

The Stakeholder Meeting 2-2 for the Construction of the Second Mekong Bridge in the Kingdom of Cambodia

Part III Interim Results on IEE-level Social and Environmental Considerations Study

December 27-28, 2004
Conference Hall, MPWT

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

Part III Interim Results of IEE Study

1. Review on IEE Study
2. Interim Results of IEE Study

1. Review on IEE Study

- **IEE:** To preliminarily review current environmental conditions in the project area and identify and evaluate the significance of impacts based on the existing data/information, and field survey.

1. Review on IEE Study

Agreed Scope of IEE (Natural Environment)

No.	Impact to be assessed	JICA Guideline Requirement	Scoping at SW Mission (Dec. 2003)	Agreed Impacts to be Assessed (Stakeholder Meeting 2-1)
1	Air quality	X	X	X
2	Water quality	X	X	X
3	Soil and sedimentation quality	X		X
4	Waste disposal	X	X	X
5	Noise and Vibration	X	X	X
6	Subsidence	X		X
7	Bad smells	X	X	X
8	Topography and Geology	X		X
9	River bed Materials	X	X	X
10	Fauna and flora	X	X	X
11	Use of water resources	X		X
12	Accidents	X	X	X
13	Greenhouse effect gas	X	X	X

1. Review on IEE Study

Agreed Scope of IEE (Social Environment)

No.	Impacts to be assessed	JICA Guideline Requirement	Scoping at SW (Dec. 2003)	Agreed Impacts to be Assessed (Stakeholder Meeting 2-1)
1	Migration of population involuntary resettlement	X	X	X
2	Impact on local economy (employment, livelihood, etc.)	X	X	X
3	Utilization of land and local resources	X	X	X
4	Social Institutions (social capital and local decision-making institution)	X	X	X
5	Existing social Infrastructure and services	X	X	X
6	Vulnerable social groups	X		X
7	Equality of benefits and losses and equality in development process	X		X
8	Local conflicts of interests	X	X	X
9	Gender	X		X
10	Children's rights	X		X
11	Cultural heritage	X	X	X
12	Infectious diseases (HIV/AIDS)	X	X	X

1. Review on IEE Study

■ Study Methods

- Based on the comprehensive literature reviews, the collection of the up-to-date baseline environmental and social information/data, the current bio-physical environmental conditions as well as the social environmental conditions around the study area of Neak Loeung including 16 villages in the following 6 communes.
- The site visits were conducted on demand in order to quantitatively and qualitatively identify the potential bio-physical and social impacts.

Province	District	Commune	No. of Villages
Kandal	Leuk Daek	Kampong Phnum	2
Kandal	Leuk Daek	Preak Tonloab	2
Prey Veng	Peam Ro	Preak Khsay Ka	2
Prey Veng	Peam Ro	Preak Khsay Kha	6
Prey Veng	Peam Ro	Neak Loeung	2
Prey Veng	Peam Ro	Banish Prasat	2

1. Review on IEE Study						
■ Study Schedule						
Year	2004			2005		
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Literature Review	□					
Collection of Data/Information		□				
Preliminary Analysis for IEE			□			
Reporting of Interim Results of IEE				□		
In-depth Analysis for IEE					□	
Draft Final Report on Results of IEE						□
Final Report on Results of IEE						□

2. Summary of Interim Results of IEE Study						
<ul style="list-style-type: none"> Possible impacts on natural and social environment will be: <ul style="list-style-type: none"> impacts during the construction phase, and impacts during the operation phase of each option. Possible impacts to be assessed might include the following 25 impacts on natural and social environment in accordance with the JICA guidelines for social and environmental considerations. <ul style="list-style-type: none"> 12 impacts on Natural Environment 13 impacts on Social Environment Interim results might be tentatively grouped into the following 5 categories. <ul style="list-style-type: none"> A: Negative impacts might be considerably large. B: Negative impacts might be to some extent large. C: Negative impacts might be considerably small. D: Negative impacts might be negligible. +: Favorable impacts might be envisaged. More in-depth analysis will be presented in the next stakeholder meeting. 						

2. Summary of Interim Results of IEE Study (Impacts on Natural Environment: Construction Phase)						
Impacts to be assessed / Option	1-1	1-2	2-1	2-2	2-3	3
Air quality	C	C	C	C	C	C
Water quality	B	B	A	A	A	A
Soil and sedimentation quality	C	C	B	B	B	B
Waste disposal	D	C	B	B	B	B
Noise and Vibration	C	C	B	B	B	B
Subsidence	D	D	B	B	B	B
Bad smells	C	C	B	B	B	B
Topography and Geology	D	D	A	A	A	A
River bed Materials	D	D	A	A	A	A
Fauna and flora	B	B	A	A	A	A
Use of water resources	C	C	C	C	C	C
Accidents	C	B	B	B	B	B
Greenhouse effect gas	C	C	C	C	C	C

2. Summary of Interim Results of IEE Study (Impacts on Natural Environment: Operation Phase)						
Impacts to be assessed / Option	1-1	1-2	2-1	2-2	2-3	3
Air quality	C	C	C	C	C	C
Water quality	B	B	D	D	D	D
Soil and sedimentation quality	D	D	D	D	D	D
Waste disposal	D	D	D	D	D	D
Noise and Vibration	C	C	C	C	C	C
Subsidence	D	D	C	C	C	C
Bad smells	D	D	B	B	B	B
Topography and Geology	D	D	A	A	A	A
River bed Materials	D	D	D	D	D	D
Fauna and flora	B	B	D	D	D	D
Use of water resources	C	C	D	D	D	D
Accidents	B	B	B	B	B	B
Greenhouse effect gas	C	C	C	C	C	C

Impacts on Natural Environment	
Major Impacts during Construction Phase	
<ul style="list-style-type: none"> Water Quality <ul style="list-style-type: none"> Turbidity due to Construction Work Accidental Spill of Hazardous Material Waste Disposal <ul style="list-style-type: none"> Need Treatment of Construction Waste 	

Impacts on Natural Environment	
Major Impacts during Construction Phase	
<ul style="list-style-type: none"> Topography <ul style="list-style-type: none"> Regional Flow Change due to Dike Road Construction Creation of New Inundated Area Road Bank Erosion by Wind-induced Wave (SW-side; Rain Season) Enhanced River Bank Erosion/Scouring due to Construction Work Second Impacts (Inundation) <ul style="list-style-type: none"> Outbreak of Water-Borne Disease Outbreak of Mosquito-Borne Disease Creation of Bad Smell 	

Impacts on Natural Environment

Major Impacts during Construction Phase

- River Bed Material & Benthos
 - Disturbance due to Construction Work
- Flora/Fauna
 - Rich Fauna (Mekong River)
 - 500 species found in Cambodia
 - Less than 100 freshwater Fish Species caught & recorded
 - Many Fish Migrate in Mekong River
 - Close Link among Fish Life Cycles, Habitats, & Hydrology of LMB
 - Carried out Local Fish Survey
 - Need Further Relevant Study

Impacts on Natural Environment

Major Impacts during Operation Phase

- Topography
 - Regional Flow Change due to Dike Road Construction
 - Creation of Newly Inundated Area
 - Road Bank Erosion by Wind-induced Wave (SW-side; Rain Season)
 - Enhanced River Bank Erosion/Scouring
- Second Impacts (Inundation)
 - Outbreak of Water-Borne Disease
 - Outbreak of Mosquito-Borne Disease
 - Creation of Bad Smell

