		26.64	0.00	6.39	3.694
2034		6.26	6.26		0.38	3.69	0.32	4.39	1.87		22.95	0.00	8.27	3.694
2035		6.59	6.59		0.39	3.69	0.28	4.36	2.23		19.25	0.00	10.49	3.694
2036		6.92	6.92		0.40	3.69	0.24	4.33	2.59		15.56	0.00	13.08	3.694
2037		7.27	7.27		0.41	3.69	0.20	4.30	2.96		11.87	0.00	16.04	3.694
2038		7.62	7.62		0.41	3.58	0.17	4.16	3.46		8.29	0.00	19.50	3.581
2039		7.99	7.99		0.42	3.45	0.13	4.01	3.98		4.83	0.00	23.48	3.452
2040		8.37	8.37		0.43	2.48	0.09	3.01	5.36		2.35	0.00	28.84	2.485
2041		8.76	8.76		0.44	1.56	0.06	2.07	6.70		0.79	0.00	35.54	1.563
2042		9.17	9.17		0.45	0.64	0.04	1.12	8.04		0.15	0.00	43.58	0.638
Total	0.0	74.0	144.0		74.0	10.2	74.0	16.3	172.0		6.0			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case3-b: Level at 100% of User's Benefit

Loan/Equity: 85/15 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.25	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.59	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.04	19.40	-0.04	20.68	0.04	-0.06	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	0.21	18.63	-0.21	36.34	0.21	-0.27	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	0.36	18.87	-0.36	52.07	0.36	-0.63	0.000
2012	1.91	10.85	0.51	13.28	12.77	0.08	0.00	0.53	13.37	-0.09	62.92	0.09	-0.72	0.000
2013		1.66	1.66		0.25	0.00	0.64	0.89	0.77		62.92	0.00	0.05	0.000
2014		1.78	1.78		0.25	0.00	0.64	0.89	0.89		62.92	0.00	0.94	0.000
2015		1.92	1.92		0.26	0.00	0.64	0.90	1.02		62.92	0.00	1.96	0.000
2016		2.08	2.08		0.26	0.00	0.64	0.90	1.18		62.92	0.00	3.14	0.000
2017		2.25	2.25		0.27	0.00	0.64	0.91	1.35		62.92	0.00	4.49	0.000
2018		2.43	2.43		0.27	0.10	0.64	1.01	1.42		62.82	0.00	5.91	0.096
2019		2.62	2.62		0.28	0.20	0.64	1.12	1.49		62.62	0.00	7.41	0.205
2020		2.81	2.81		0.29	1.03	0.64	1.95	0.86		61.59	0.00	8.26	1.028
2021		3.00	3.00		0.29	1.81	0.64	2.74	0.26		59.78	0.00	8.53	1.811
2022		3.20	3.20		0.30	2.60	0.63	3.52	-0.32		57.18	0.32	8.21	2.597
2023		3.41	3.41		0.30	3.14	0.61	4.05	-0.64		54.04	0.64	7.58	3.140
2024		3.63	3.63		0.31	3.14	0.58	4.03	-0.40		50.90	0.40	7.17	3.140
2025		3.85	3.85		0.32	3.14	0.55	4.01	-0.15		47.76	0.15	7.02	3.140
2026		4.08	4.08		0.32	3.14	0.52	3.98	0.10		44.62	0.00	7.12	3.140
2027		4.32	4.32		0.33	3.14	0.49	3.96	0.37		41.48	0.00	7.49	3.140
2028		4.57	4.57		0.34	3.14	0.46	3.93	0.64		38.34	0.00	8.13	3.140
2029		4.83	4.83		0.34	3.14	0.43	3.91	0.92		35.20	0.00	9.05	3.140
2030		5.09	5.09		0.35	3.14	0.39	3.88	1.21		32.06	0.00	10.25	3.140
2031		5.37	5.37		0.36	3.14	0.36	3.86	1.51		28.92	0.00	11.76	3.140
2032		5.65	5.65		0.37	3.14	0.33	3.84	1.81		25.78	0.00	13.57	3.140
2033		5.95	5.95		0.37	3.14	0.30	3.81	2.14		22.65	0.00	15.71	3.140
2034		6.26	6.26		0.38	3.14	0.27	3.79	2.48		19.51	0.00	18.19	3.140
2035		6.59	6.59		0.39	3.14	0.24	3.77	2.82		16.37	0.00	21.01	3.140
2036		6.92	6.92		0.40	3.14	0.21	3.74	3.18		13.23	0.00	24.19	3.140
2037		7.27	7.27		0.41	3.14	0.17	3.72	3.55		10.09	0.00	27.74	3.140
2038		7.62	7.62		0.41	3.04	0.14	3.60	4.02		7.04	0.00	31.76	3.044
2039		7.99	7.99		0.42	2.93	0.11	3.47	4.52		4.11	0.00	36.28	2.935
2040		8.37	8.37		0.43	2.11	0.08	2.62	5.75		2.00	0.00	42.02	2.112
2041		8.76	8.76		0.44	1.33	0.05	1.82	6.94		0.67	0.00	48.96	1.329
2042		9.17	9.17		0.45	0.54	0.03	1.02	8.14		0.13	0.00	57.11	0.543
Total	11.1	62.9	144.0		74.0	10.2	62.9	13.9	158.5		2.24			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case3-c: Level at 100% of User's Benefit

Loan/Equity: 100/0 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36	0.00	0.00	0.25	19.60	-0.25	24.33	0.25	-0.36	0.000
2010	0.00	18.42		18.42	18.42	0.00	0.00	1.23	19.65	-1.23	42.75	1.23	-1.59	0.000
2011	0.00	18.50		18.50	18.50	0.00	0.00	2.21	20.71	-2.21	61.25	2.21	-3.80	0.000
2012	0.00	12.77	0.51	13.28	12.77	0.08	0.00	3.25	16.09	-2.81	74.02	2.81	-6.61	0.000
2013		1.66	1.66		0.25	0.00	4.05	4.29	-2.63	74.02	2.63	-9.24	0.000	
2014		1.78	1.78		0.25	0.00	4.05	4.30	-2.51	74.02	2.51	-11.76	0.000	
2015		1.92	1.92		0.26	0.00	4.05	4.30	-2.38	74.02	2.38	-14.14	0.000	
2016		2.08	2.08		0.26	0.00	4.05	4.31	-2.22	74.02	2.22	-16.37	0.000	
2017		2.25	2.25		0.27	0.00	4.05	4.31	-2.06	74.02	2.06	-18.42	0.000	
2018		2.43	2.43		0.27	0.11	4.05	4.43	-2.00	73.91	2.00	-20.42	0.112	
2019		2.62	2.62		0.28	0.24	4.05	4.57	-1.95	73.67	1.95	-22.37	0.241	
2020		2.81	2.81		0.29	0.21	4.04	5.53	-2.73	72.46	2.73	-25.10	1.209	
2021		3.00	3.00		0.29	0.23	4.03	6.45	-3.45	70.33	3.45	-28.54	2.130	
2022		3.20	3.20		0.30	0.30	3.06	3.97	7.32	67.27	4.12	-32.66	3.055	
2023		3.41	3.41		0.30	0.36	3.86	7.86	-4.44	63.58	4.44	-37.10	3.694	
2024		3.63	3.63		0.31	0.36	3.71	7.71	-4.08	59.88	4.08	-41.19	3.694	
2025		3.85	3.85		0.32	0.36	3.52	7.53	-3.68	56.19	3.68	-44.87	3.694	
2026		4.08	4.08		0.32	0.36	3.34	7.36	-3.27	52.50	3.27	-48.14	3.694	
2027		4.32	4.32		0.33	0.36	3.15	7.18	-2.85	48.80	2.85	-50.99	3.694	
2028		4.57	4.57		0.34	0.36	2.97	7.00	-2.43	45.11	2.43	-53.42	3.694	