2. Summary of Interim Results of IEE Study (Impacts on Social Environment: Construction Phase)

Impacts to be assessed / Option	1-1	1-2	2-1	2-2	2-3	3
Involuntary resettlement	D	C	A	A	A	A
Impact on local economy (employment, livelihood, etc.)	D	C	+A	+A	+A	+A
Utilization of land and local resources	D	C	A	A	A	A
Social institutions (social capital and local decision-making institution)	D	C	C	C	C	C
Existing social infrastructure and services	D	D	D	D	D	D
Vulnerable social groups	D	C	B	B	B	B
Equality of benefits and losses and equality in development process	D	C	B	B	B	B
Local conflicts of interests	D	C	B	B	B	B
Gender	D	C	B	B	B	B
Children's rights	D	D	C	C	C	C
Cultural heritage	D	D	D	D	D	D
Infectious diseases (HIV/AIDS)	D	C	B	B	B	B

2. Summary of Interim Results of IEE Study (Impacts on Social Environment: Operation Phase)

Impacts to be assessed / Option	1-1	1-2	2-1	2-2	2-3	3
Involuntary resettlement	D	B	A	A	A	A
Impact on local economy (employment, livelihood, etc.)	D	C	A	A	A	A
Utilization of land and local resources	D	C	A (+A)	A (+A)	A (+A)	A (+A)
Social institutions (social capital and local decision-making institution)	D	D	D	D	D	D
Existing social infrastructure and services	D	D	+A	+A	+A	+A
Vulnerable social groups	D	C	B	B	B	B
Equality of benefits and losses and equality in development process	D	C	B	B	B	B
Local conflicts of interests	D	C	B	B	B	B
Gender	D	D	C	C	C	C
Children's rights	D	D	C	C	C	C
Cultural heritage	D	D	D	D	D	D
Infectious diseases (HIV/AIDS)	D	C	C	C	C	C

Impacts on Social Environment

Scale of Involuntary Resettlement (Tentative)

- Scale of Involuntary Resettlement
 - If the bridge option or combined option is adopted, the number of project affected households would range from 51 to 69. These numbers are tentative and subject to be changed in accordance with the detailed planning.
 - Even in case of constructing the additional pier for additional ferry boats, there might exist a certain level of the project affected households, since the additional pier would require the construction of approach roads, etc.

Option No.	Estimated No. of Project Affected Households
1-1	0
1-2	0 (In case of the construction of the additional pier, there might exist PAPs.)
2-1	51
2-2	69
2-3	65
3	51~69

Impacts on Social Environment

Impact on Local Economy

- Construction Phase
 - In case of the bridge option or combined option, massive inflows of construction workers might temporarily increase people's income, since they would spend considerable amount of money in Neak Loeng area.
- Operation Phase
 - If the bridge or combined option is adopted, there would be decrease in people's income, since drivers will not so frequently stop over and will not spend so much money at the Neak Loeng crossing point compared with the crossing by the ferry service.
 - If the bridge or combined option is adopted, there would be considerable increase in traffic volume which would boost the regional economy.

Impacts on Social Environment

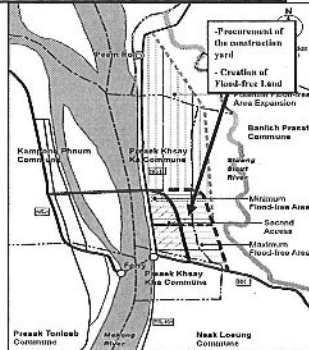
Utilization of Land and Land Use

■ Construction Phase

- In case of the bridge option or the combined option, the procurement of the construction yard might increase the value of neighboring lands.
- There would be a risk of speculation of lands around the approach roads, etc.

■ Operation Phase

- If the bridge option or the combined option is adopted, the flood-free land will be created which might be utilized as multi purposes.



Impacts on Social Environment

Social Institution (Local Decision-making Institution)

■ Construction and Operation Phases

There would be almost no impacts on the local decision-making institution in the project affected area, since none of possible options might not split the administrative unit of the project affected area.

Impacts on Social Environment

Social Infrastructure

■ Educational Institutions

There are 18 primary schools and 2 junior high schools in the project affected communes, and there would be almost no negative impacts on these educational institutions both during and after the construction of the bridge or after the improvement of the ferry service.

■ Medical Institutions

There are 6 health centers in the project affected communes, and there would be almost no negative impacts on these medical institutions both during and after the construction of the bridge or after the improvement of the ferry service. However, in case of the bridge option or the combined option, the people at the Prey Veng side will be able to access to large hospitals in Phnom Penh on 24-hour basis thanks to the operation of the bridge.

Impacts on Social Environment

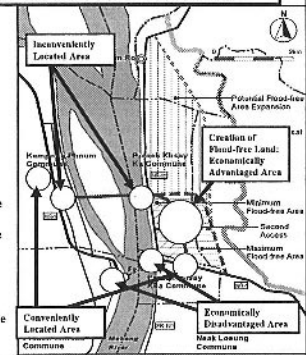
Equity of Benefits and Losses / Local Conflicts of Interests

■ Equity of Benefits and Losses

- If the bridge or combined option is adopted, there might be a certain degree of inequitable distribution of benefits and losses in the project affected areas.
- Geographically disadvantaged people are located at the foots of crossing points of the bridge at both river sides who will be forced to move back to the entry point to both approach roads.
- Economically disadvantaged people are located at the crossing points of the present ferry at both sides who will lose their jobs.

■ Local Conflicts of Interests

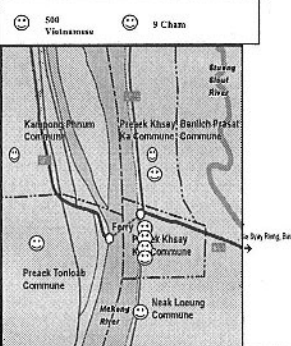
- Consequently, there exists a risk that there would be local conflicts of interests between the advantaged people and the disadvantaged people.



Impacts on Social Environment

Vulnerable Social Groups (Minority People)

Commune	Total Population	Vietnamese Population	Cham Population	500 Vietnamese	9 Cham
Preaek Khsay Ksa	11908	2146	0		
Neak Loang	3128	409	0		
Kaupang Phnom	6300	107	0		
Preaek Tonleab	8328	553	0		
Preaek Khsay Ka	6756	234	9		
Banlich Prasat	2814	0	0		
Total	39234	3449	9		



Impacts on Social Environment

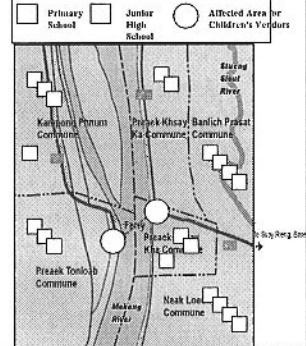
Children's Rights

■ Impacts on Children's Livelihood

While there might be increase in the sales of children's vendors by the massive increase of construction workers, if the bridge or combined option is adopted, children's vendors around ferry piers might lose their income due to the abolishment of the ferry service in the operation phase of the bridge.

■ Impacts on Children's Commuting

Even if the bridge option or combined option is adopted, there might be almost no negative impacts on children's commuting to schools, since commuting to schools will not be affected by the abolishment of the ferry services.