2029		4.83	4.83		0.34	0.36	2.78	6.82	-1.99	41.42	1.99	-55.42	3.694	
2030		5.09	5.09		0.35	0.36	2.60	6.64	-1.55	37.72	1.55	-56.97	3.694	
2031		5.37	5.37		0.36	0.36	2.42	6.47	-1.10	34.03	1.10	-58.07	3.694	
2032		5.65	5.65		0.37	0.36	2.23	6.29	-0.64	30.34	0.64	-58.71	3.694	
2033		5.95	5.95		0.37	0.36	2.05	6.11	-0.16	26.64	0.16	-58.87	3.694	
2034		6.26	6.26		0.38	0.36	1.86	5.94	0.33	22.95	0.00	-58.54	3.694	
2035		6.59	6.59		0.39	0.36	1.68	5.76	0.83	19.25	0.00	-57.71	3.694	
2036		6.92	6.92		0.40	0.36	1.49	5.58	1.34	15.56	0.00	-56.38	3.694	
2037		7.27	7.27		0.41	0.36	1.31	5.41	1.86	11.87	0.00	-54.52	3.694	
2038		7.62	7.62		0.41	0.35	1.12	5.12	2.50	8.29	0.00	-52.01	3.581	
2039		7.99	7.99		0.42	0.35	0.94	4.81	3.18	4.83	0.00	-48.84	3.452	
2040		8.37	8.37		0.43	0.34	2.48	0.76	4.69	2.35	0.00	-44.14	2.485	
2041		8.76	8.76		0.44	0.34	1.56	0.59	2.59	0.79	0.00	-37.97	1.563	
2042		9.17	9.17		0.45	0.34	0.46	1.55	7.62	0.15	0.00	-30.36	0.638	
Total	0.0	74.0	144.0		74.0	10.2	74.0	90.2	246.0		58.8			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case3-d: Level at 100% of User's Benefit

Loan/Equity: 85/15 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.37	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36	0.00	0.00	0.21	19.57	-0.21	20.68	0.21	-0.31	0.000
2010	2.76	15.66		18.42	18.42	0.00	0.00	1.04	19.47	-1.04	36.34	1.04	-1.35	0.000
2011	2.78	15.73		18.50	18.50	0.00	0.00	1.88	20.38	-1.88	52.07	1.88	-3.23	0.000
2012	1.91	10.85	0.51	13.28	12.77	0.08	0.00	2.76	15.60	-2.33	62.92	2.33	-5.55	0.000
2013		1.66	1.66		0.25	0.00	3.44	3.69	-2.03	62.92	2.03	-7.58	0.000	
2014		1.78	1.78		0.25	0.00	3.44	3.69	-1.91	62.92	1.91	-9.49	0.000	
2015		1.92	1.92		0.26	0.00	3.44	3.70	-1.78	62.92	1.78	-11.26	0.000	
2016		2.08	2.08		0.26	0.00	3.44	3.70	-1.62	62.92	1.62	-12.88	0.000	
2017		2.25	2.25		0.27	0.00	3.44	3.71	-1.45	62.92	1.45	-14.33	0.000	
2018		2.43	2.43		0.27	0.10	3.44	3.81	-1.38	62.82	1.38	-15.71	0.096	
2019		2.62	2.62		0.28	0.20	3.44	3.92	-1.31	62.62	1.31	-17.01	0.205	
2020		2.81	2.81		0.29	0.30	3.43	4.75	-1.94	61.59	1.94	-18.95	1.028	
2021		3.00	3.00		0.29	0.31	3.41	3.42	5.53	59.78	2.52	-21.48	1.811	
2022		3.20	3.20		0.30	0.30	3.37	6.27	-3.06	57.18	3.06	-24.54	2.597	
2023		3.41	3.41		0.30	0.31	3.14	3.28	6.72	54.04	3.31	-27.85	3.140	
2024		3.63	3.63		0.31	0.31	3.14	3.15	6.60	50.90	2.97	-30.82	3.140	
2025		3.85	3.85		0.32	0.31	3.14	3.00	6.45	47.76	2.60	-33.42	3.140	
2026		4.08	4.08		0.32	0.31	2.84	6.30	-2.22	44.62	2.22	-35.64	3.140	
2027		4.32	4.32		0.33	0.31	2.68	6.15	-1.83	41.48	1.83	-37.46	3.140	
2028		4.57	4.57		0.34	0.31	2.52	6.00	-1.43	38.34	1.43	-38.89	3.140	
2029		4.83	4.83		0.34	0.31	2.37	5.85	-1.02	35.20	1.02	-39.91	3.140	
2030		5.09	5.09		0.35	0.31	2.14	2.21	5.70	32.06	0.61	-40.52	3.140	
2031		5.37	5.37		0.36	0.31	2.05	5.55	-0.18	28.92	0.18	-40.71	3.140	
2032		5.65	5.65		0.37	0.31	1.90	5.40	0.25	25.78	0.00	-40.46	3.140	
2033		5.95	5.95		0.37	0.31	1.74	5.25	0.70	22.65	0.00	-39.76	3.140	
2034		6.26	6.26		0.38	0.31	1.58	5.10	1.16	19.51	0.00	-38.60	3.140	
2035		6.59	6.59		0.39	0.31	1.43	4.95	1.63	16.37	0.00	-36.96	3.140	
2036		6.92	6.92		0.40	0.31	1.27	4.81	2.12	13.23	0.00	-34.85	3.140	
2037		7.27	7.27		0.41	0.31	1.11	4.66	2.61	10.09	0.00	-32.24	3.140	
2038		7.62	7.62		0.41	0.30	0.95	4.41	3.21	7.04	0.00	-29.03	3.044	
2039		7.99	7.99		0.42	0.30	0.80	4.16	3.83	4.11	0.00	-25.20	2.935	
2040		8.37	8.37		0.43	0.30	2.11	0.65	3.19	2.00	0.00	-20.02	2.112	
2041		8.76	8.76		0.44	0.30	1.33	0.50	2.27	0.67	0.00	-13.52	1.329	
2042		9.17	9.17		0.45	0.30	0.39	1.39	7.78	0.13	0.00	-5.74	0.543	
Total	11.1	62.9	144.0		74.0	10.2	62.8	76.7	221.4		40.6			62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case4-a: Current Ferry Level

Loan/Equity: 100/0 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan	Required Subsidy	Accumulated Surplus	Annual Loan
2007	0.00	2.37		2.37	2.37	0.00	0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36		0.00	0.05	19.40	-0.05	24.33	0.05	-0.07	0.000
2010	0.00	18.42		18.42	18.42		0.00	0.24	18.67	-0.24	42.75	0.24	-0.31	0.000
2011	0.00	18.50		18.50	18.50		0.00	0.43	18.93	-0.43	61.25	0.43	-0.74	0.000
2012	0.00	12.77	0.94	13.70	12.77	0.08	0.00	0.62	13.46	0.24	74.02	0.00	-0.51	0.000
2013			3.03	3.03		0.25	0.00	0.75	1.00	2.03	74.02	0.00	1.52	0.000
2014			3.26	3.26		0.25	0.00	0.75	1.00	2.25	74.02	0.00	3.77	0.000
2015			3.50	3.50		0.26	0.00	0.75	1.01	2.49	74.02	0.00	6.26	0.000
2016			3.80	3.80		0.26	0.00	0.75	1.01	2.79	74.02	0.00	9.05	0.000
2017			4.11	4.11		0.27	0.00	0.75	1.02	3.09	74.02	0.00	12.14	0.000
2018			4.44	4.44		0.27	0.11	0.75	1.14	3.30	74.02	0.00	15.44	0.112
2019			4.78	4.78		0.28	0.24	0.75	1.27	3.50	74.02	0.00	18.95	0.241
2020			5.12	5.12		0.29	0.21	0.75	2.25	2.88	74.02	0.00	21.83	1.209
2021			5.48	5.48		0.29	0.23	0.75	3.17	2.31	74.02	0.00	24.14	2.130
2022			5.85	5.85		0.30	0.30	0.74	4.09	1.76	74.02	0.00	25.89	3.055