Impacts on Social Environment	
Gender	
<p>■ Impacts on Women's Livelihood</p> <p>While there might be increase in the sales by women's vendors which might be generated by the consumption of construction workers, if the bridge or combined option is adopted, women's vendors around ferry piers might lose their income in the operation phase of the bridge.</p>	<p>○ Affected Area for Women's Vendors</p>

Impacts on Social Environment	
Cultural Heritage	
<p>■ Pagodas</p> <p>While there exist 16 pagodas in 6 project affected communes, there are no pagodas which might be forced to be resettled by the bridge option or combined option.</p> <p>■ Other Heritages</p> <p>– There are no other major cultural heritages which might be forced to be resettled by the bridge option or combined option in the project affected area.</p>	<p>△ Pagoda</p>

Impacts on Social Environment	
Infectious Diseases (HIV/AIDS)	
<p>■ Construction Phase</p> <p>– If the bridge option or combined option is adopted, there might be a risk of increasing the number of cases of HIV/AIDS due to the inflow of massive construction workers to Neak Loeung area.</p> <p>■ Operation Phase</p> <p>– After the construction of the bridge, the smooth transportation between Phnom Penh and Neak Loeung Area might increase a risk of increasing the number of cases of HIV/AIDS.</p>	

THANK YOU !

for your attention and patience.

Ministry of Public Works and Transport

(2) Minutes of Stakeholder Meeting 2-2

1) General

This is the minutes of the overall session of the Stakeholders' Meeting 2-2, which was organized at headquarter of the Ministry of Public Works and Transport on December 27, 2004 by the Ministry in cooperation with JICA.

The Stakeholders' Meeting 2-2 was designed to be a follow-up meeting after the Stakeholders' Meeting 2-1 which was held on October 7, 2004. The main objectives of the Stakeholders' Meeting 2-2 are:

- to share views with all stakeholders on the proper evaluation method and procedure as well as the evaluation criteria for selecting the best alternative to cross the Mekong River; and
- to preliminarily explain the interim results of the Initial Environmental Examination (IEE) studies for social and environmental considerations.

The concrete program included the following four presentations which focused on:

- Introduction (Review on the Stakeholders' Meeting 2-1 and Objectives of the Stakeholders' Meeting 2-2);
- Presentation Part I on Evaluation Method for Selecting the Best Alternative Method to cross the River;
- Presentation Part II on Evaluation Criteria for Selecting the Best Alternative Methods to cross the River; and
- Presentation Part III on Interim Results for the IEE-level Social and Environmental Studies

It was reported that 81 stakeholders participated in the meeting. After hearing the above presentations, participants had opportunities to raise questions and share their comments.

At the outset of the meeting, the Minister of Public Works and Transport, H.E. Sun Chanthol, addressed the following opening remarks.

In response to the request from the Royal Government of Cambodia, JICA is conducting a study on the construction of the second Mekong bridge at to solve the bottleneck at Neak Loeung. Since May 2004, the study has been applying JICA's new guidelines which include social and natural environmental impacts, aiming to mitigate the negative impacts by the Project. In the past, the Ministry of Public Works an Transport together with the JICA Study Team have organized a series of workshops and meetings in both Phnom Penh and Neak Loeung to consult with stakeholders in a democratic and transparent way.

On October 7, 2004, we organized Stakeholders' Meeting 2-1 to explain the alternative way to cross the Mekong. Secondly, we sought the agreement in terms of reference (TOR) for the

IEE –level social and environmental examinations. The main objectives of Today’s meeting is:

- *to explain to you about the contents of the alternative methods to cross the river;*
- *to explain to you about the evaluation method, procedure and criteria for selecting the best alternative method to cross the river; and*
- *to explain about the interim results for IEE-level social and environmental studies.*

Besides today’s meeting, MPWT will organize a special session with 80 project affected people as well as the minority group of 40 people at Neak Loeung tomorrow.

The next meeting will be held in order to make consensus among all the stakeholders regarding the best alternative methods to cross the river. The Ministry hopes that your participation and contribution to the meeting will be meaningful and constructive for creating the maximum benefit and for mitigating the negative impact by the project. I would like to thank all participants for coming today.

The Ministry will ensure people’s participation in a democratic and transparent way so that they can express their own views concerning the project.

On behalf of the Ministry, I would like to thank the government of Japan and JICA for providing aid to Cambodia.

I would like to add a few words. I would like to encourage all of you to voice any ideas or comments, or ask questions to our experts, so that we can find the solution to mitigate the negative impacts of the project and to find the measures to effectively implement the project.

2) Questions and Answers

Minister, H.E. Sun Chanthol: In terms of the data for the weight of criteria, who will determine the size of input? Is it a hundred stakeholders? Is it two thousand or ten thousand stakeholders? Who will determine the size of samples and who would decide the selection process of stakeholders? The Ministry of Public Works and Transport will work and determine the weighting average of three criteria: engineering, economic and environment, but the question is how big is the sample size of the stakeholders to determine the weighting average of three criteria? Can we get the sample from 500 stakeholders or 1,000? What is the best number of stakeholders in order to decide the sample of each particular option? For example, how many truck drivers who pass on the road to get the sample on each option?

Mr. Ogawa: Thank you for your comments. The consultant team understands that the government or the Ministry of Public Works and Transport will decide the weight of each evaluation criterion. In addition to today’s stakeholders, we are asking 80 village stakeholders at Neak Loeung to participate in tomorrow’s workshop. The percentage I have shown here is

just an example. And the optimum weight will be proposed by the Ministry of Public Works and Transport, and will be explained in the next stakeholders' meeting. Maybe, all the stakeholders have different opinions on the weight of each criterion. So, we should reach the agreement on what is the best weight for the overall Cambodian development.

I would like to more concretely explain what is the sample size for deciding the weights of criteria. This is the table for selecting the best alternative under AHP system. The Minister asked a question about how many samples are needed to decide the weight of each criterion. In addition to approximately 80 stakeholders who are participating in today's overall meeting, we will have another workshop with 80 village stakeholders. At maximum, we have approximately 160 stakeholders who always attend the stakeholders' meeting. Therefore, the approximate size of samples would be 160. In the next stakeholders' meeting, the Ministry will propose the optimum weights of the criteria in order to maximize the benefit of Cambodian people after hearing voices of all the stakeholders on weights of your preferred criteria. However, the Ministry will finally decide the optimum weights of the criteria.

City Hall Deputy Governor, Mr. Thong Seng in charge of investment: On behalf of the City Hall, I would like to thank the Ministry of Public Works and Transport for the invitation. I have a question for Mr. Ogawa. Before that, I would like to thank the Government of Japan and JICA for the regular assistance to Cambodia. I have a suggestion related to the website. I wonder if this website can be widely reached and publicly disseminated so that it will become more use tool for the communication with the public. One of the effective way that you can do is maybe you have to advertise it through the advertising agency. As you know, the internet is only accessible in Phnom Penh, but not in the project affected area. My second suggestion is related to AHP. I have a feeling that you have spent a lot of time on it. In my childhood, I had a dream to have a bridge across the Mekong river. I have spent a lot of my time traveling around Cambodia. Belonging to this generation, I am so proud that we have three bridges across the river. Long time ago, I passed Snoul, Kratie. During that period, you spent a day or so to get to that area. Now thanks to the assistance provided by the Government of Japan to construct two bridges, people can get to the area within 5 to 6 hours. I also remembered that when I traveled to Svay Rieng, I spent nearly a full day. Now if we have a bridge, people from Svay Rieng can just take 4 hours to get to Phnom Penh. I have a wish and I do not know how you will classify this wish into three categories: engineering, economic and environment.

Mr. Ogawa: Providing information through the website is a transparent way to deliver necessary information to not only stakeholders but also ordinary citizens. If possible, we can invite the media such as newspaper, TV, or radio to Neak Loeung and provide them with necessary information to advertise the project. Maybe, the team can propose other effective

ways for advertising the project to MPWT and the JICA Cambodia office. Regarding the second suggestion, as I explained before, the evaluation criteria is different from stakeholder to stakeholder. This means that someone might evaluate it economically, the other might evaluate it environmentally, and the other might evaluate it technically. So in the next stakeholders' meeting, we welcome people's opinions in which factor you put more values. The Ministry of Public Works and Transport will propose the best weighting system for the evaluation criteria in selecting the best alternative, and, then, we will sincerely discuss which is the best and optimum weighting system for all the stakeholders.