2023			6.23	6.23		0.30	0.36	0.72	4.71	1.52	74.02	0.00	27.41	3.694
2024			6.62	6.62		0.31	0.36	0.68	4.69	1.93	74.02	0.00	29.34	3.694
2025			7.03	7.03		0.32	0.36	0.65	4.66	2.37	74.02	0.00	31.72	3.694
2026			7.45	7.45		0.32	0.36	0.61	4.63	2.83	74.02	0.00	34.54	3.694
2027			7.89	7.89		0.33	0.36	0.57	4.60	3.29	74.02	0.00	37.84	3.694
2028			8.34	8.34		0.34	0.36	0.54	4.57	3.77	74.02	0.00	41.61	3.694
2029			8.81	8.81		0.34	0.36	0.50	4.54	4.27	74.02	0.00	45.88	3.694
2030			9.29	9.29		0.35	0.36	0.46	4.51	4.79	74.02	0.00	50.67	3.694
2031			9.79	9.79		0.36	0.36	0.43	4.48	5.31	74.02	0.00	55.98	3.694
2032			10.31	10.31		0.37	0.36	0.39	4.45	5.86	74.02	0.00	61.84	3.694
2033			10.86	10.86		0.37	0.36	0.35	4.42	6.44	74.02	0.00	68.29	3.694
2034			11.43	11.43		0.38	0.36	0.32	4.39	7.04	74.02	0.00	75.33	3.694
2035			12.02	12.02		0.39	0.36	0.28	4.36	7.66	74.02	0.00	82.99	3.694
2036			12.63	12.63		0.40	0.36	0.24	4.33	8.30	74.02	0.00	91.28	3.694
2037			13.26	13.26		0.41	0.36	0.20	4.30	8.95	74.02	0.00	100.24	3.694
2038			13.91	13.91		0.41	0.35	0.17	4.16	9.75	74.02	0.00	109.98	3.581
2039			14.58	14.58		0.42	0.35	0.13	4.01	10.57	74.02	0.00	120.56	3.452
2040			15.27	15.27		0.43	0.28	0.09	3.01	12.26	74.02	0.00	132.82	2.485
2041			15.99	15.99		0.44	0.16	0.06	2.07	13.92	74.02	0.00	146.74	1.563
2042			16.73	16.73		0.45	0.64	0.04	1.12	15.60	74.02	0.00	162.35	0.638
Total	0.0	74.0	262.8		74.0	10.2	74.0	16.3	172.0			0.74		74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow

Case4-b: Current Ferry Level

Loan/Equity: 85/15 Interest Rate: 1%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding g Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00	2.25	0.00	2.01	0.00	0.00	0.000	
2008	0.39	2.21		2.60	2.60	0.00	0.02	2.59	-0.02	4.22	0.02	-0.02	0.000	
2009	2.90	16.45		19.36	19.36	0.00	0.04	19.40	-0.04	20.68	0.04	-0.06	0.000	
2010	2.76	15.66		18.42	18.42	0.00	0.21	18.63	-0.21	36.34	0.21	-0.27	0.000	
2011	2.78	15.73		18.50	18.50	0.00	0.36	18.87	-0.36	52.07	0.36	-0.63	0.000	
2012	1.91	10.85	0.94	13.70	12.77	0.08	0.00	0.53	13.37	0.33	62.92	0.00	-0.30	0.000
2013			3.03	3.03		0.25	0.00	0.64	0.89	2.14	62.92	0.00	1.84	0.000
2014			3.26	3.26		0.25	0.00	0.64	0.89	2.36	62.92	0.00	4.20	0.000
2015			3.50	3.50		0.26	0.00	0.64	0.90	2.60	62.92	0.00	6.81	0.000
2016			3.80	3.80		0.26	0.00	0.64	0.90	2.90	62.92	0.00	9.71	0.000
2017			4.11	4.11		0.27	0.00	0.64	0.91	3.21	62.92	0.00	12.91	0.000
2018			4.44	4.44		0.27	0.10	0.64	1.01	3.43	62.82	0.00	16.34	0.096