Q: My name is Keo Lak. I am from one of environmental conservation organizations. I have two questions. My first question is whether (the Japanese) assistance to construct the bridge will be a loan or a grant. My second question is who can make the final decision on the project. Is it the government of Japan, JICA or the Ministry? Regarding the criteria, Mr. Ogawa prefers the engineering criteria, because he is an engineer. If you ask some NGOs, maybe their taste is environmental criteria. And for the Ministry, they will make a decision according to its taste, so I doubt about (who will make) the decision-making for the criteria.

Mr. Ogawa: Regarding the financial aspect, the consultant team is not in a position to answer this question. We are now on the feasibility study stage. After one of the options proves feasible, the financial matter will be critical. Regarding your question on 'grant or loan', I have no idea. Although we understand that the government of Cambodia has already applied for the Japanese grant aid, but the consultant team is also not in a position to answer this question. The Ministry of Public Works and Transport is the final decision-maker in this project. JICA and the consultant team are in the position to technically assist the Ministry. The best alternatives will be finally selected by the Ministry in consideration with opinions from all stakeholders.

H.E. Tram Iv Tek, Secretary of State of MPWT: I have a question regarding the construction project. As you know, this project requires a lot of money to be put into. Of the three criteria, I put more priority on the economic criteria. As explained by the consultant, there are three criteria: engineering, economic, and social/environment criteria. For example, if the cost of the bridge is 100 million dollars, we have to think of the potential economy which the bridge may bring to the country. As observed from the previous meetings, the construction of the bridge seems to connect itself to the development of the eastern part of Neak Loeung, because I saw in the map showing the flood-free land area. National Road 1 will become not only the Asian Highway but also the economic corridor, as goods will flow from Bangkok through Phnom Penh and Neak Loeung to Vong Tau, Vietnam. There will be a gradual development once the trans-boundary agreements among the GMS countries are reached, especially the border agreement between Cambodia and Thailand and the agreement

between Cambodia and Vietnam. As you can see in Neak Loeung, there are more flooded areas than flood-free area. In the map, you planned to build a route which connects NR1 and NR11 in order to make a free-flood land. I saw in the map the flood-free area is not very large. Can you tell me how many hectares of land you have planned in your study to make the area flood-free land? Will the size of the flood-free land be enough for investment? If not, what else should be done?

Mr. Ogawa: We have to pay attention to not only cost but also benefit. So the so-called investment efficiency would be a comparison between cost and benefit. If the cost is so large and the project generates sufficient benefits, we can say the project is economically feasible. When we consider the economic criteria, we will look at both cost and benefit. Although the ferry option costs a small amount of money, it cannot significantly improve the capacity to cross the river. Likewise, we will compare the investment efficiency of each option.

Regarding the second question on the flood-free land, I would like to remind you that the slide is just an image of flood-free land. We have not yet decided the route of the bridge, and we have not even decided that the best option is the bridge. If route c is selected, then the approach road will be like this, and the flood-free land will be in the south of NR1. As you pointed out, this flood-free land is not so large. Although we can say, if we have the bridge option, we can produce some hundred hectares for flood-free land through the construction of the approach road, the accurate figure of hectares of the flood-free land is not decided at this stage. If the bridge option or the combined option is adopted, the Study Team will propose what kind of activities are possible in the flood-free area. For example, we would propose a road-side station where local people can sell their products and drivers can stop over for buying something. If we have a dike here, we can extend more flood-free land.

Q: I have four questions. First, concerning the infrastructure and environment, as you can see, there is sedimentation of a small island because of the Mekong current. In your study, have you seen any impacts from the poles of the bridge? My second question is about the salinity. How many percentage of salt that enters Neak Loeung have you found in your study? This question is because of the fact that there is low and high tide in Neak Loeung.

Have you thought of international boats that go across underneath the bridge to Phnom Penh harbor? At the bottom of the river, should you clean it up or you just clean at the foot of the bridge poles? As you know, Neak Loeung became once a battle zone, so we have to think about the UXO which are left under the water. My next question is that did you design the bridge with large and high poles so that the ships can go pass the bridge? The Ministry of Public Works and Transport and the people of Cambodia want to have a suspension bridge because its architecture is very much admirable.

Mr. Ogawa: All of your questions are related to engineering and environment aspects. So, I would like to ask Mr. Hayashida to answer this question. I am not an engineer, but I would answer that if the bridge option is selected, we will propose sufficient clearance of the bridge, which is 37.5 meters.

Mr. Hayashida: Your question is about the impact on the river current around the bridge piers and foundation. In our study, we did conduct a preliminary hydrological study (i.e., step flow study) about the Mekong River main stream. And the conclusion was there may be increase in the water level rise and local flow around the pier. Eventually, the sedimentation pattern will be affected to some extents. So we recommend to carry out more detailed study using more precise study tools such as two- or three-dimensional hydrodynamic model. The next question is about effects of the salinity intrusion. According to current reports, there is saltwater intrusion in the Mekong river, but the front of the saltwater is stopped by the Vietnamese border. So we can conclude that the effect of saltwater intrusion in Neak Loeung is very small. For UX0, we recommend that more detail study should be conducted when the construction starts. As you mentioned, Neak Loeung used to be hot bombardment area. Also, there is a possibility that several mine may be conveyed from the upstream basin during the flood season. UXO study is very important for the environmental consideration.

First Deputy Chief of Preak Khsay Ka Commune: My name is Yon Oun. I am happy to hear that the government has requested money from the government of Japan to build the bridge. I understand that the government of Japan also supports the project. I am also happy that the government chosen Neak Loeung as the project location, which also has economic benefits for Preak Khsay Ka. But, our people have also concerns, because many of them are sales people (who will be affected by the abolishment of the ferry service). And our local authority has difficulties to solve the problem when they lose their jobs. Actually, in Preak Khsay Ka, there is a potential for business. We have several major warehouses which have been kept empty. We have a saw mill with a large yard. We also have warehouses doe rice and beans along the Mekong, which are left un-operated. I want to have the construction of a bridge because it can help reduce the cost and waiting time. I also have another suggestion for Mr. Ogawa. If there is the construction of a bridge or a pier, please recruit the construction workers from our 6 communes. Please put priority on our 6 communes when the construction workers are recruited.

I have another question for the Ministry regarding the word ‘minority’. I was not aware of any word calling the Vietnamese as ‘minority’. When did the government approve this? The minority refers to small groups of people who live in Ratanakiri, Mondulkiri, Stoeung Treng

and etc. My people and I were confused with the word ‘minority’ that you have used for ‘Vietnamese’. I would like to clarify that the Vietnamese people are illegal immigrants in Cambodia. For Cham, they are Khmer-Muslim people.

Mr. Ogawa: For the first question, please remember that we are presently at the stage the feasibility study. At this stage, we have not yet proposed to you about which option is suitable to cross the Mekong River. Therefore, we have not yet designed the bridge or additional pier. So at this stage, it is difficult to estimate how many workers will be needed for each option. In the next stage, if the bridge option or the combined option is selected, then, we will design the bridge and estimate how many workers will be needed for each option. Regarding the definition of the Vietnamese, we understand that there are Vietnamese living in the project area and they do not have legal status. For the word ‘minority’, it is just a term we used following the JICA’s guideline. Although we understand that some Vietnamese do not have legal status in Cambodia, according to the JICA guideline, we are requested to hear voices of the project affected people regardless of their legal status. Therefore, the Ministry provided them with opportunities to express their ideas. So, that is a reason why we have a special session with the Vietnamese in line with the JICA guideline.

H.E. Tram Iv Tek: I would like to share the term of ‘minority’ with you. The word ‘minority’ is used as the term “those who live in Mondulkiri, Ratanakiri, and etc. For the Vietnamese, we should use the term ‘immigrant’. In this way, we should make this term clear.

H.E. Touch Chankosal: There is a slight change in the meaning when the word is translated. In the JICA’s guideline, it is called ‘minority’. The word ‘minority’ here means a small number of population who would be affected by the project regardless of their legal status. So, in the next translation, we would use the term ‘immigrants’ to express those who migrate from other countries to live inside another country.

Mr. Ogawa: Thank you. The study team will pay special attentions to the terminology in the next stakeholders’ meeting. This time, the term we used was not accurate, so we will make it clear in the next stakeholders’ meeting. However, please understand that the concept of JICA guideline is to provide all the stakeholders with the opportunity to express their opinions regardless of nationality, ethnics, or legal status. In the project area, there are Vietnamese and Cham people. So the concept of JICA guideline is to provide these people as well with opportunities to express their ideas.

Q: My name is Sou Phalla. I am a professor at the National Institute of Management. I agreed with the Secretary of State of the Ministry of Public Works and Transport. There is a certain level of the economic potential which the bridge may bring to Cambodia. However, there is also a wide range of the (negative) social impacts.

People living around Neak Loeung, especially the eastern Neak Loeung, will lose their jobs. But, here I want to assure the people at Neak Loeung that when the bridge is built, you do not have to worry about losing jobs. The reason is that when the bridge is constructed, thousands of families will be settled there. Then, the area will become major business area. People living in Neak Loeung area can plant their vegetables and sell their products in the market there. When the bridge is built, there will be no problem of losing time, losing money, and insecurity. And there will be more new jobs.

I have a recommendation for JICA. When you design a bridge you should think about the longer advantage of the bridge. I give you one example about the bridge built in the 16th century in Siem Reap called the Kampong Kdei bridge. It is a large bridge and can endure for a hundred years or so. At that time, we did not have trucks. Then, why did they build a so large bridge that trucks can now go pass each other. For Neak Loeung bridge, I request that it should be designed for cars to go cross into four lanes (two lanes for the left side and the other lanes for the right side). For the slide show, I think it would be much better if you could enlarge the characters so that those who sit behind can see them clearly. Secondly, there are a little problems of translation of technical words into Khmer Language, and there are a few mistakes in spelling and typing.

Mr. Ogawa: We sincerely apologize for some slides with small size of characters which make you difficult to look at. In the next stakeholder meeting, we will use bigger characters and avoid terminological mistakes in translation. For the first question, as you know, there will be short-term and long-term benefits of the bridge. We have a wide range of stakeholders and they have different interests. We have to decide the best alternative method to cross the river, and the question is what we mean by ‘the best’? So, we have to discuss what is the proper criteria to judge the best alternative. Although we understand your request, we also need to hear from the voices of the project affected people. To forecast the future traffic demand, we have conducted the traffic demand survey. Based on this future demand forecast, we will decide which option is the best. In case of the bridge or the combined option, we will propose the best design of the bridge, which can meet the future traffic demand. So, please do not worry about the design of the bridge. In case of selecting the bridge option, the bridge will be appropriately designed based on the traffic demand forecast.

3) List of Attendant

No.	Name	Sex	Organization	Position
1	Youn Oun	M	Preak Khay Ka Commune	The first assistant to chief of commune
2	Kang Sokhan	M	Banlich Prasat Commune	Chief of Commune
3	Yous Lun	M	Banlich Prasat Commune	The first assistant to chief of commune

4	Ham Samnang	M	C I C P	Researcher
5	Pok Vanny	M	Neak Loeung Ferry	
6	Lao Saroeun	M	MPTC	
7	Meas Souen	M	DPWT of Kandal Province.	Chief of Department
8	Em Vutha	M	MPTC	
9	Ouch Tong Seng	M	Municipality of Phnom Penh	Deputy Governor
10	Hem Sarav	M	CD Cam	Program Office
11	Prom Say Heng	M	Council of Minister	Assistant to the Department of Telecommunication
12	Chhouk Chey Horng	M	Institute Technology of Cambodia	Chief of University of Construction
13	Leap Vanly	M	CDC	Coordination of Bipartisan
14	Kep Thorn	M	MPWT	Under Secretary of State
15	Yuji Imamura	M	Japanese Business Association	Staff
16	Nuy Chearrop	M	Neak Loung Ferry	
17	Kang Phirith	M	MPWT	
18	Seng Phally	M	Consultant	
19	Bo Samorn	M	Preaek Tonlab	Staff of Council Commune
20	Makita Tokuhiko	M	MPW/JICA	Expert
21	Tram Iv Tek	M	MPWT	Secretary of State
22	Meng Chanvibol	M	JICA	Staff
23	Sou Phalal	M	National University Managerment	Staff
24	Leang Mengleap	M	Ministry of Environment	Chief of Department
25	Hem Cheang	M	Reaksmey Kampuchea Newspaper	
26	Hozumi Kastuta	M	MPWT/JICA	Expert
27	Ton Tat	M	Kampong Phnom	The first assistant to chief of commune
28	Liv Vann Heng	M	MPTC	Deputy Chief of Department
29	Nhean Tola	M	JICA	Program Assistant
30	Kim Saran	M	MPWT	Engineer
31	Srey Malis	F	Preaek Khay Kha	The first assistant to chief of commune
32	Deap Lan	M	Neak Loeung Ferry	Deputy Chief
33	Hak Vatha	M	Neak Loeung Ferry	Deputy Chief
34	Om Chamreoun	M	Neak Loueng Ferry	Inspector
35	Oun Reaksmey	M	DPWT of Kandal Province	Deputy Officer of Public Works
36	Ouk Chan	M	MPWT	Secretary of State
37	Slot Sambo	M	MPWT	General Director Administration
38	Tunn Chandara	M	MRW	Chief of Department
39	Mao Samat	M	Police of Prey Veng Province	Officer
40	Phy Sophat	M	Research Center	Deputy Chief
41	Pich Dun	M	MNMC	Deputy Secretary
42	Suy Sopheap	M	Preaek Tonlob Commune	The first assistant to chief of commune
43	Soer Bunhorn	M	MoWVA	Director General
44	Tomohiro Ono	M	JICA Cambodia Office	Assistant Resident Representative
45	Thach Sovanna	M	MoWRAM	
46	Kazumi Jigami	M	Embassy of Japan	Counselor
47	Yoeung Chhum	M	Kampuchear Thmey Newspaper	Reporter
48	Ngem Thet	M	Preaek Khsay Ka Commune	Chief of Commune
49	Chea Sary	M	Preaek Khsay Kha Commune	Chief of Commune