2019			4.78	4.78		0.28	0.20	0.64	1.12	3.65	62.62	0.00	19.99	0.205
2020			5.12	5.12		0.29	0.31	0.64	1.95	3.17	61.59	0.00	23.17	1.028
2021			5.48	5.48		0.29	0.31	0.64	2.74	2.74	59.78	0.00	25.91	1.811
2022			5.85	5.85		0.30	0.36	0.63	3.52	2.33	57.18	0.00	28.24	2.597
2023			6.23	6.23		0.30	0.34	0.61	4.05	2.18	54.04	0.00	30.41	3.140
2024			6.62	6.62		0.31	0.34	0.58	4.03	2.59	50.90	0.00	33.00	3.140
2025			7.03	7.03		0.32	0.34	0.55	4.01	3.02	47.76	0.00	36.03	3.140
2026			7.45	7.45		0.32	0.34	0.52	3.98	3.47	44.62	0.00	39.50	3.140
2027			7.89	7.89		0.33	0.34	0.49	3.96	3.93	41.48	0.00	43.43	3.140
2028			8.34	8.34		0.34	0.34	0.46	3.93	4.41	38.34	0.00	47.84	3.140
2029			8.81	8.81		0.34	0.34	0.43	3.91	4.90	35.20	0.00	52.74	3.140
2030			9.29	9.29		0.35	0.34	0.39	3.88	5.41	32.06	0.00	58.15	3.140
2031			9.79	9.79		0.36	0.34	0.36	3.86	5.93	28.92	0.00	64.08	3.140
2032			10.31	10.31		0.37	0.34	0.33	3.84	6.47	25.78	0.00	70.56	3.140
2033			10.86	10.86		0.37	0.34	0.30	3.81	7.05	22.65	0.00	77.61	3.140
2034			11.43	11.43		0.38	0.34	0.27	3.79	7.64	19.51	0.00	85.25	3.140
2035			12.02	12.02		0.39	0.34	0.24	3.77	8.25	16.37	0.00	93.50	3.140
2036			12.63	12.63		0.40	0.34	0.21	3.74	8.89	13.23	0.00	102.39	3.140
2037			13.26	13.26		0.41	0.34	0.17	3.72	9.54	10.09	0.00	111.93	3.140
2038			13.91	13.91		0.41	0.34	0.14	3.60	10.31	7.04	0.00	122.24	3.044
2039			14.58	14.58		0.42	0.29	0.11	3.47	11.11	4.11	0.00	133.35	2.935
2040			15.27	15.27		0.43	0.21	0.08	2.62	12.65	2.00	0.00	146.00	2.112
2041			15.99	15.99		0.44	0.13	0.05	1.82	14.17	0.67	0.00	160.17	1.329
2042			16.73	16.73		0.45	0.54	0.03	1.02	15.71	0.13	0.00	175.87	0.543
Total	11.1	62.9	262.8		74.0	10.2	62.9	13.9	158.5			0.63		62.9

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow
Case4-c: Current Ferry Level

Loan/Equity: 100/0 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.00	2.37		2.37	2.37		0.00		2.37	0.00	2.37	0.00	0.00	0.000
2008	0.00	2.60		2.60	2.60		0.00	0.11	2.71	-0.02	4.97	0.02	-0.02	0.000
2009	0.00	19.36		19.36	19.36		0.00	0.25	19.60	-0.25	24.33	0.25	-0.36	0.000
2010	0.00	18.42		18.42	18.42		0.00	1.23	19.65	-1.23	42.75	1.23	-1.59	0.000
2011	0.00	18.50		18.50	18.50		0.00	2.21	20.71	-2.21	61.25	2.21	-3.80	0.000
2012	0.00	12.77	0.94	13.70	12.77	0.08	0.00	3.25	16.95	-3.25	74.02	3.25	-7.04	0.000
2013		3.03	3.03		0.25	0.00	4.05	4.29	-1.27		74.02	1.27	-8.31	0.000
2014		3.26	3.26		0.25	0.00	4.05	4.30	-1.04		74.02	1.04	-9.35	0.000