50	Hong Vutha	M	Neak Loeung Ferry	The first assistant to chief of commune
51	Chreang Nov	M	Neak Loeung Ferry	Council of Commune
52	Chea Noun	M	Neak Loeung Ferry	
53	Srey Savorn	M	MAFF	Officer
54	Kheay Heang	M	Council of Minister	Chief of Department
55	Un Vuthy	M	MPWT	Deputy Chief
56	Ngoun Kong	M	Ministry of Environment	Deputy Chief of Department
57	Key Lak	M	CD Cam	Director
58	Ouk Somaly	F	MPWT	RAP officer
59	Pin Vuthear	F	MPWT	Officer
60	Veasna Bun	M	World Bank	Officer
61	Min Meanvy	F	MPWT	Director
62	Sak Sothyryth	M	MCPUC	Chief Officer
63	Leng Sochea	M	CMAC	Director Secretary General
64	Ben Daramony	M	MEF	Deputy Chief
65	Vann Ry	M	Kampong Phnom Commune	Staff of Council Commune
66	Horn Din	M	MOP	Deputy Chief of Department
67	Seng SETHA	M	MPWT	Deputy Director
68	Chan Socheat	M	MINE	Deputy Director
69	Chun Iek	M	MPWT	Secretary of State
70	Mom Sibun	M	MPWT	Secretary of State
71	Chea Leng	M	Ministry of Environment	Vice Chief Office
72	Tamagake Mitsue	F	JICA Cambodia	Program Assistant
73	Chan Kun	M	Ministry of Commerce	Deputy Director
74	Kam Saoserey	M	Engineering Institution of Cambodia	Deputy Chief of Road Expert
75	Sorn Saravuth	M	National Television of Cambodia	Reporter
76	Pun Ban	M	National Television of Cambodia	Reporter
77	Nov Soern	M	Television No. 5	Reporter
78	Chan Sopheon	M	Television No. 9	Reporter
79	Man Koseyma	M	Television No. 9	Reporter
80	Sam Samorn	M	Newspaper AKP	Reporter
81	Tekehiko Ogawa	M	JICA Study Team	Environmental Assessment
82	Akira Nagamachi	M	JICA Study Team	Public Consultation
83	Yuichi Aida	M	JICA Study Team	Coordinator

(3) Minutes of Stakeholder Meeting 2-2 (Minority Session)

1) General

This is the minutes of meeting for the workshop with village stakeholders under the Stakeholders' meeting 2-2 and Special Stakeholders' Meeting 2-2-a which were held on December 28, 2004 at Neak Loeung Ferry Office. The meeting was organized to provide local people who might be affected by the bridge construction project with the opportunity to express their opinions regardless of nationality.

While Cambodians and Cham people met in the morning session, the Vietnamese were asked to join in the afternoon session. Both the morning session and the afternoon session covered the following agendas:

The main objectives of the Stakeholders' Meeting 2-2 are:

- to share views with all stakeholders on the proper evaluation method and procedure as well as the evaluation criteria for selecting the best alternative to cross the Mekong River; and
- to preliminarily explain the interim results of the Initial Environmental Examination (IEE) studies for social and environmental considerations.

The concrete program included the following four presentations which focused on:

- Introduction (Review on the Stakeholders' Meeting 2-1 and Objectives of the Stakeholders' Meeting 2-2);
- Presentation Part I on Evaluation Method for Selecting the Best Alternative Method to cross the River;
- Presentation Part II on Evaluation Criteria for Selecting the Best Alternative Methods to cross the River; and
- Presentation Part III on Interim Results for the IEE-level Social and Environmental Studies

2) Morning Session

In the morning session, 79 Cambodians and 2 Chams participated in the participatory workshop. After hearing a series of presentations by the Ministry of Public Works and Transport, villagers were divided into 4 small groups and these 4 groups were requested to discuss the social and environmental impacts during and after the bridge construction. The results of their discussions are as below.

Group I: For social impacts, the involuntary resettlement is very critical. When the project is implemented, it affects the local residents. So, it is very important that the government has to pay attention to the resettlement of those project affected people. For impacts on local economy, the government should also pay attention to those impacts. Regarding the existing social infrastructure and services, we have schools, pagodas and hospitals. So, when you start the project, you should take these facilities into consideration. For the environmental impacts, our group picked up 'Use of Water Resources', because water gives people life. For noise and vibration, it is of course inevitable that the increased traffic will create noise and vibration, disturbing neighboring people who take a rest or sleep. For bad smells, we do not have much concern about it, although we have to pay attention to it.

Group II: My name is Heng Kry. The construction of the bridge will have various social impacts such as 'Migration of Population' and 'Involuntary Resettlement'. So, the promoting

organizations such as the government have to pay special attention to those social impacts. Secondly, our group picked up ‘Waiting Time to Be Saved’, because when we have a bridge, the traffic flow will be much faster than the present ferry service. For the environmental impacts, we thought of water quality. When there is a construction of the bridge, constructors will lay down foundations of the bridge, and some chemical substances which might pollute the river water will be used. When there is a construction of the bridge, there will be accident due to the fact that cars and motorbikes will go faster. So, we have to be careful. The bridge also creates noise and vibration, because cars and motorbikes will quickly pass by, and it might disturb sick people.

Group III: Our group thought that ‘Waiting Time to be Saved’ is very important because ‘Time is money’. So we have to save it. Using the ferries take longer time, but having a bridge saves the time. Involuntary resettlement: when the construction of the bridge takes place it affects the houses and land of the people. So the government should pay attention to this matter. When we have a bridge, it would help reduce poverty as there will be more business in the area. But when we have a bridge there will be accident. So we have to be careful. For ‘Bad Smell’, during the construction, there will be a leak of oil or gas during the construction, it is inevitable that there will be bad smells from the construction. there will be noise and vibration caused by the construction of the bridge also during the construction.

Group IV: The construction of a bridge would affect people’s home and land. And this will cause involuntary resettlement. So, the government should pay attention to this aspect. Regarding impacts on the local economy, when we have a bridge, passers-by would not stop for buying things from local vendors. For regional accessibility, when we have a bridge, people could go from region to region and goods can be transported from here to Bangkok or vice versa. For noise and vibration, there will be considerable increase of cars and trucks after the bridge is built. So, there will be noise and vibration. Increased traffic might also bring about air pollution and traffic accidents. I have a question for Ministry of Public Works and Transport. Do you have a plan to reduce traffic accidents?

Ministry of Public Works and Transport: I would like to respond to this question. I would like to tell you that the Ministry has prepared measures to counter this issue. For example, when we finish building a bridge or a road, we make road signs and put traffic lights. We put a school sign and a sign which warns people not to drink wine when they drive. If drivers obey these signs and the traffic rules, they will not have accidents. But more or less, we cannot avoid accidents.

3) Afternoon Session

The main objectives of the Stakeholders’ Meeting 2-2-a are:

- to share views with Vietnamese stakeholders on the proper evaluation method and procedure as well as the evaluation criteria for selecting the best alternative to cross the Mekong River; and
- to preliminarily explain the interim results of the Initial Environmental Examination (IEE) studies for social and environmental considerations.

The concrete program included the following four presentations which focused on:

- Introduction (Review on the Stakeholders' Meeting 2-1-a and Objectives of the Stakeholders' Meeting 2-2-a);
- Presentation Part I on Evaluation Method for Selecting the Best Alternative Method to cross the River;
- Presentation Part II on Evaluation Criteria for Selecting the Best Alternative Methods to cross the River; and
- Presentation Part III on Interim Results for the IEE-level Social and Environmental Studies

It is reported that there were 41 Vietnamese participants who were invited to join the afternoon session. After hearing the Ministry's same presentations as the morning session in the Vietnamese language, they had opportunities to raise questions and comments concerning the project. Although there were no substantial questions on the presentations by the Ministry of Public Works and Transport, the majority of the Vietnamese participants expressed that they have no objections against the government's policies and decision. However, some Vietnamese participants were concerned about the level of the compensation in case of the involuntary resettlement, adding that the compensation money should be directly given to the project affected people.