2015		3.50	3.50		0.26	0.00	4.05	4.30	-0.80		74.02	0.80	-10.15	0.000
2016		3.80	3.80		0.26	0.00	4.05	4.31	-0.51		74.02	0.51	-10.66	0.000
2017		4.11	4.11		0.27	0.00	4.05	4.31	-0.20		74.02	0.20	-10.86	0.000
2018		4.44	4.44		0.27	0.11	4.05	4.43	0.01		73.91	0.00	-10.85	0.112
2019		4.78	4.78		0.28	0.24	4.05	4.57	0.21		73.67	0.00	-10.64	0.241
2020		5.12	5.12		0.29	1.21	4.04	5.53	-0.41		72.46	0.41	-11.05	1.209
2021		5.48	5.48		0.29	2.13	4.03	6.45	-0.97		70.33	0.97	-12.02	2.130
2022		5.85	5.85		0.30	3.06	3.97	7.32	-1.47		67.27	1.47	-13.49	3.055
2023		6.23	6.23		0.30	3.69	3.86	7.86	-1.63		63.58	1.63	-15.12	3.694
2024		6.62	6.62		0.31	3.69	3.71	7.71	-1.09		59.88	1.09	-16.21	3.694
2025		7.03	7.03		0.32	3.69	3.52	7.53	-0.50		56.19	0.50	-16.71	3.694
2026		7.45	7.45		0.32	3.69	3.34	7.36	0.10		52.50	0.00	-16.62	3.694
2027		7.89	7.89		0.33	3.69	3.15	7.18	0.71		48.80	0.00	-15.90	3.694
2028		8.34	8.34		0.34	3.69	2.97	7.00	1.34		45.11	0.00	-14.56	3.694
2029		8.81	8.81		0.34	3.69	2.78	6.82	1.99		41.42	0.00	-12.57	3.694
2030		9.29	9.29		0.35	3.69	2.60	6.64	2.65		37.72	0.00	-9.92	3.694
2031		9.79	9.79		0.36	3.69	2.42	6.47	3.33		34.03	0.00	-6.60	3.694
2032		10.31	10.31		0.37	3.69	2.23	6.29	4.02		30.34	0.00	-2.58	3.694
2033		10.86	10.86		0.37	3.69	2.05	6.11	4.75		26.64	0.00	2.17	3.694
2034		11.43	11.43		0.38	3.69	1.86	5.94	5.50		22.95	0.00	7.66	3.694
2035		12.02	12.02		0.39	3.69	1.68	5.76	6.26		19.25	0.00	13.93	3.694
2036		12.63	12.63		0.40	3.69	1.49	5.58	7.05		15.56	0.00	20.97	3.694
2037		13.26	13.26		0.41	3.69	1.31	5.41	7.85		11.87	0.00	28.82	3.694
2038		13.91	13.91		0.41	3.58	1.12	5.12	8.79		8.29	0.00	37.61	3.581
2039		14.58	14.58		0.42	3.45	0.94	4.81	9.77		4.83	0.00	47.38	3.452
2040		15.27	15.27		0.43	2.48	0.76	3.68	11.60		2.35	0.00	58.98	2.485
2041		15.99	15.99		0.44	1.56	0.59	2.59	13.40		0.79	0.00	72.38	1.563
2042		16.73	16.73		0.45	0.64	0.46	1.55	15.18		0.15	0.00	87.55	0.6
Total	0.0	74.0	262.8		74.0	10.2	74.0	90.2	246.8		16.9			74.0

Source: Study Team

Table AP 9.2.1 Alternative Case Cash Flow
Case4-d: Current Ferry Level

Loan/Equity: 85/15 Interest Rate: 5%

Year	Equity	Loan	Revenue	Initial Inflow	Investment Cost	O&M Cost	Loan Repayment	Loan Interest	Initial Outflow	Initial Balance	Outstanding Loan amount	Required Subsidy	Accumulated Surplus	Annual Loan Repayment
2007	0.36	2.01		2.37	2.37	0.00	0.00		2.37	0.00	2.01	0.00	0.00	0.000
2008	0.39	2.21		2.60	2.60	0.00	0.00	0.02	2.62	-0.02	4.22	0.02	-0.02	0.000