4) List of Attendant

No.	Name and Surname	Sex	Organization	Position
1	Meng Chanvibol	M	JICA	National Staff
2	Nhean Tola	M	JICA	Program Assistant
3	Akira Nagamachi	M	JICA Study Team	Public Consultaion
4	Takanory Hayashida	M	JICA Study Team	Environmental Assessment
5	Takehiko Ogawa	M	JICA Study Team	Environmental Assessment
6	Yuichi Aida	M	JICA Study Team	Cordinator
7	Than Thira	M	MPWT	
8	Chhim Phalla	M	MPWT	Counterpart
9	Kry Thong	M	MPWT	Counterpart
10	Un Vanna	F	JICA Study Team	Translator

AP8.2.4 Record of Stakeholder Meeting 2-3

(1) Presentation Material

- Introduction
- Part I: Final Results of IEE Study
- Part II: Evaluation of the Best Alternative to Cross the Mekong River
- Part III: Procedures for Final Consensus and Decision-Making

The Stakeholder Meeting 2-3 for the Construction of the Second Mekong Bridge in the Kingdom of Cambodia

Introduction

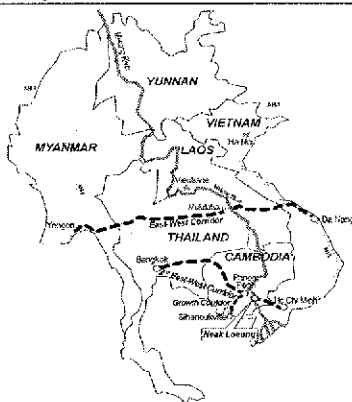
March 10, 2004
Conference Hall, MPWT

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

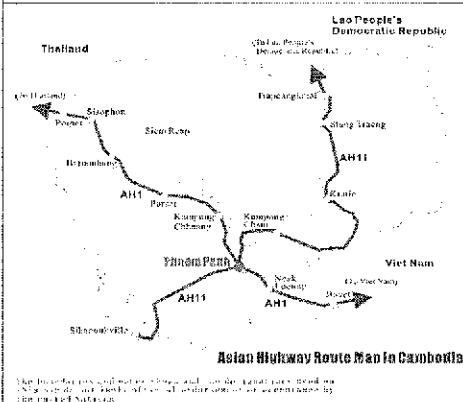
Introduction

1. Project Location
2. Review on Stakeholder Meeting 2-2
3. Objectives of Stakeholder Meeting 2-3

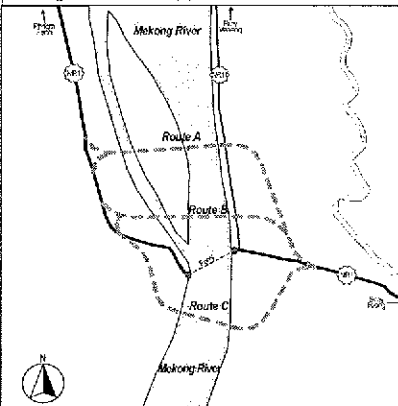
1. Project Location (1)



1. Project Location (2)



1. Project Location (3)




2. Review on Stakeholder Meeting 2-2

- December 27, 2004: Stakeholder Meeting 2-2 (Overall Meeting) at Phnom Penh
- December 28, 2004: Stakeholders' Meeting 2-2 (Workshop with Village Stakeholders) at Phnom Penh and its Special Session for Minority People (Stakeholder Meeting 2-1-a) at Neak Loeung
- The main outcomes of these meetings are that:
 - To share views among all the stakeholders on the proper evaluation method and procedure as well as evaluation criteria for selecting the best alternative to cross the Mekong River
 - To preliminarily explain the interim results for IEE (Initial Environmental Examination) –level social and environmental considerations studies

3. Objectives of Stakeholder Meeting 2-3					
PC No.	Stakeholders Meeting	Venue	Study Level	Major Objectives	Timing
1 st	Stakeholders Meeting 1-1	Phnom Penh	Kick-off	Introduction of the Project, explanation of the JICA's Guideline and Scoping for IEE	May 24, 2004
	Stakeholders Meeting 1-2	Neak Loeung	Kick-off	Same as above	June 21, 2004
2 nd	Stakeholders Meeting 2-1 and 2-1-a	Phnom Penh	IEE	Discussion on Scoping and TOR for IEE	October 7 and 28, 2004
	Stakeholders Meeting 2-2	Phnom Penh	IEE	Presentation of Interim Results of IEE	December 27-28, 2004
	Stakeholders Meeting 2-3	Phnom Penh	IEE	Presentation of Draft Final Report of IEE and Interim Study Report	March 10-11, 2005
3 rd	Stakeholders Meeting 3-1	Phnom Penh	EIA	Discussion of Scoping and TOR for EIA	May 2005 Subject to Results of IEE
	Stakeholders Meeting 3-2	Phnom Penh	EIA	Presentation of Interim Results of EIA	July 2005 Subject to Results of IEE
	Stakeholders Meeting 3-3	Phnom Penh	EIA	Presentation of Draft Final Reports of EIA and Overall Study	September 2005 Subject to Results of IEE

3. Objectives of Stakeholder Meeting 2-3	
■	The main objectives of these meetings are that:
---	To review alternatives , evaluation method and evaluation criteria for selection of the best alternative to cross the River
---	To explain the final results of the IEE-level social and environmental studies
---	To explain the final evaluation results of selecting the best alternative to cross the River
---	To make a consensus on the best alternative to cross the River
---	To explain the procedures for public comments and the final decision-making.

THANK YOU !



for your attention and patience.

Ministry of Public Works and Transport

The Stakeholder Meeting 2-3 for the Construction of the Second Mekong Bridge in the Kingdom of Cambodia

Part I Final Results of IEE Study

March 10, 2004
Conference Hall, MPWT

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

Part I Final Results of IEE Study

1. Agreed Scope of IEE Study
2. Summary of Final Results of IEE Study

1. Agreed Scope of IEE Study

- IEE: To preliminarily review current environmental conditions in the project area and identify and evaluate the significance of impacts based on the existing data/information, and field survey.

Agreed Scope of IEE Study (Natural Environment)

No.	Impact to be assessed	JICA Guideline Requirement	Scoping at S/W Mission	Agreed Impacts to be Assessed
1	Air quality	X	X	X
2	Water quality	X	X	X
3	Soil and sedimentation quality	X		X
4	Waste disposal	X	X	X
5	Noise and Vibration	X	X	X
6	Subsidence	X		X
7	Bad smells	X	X	X
8	Topography and Geology	X		X
9	River bed Materials	X	X	X
10	Fauna and flora	X	X	X
11	Use of water resources	X		X
12	Accidents	X	X	X
13	Greenhouse effect gas	X	X	X

Agreed Scope of IEE Study (Social Environment)

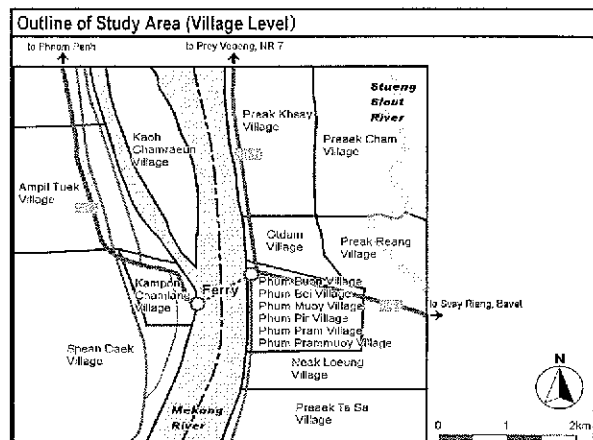
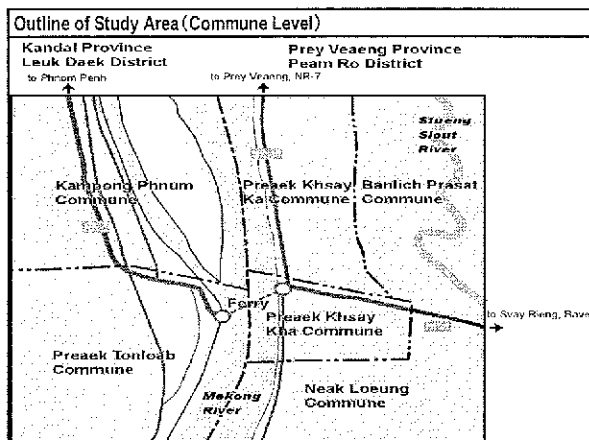
No.	Impacts to be assessed	JICA Guideline Requirement	Scoping at S/W Mission	Agreed Impacts to be Assessed
1	Migration of population / involuntary resettlement	X	X	X
2	Impact on local economy (employment, livelihood, etc.)	X	X	X
3	Utilization of land and local resources	X	X	X
4	Social institutions (social capital and local decision-making institution)	X	X	X
5	Existing social infrastructure and services	X	X	X
6	Vulnerable social groups	X		X
7	Equality of benefits and losses and equally in development process	X		X
8	Local conflicts of interests	X	X	X
9	Gender	X		X
10	Children's rights	X		X
11	Cultural heritage	X	X	X
12	Infectious diseases (HIV/AIDS)	X	X	X