2009	2.90	16.45		19.36	19.36		0.00	0.21	19.57	-0.21	20.68	0.21	-0.31	0.000
2010	2.76	15.66		18.42	18.42		0.00	1.04	19.47	-1.04	36.34	1.04	-1.35	0.000
2011	2.78	15.73		18.50	18.50		0.00	1.88	20.38	-1.88	52.07	1.88	-3.23	0.000
2012	1.91	10.85	0.94	13.70	12.77	0.08	0.00	2.76	16.46	-2.76	62.92	2.76	-5.98	0.000
2013		3.03	3.03		0.25	0.00	3.44	3.69	-0.66		62.92	0.66	-6.64	0.000
2014		3.26	3.26		0.25	0.00	3.44	3.69	-0.43		62.92	0.43	-7.08	0.000
2015		3.50	3.50		0.26	0.00	3.44	3.70	-0.20		62.92	0.20	-7.27	0.000
2016		3.80	3.80		0.26	0.00	3.44	3.70	0.10		62.92	0.00	-7.17	0.000
2017		4.11	4.11		0.27	0.00	3.44	3.71	0.41		62.92	0.00	-6.77	0.000
2018		4.44	4.44		0.27	0.10	3.44	3.81	0.63		62.82	0.00	-6.13	0.096
2019		4.78	4.78		0.28	0.20	3.44	3.92	0.85		62.62	0.00	-5.28	0.205
2020		5.12	5.12		0.29	1.03	3.43	4.75	0.38		61.59	0.00	-4.90	1.028
2021		5.48	5.48		0.29	1.81	3.42	5.53	-0.05		59.78	0.05	-4.95	1.811
2022		5.85	5.85		0.30	2.60	3.37	6.27	-0.42		57.18	0.42	-5.37	2.597
2023		6.23	6.23		0.30	3.14	3.28	6.72	-0.50		54.04	0.50	-5.87	3.140
2024		6.62	6.62		0.31	3.14	3.15	6.60	0.02		50.90	0.00	-5.85	3.140
2025		7.03	7.03		0.32	3.14	3.00	6.45	0.58		47.76	0.00	-5.27	3.140
2026		7.45	7.45		0.32	3.14	2.84	6.30	1.15		44.62	0.00	-4.11	3.140
2027		7.89	7.89		0.33	3.14	2.68	6.15	1.74		41.48	0.00	-2.37	3.140
2028		8.34	8.34		0.34	3.14	2.52	6.00	2.34		38.34	0.00	-0.03	3.140
2029		8.81	8.81		0.34	3.14	2.37	5.85	2.96		35.20	0.00	2.93	3.140
2030		9.29	9.29		0.35	3.14	2.21	5.70	3.59		32.06	0.00	6.52	3.140
2031		9.79	9.79		0.36	3.14	2.05	5.55	4.24		28.92	0.00	10.76	3.140
2032		10.31	10.31		0.37	3.14	1.90	5.40	4.91		25.78	0.00	15.67	3.140
2033		10.86	10.86		0.37	3.14	1.74	5.25	5.61		22.65	0.00	21.28	3.140
2034		11.43	11.43		0.38	3.14	1.58	5.10	6.33		19.51	0.00	27.61	3.140
2035		12.02	12.02		0.39	3.14	1.43	4.95	7.07		16.37	0.00	34.67	3.140
2036		12.63	12.63		0.40	3.14	1.27	4.81	7.82		13.23	0.00	42.50	3.140
2037		13.26	13.26		0.41	3.14	1.11	4.66	8.60		10.09	0.00	51.10	3.140
2038		13.91	13.91		0.41	3.04	0.95	4.41	9.50		7.04	0.00	60.60	3.044
2039		14.58	14.58		0.42	2.93	0.80	4.16	10.42		4.11	0.00	71.02	2.935
2040		15.27	15.27		0.43	2.11	0.65	3.19	12.08		2.00	0.00	83.11	2.112
2041		15.99	15.99		0.44	1.33	0.50	2.27	13.72		0.67	0.00	96.83	1.329
2042		16.73	16.73		0.45	0.54	0.39	1.39	15.34		0.13	0.00	112.17	0.543
Total	11.1	62.9	262.8		74.0	10.2	62.9	76.7	222.2		8.2			62.9

Source: Study Team