1. Agreed Scope of IEE Study

■ Study Methods

- Based on the comprehensive literature reviews, the collection of the up-to-date baseline environmental and social information/data, the current bio-physical environmental conditions as well as the social environmental conditions around the study area of Neak Loeung including 16 villages in the following 6 communes.
- The site visits were conducted on demand in order to quantitatively and qualitatively identify the potential bio-physical and social impacts.

Province	District	Commune	No. of Villages
Kandal	Leuk Daek	Kampong Phnum	2
Kandal	Leuk Daek	Preak Tonleab	2
Prey Vang	Peam Ro	Preak Khsay Ka	2
Prey Vang	Peam Ro	Preak Khsay Kha	6
Prey Vang	Peam Ro	Neak Loeung	2
Prey Vang	Peam Ro	Banlish Prasat	2



1. Agreed Scope of IEE Study						
Study Schedule						
Year	2004			2005		
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Literature Review						
Collection of Data/Information						
Preliminary Analysis for IEE						
Reporting of Interim Results of IEE						
In-depth Analysis for IEE						
Draft Final Report on Results of IEE						
Final Report on Results of IEE						

2. Summary of Final Results of IEE Study	
How to Read Summary Table	
<ul style="list-style-type: none"> Possible impacts on natural and social environment will be: <ul style="list-style-type: none"> impacts during the planning/construction phase, and impacts during the operation phase of each option. Possible impacts to be assessed might include the following 25 impacts on natural and social environment in accordance with the JICA guidelines for social and environmental considerations. <ul style="list-style-type: none"> 13 impacts on Natural Environment 12 impacts on Social Environment Interim results might be tentatively grouped into the following 5 categories. <ul style="list-style-type: none"> A: Negative impacts might be significant. B: Negative impacts might be major. C: Negative impacts might be minor. D: Negative impacts might be less significant. P: Favorable impacts might be envisaged. 	

2. Summary of Final Results of IEE Study					
Impacts on Natural Environment: Planning/Construction Phase)					1/4
Impacts to be assessed	Zero Option	Ferry Option	Bridge Option	Ferry+Bridge Option	
1. Air Quality					
Increased roadside air pollution	C	C	C	C	
2. Water Quality					
Risk of pollution to major tributaries	B	A	A	A	
3. Soil and Sedimentation					
Potential for soil erosion (bridge)	D	C	B	B	
Potential for soil erosion (approach roads)	D	A	A	A	
Disturbance to contaminated site	D	U	U	U	
Inland sedimentation change due to change of local flood flow pattern	D	B	B	B	
4. Waste Disposal					
Generation of large amounts of construction wastes	D	B	A	A	
5. Noise/Vibration					
Increased roadside noise, dust and vibration	C	B	B	B	

2. Summary of Final Results of IEE Study					
Impacts on Natural Environment: Planning/Construction Phase)					2/4
Impacts to be assessed	Zero Option	Ferry Option	Bridge Option	Ferry+Bridge Option	
6. Subsidence					
Potential of large-scale consolidation and related topographical changes due to earthwork	D	C	A	A	
7. Bad Smell					
Potential of newly created bad smell due to long-term regional inundation and related biological decay of plants	D	U	U	U	
8. Topography and Geology					
Regional flood and inundation pattern change due to approach road construction	D	C	B	B	
Creation of new inundated area	D	C	A	A	
Potential of outbreak of water-borne disease	D	C	B	B	
Potential of outbreak of mosquito-borne disease	D	C	B	B	
Enhanced river bank erosion/scouring	D	D	C	C	
Potential of seepage/erosion of approach road	D	C	B	B	

2. Summary of Final Results of IEE Study				
Impacts on Natural Environment: Planning/Construction Phase)				3/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
9. River Bed (e.g. Benthos)				
Disturbance to river bed condition (e.g. benthos)	D	C	A	A
10. Fauna/Flora				
Destruction of riverside/floodplain vegetation	D	C	B	B
Destruction of roadside vegetation	D	C	C	C
Disturbance to bird habitats or floodplain habitats	D	D	B	B
Disturbance to aquatic ecosystem or habitats	D	C	A	A
Reduced fish spawning and breeding area	D	B	B	B
11. Water Resources				
Water quality degradation	C	B	B	B
Groundwater quality degradation	D	C	C	C
Groundwater level drawdown	D	D	D	D
Disturbance to regional groundwater flow	D	D	D	D

2. Summary of Final Results of IEE Study				
Impacts on Natural Environment: Planning/Construction Phase)				4/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
12. Accidents				
Potential of increased traffic accidents	D	C	B	B
Potential of increased vessel accidents (e.g. vessel collision)	C	B	B	B
Potential of finding UXO	D	U	U	U
13. Global Warming				
Increased CO2 emission	C	C	C	C

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				1/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
1. Air Quality				
Increased roadside air pollution	C	C	C	C
2. Water Quality				
Risk of pollution to major tributaries	B	B	D	D
3. Soil and Sedimentation				
Potential for soil erosion (bridge)	D	C	B	B
Potential for soil erosion (approach roads)	D	A	A	A
Disturbance to contaminated site	D	D	D	D
Intend sedimentation change due to change of local flood flow pattern	D	B	B	B
4. Waste Disposal				
Generation of large amounts of construction wastes	D	D	D	D
5. Noise/Vibration				
Increased roadside noise, dust and vibration	C	B	C	C

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				2/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
6. Subsidence				
Potential of large-scale consolidation and related topographical changes due to earthwork	D	C	A	A
7. Bad Smell				
Potential of newly creation of bad smell due to long-term regional inundation and related biological decay of plants	D	U	U	U
8. Topography and Geology				
Regional flood and inundation pattern change due to approach road construction	D	C	B	B
Creation of new inundated area	D	C	A	A
Potential of outbreak of water-borne disease	D	C	B	B
Potential of outbreak of mosquito-borne disease	D	C	B	B
Enhanced river bank erosion/scouring	D	D	C	C
Potential of seepage/erosion of approach road	D	C	B	B

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				3/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
9. River Bed (e.g. Benthos)				
Disturbance to river bed condition (e.g. benthos)	D	D	D	D
10. Fauna/Flora				
Destruction of riverside/floodplain vegetation	D	D	D	D
Destruction of roadside vegetation	D	D	D	D
Disturbance to bird habitats or floodplain habitats	D	D	D	D
Disturbance to aquatic ecosystem or habitats	D	D	D	D
Reduced fish spawning and breeding area	D	B	B	B
11. Water Resources				
Water quality degradation	C	B	D	D
Groundwater quality degradation	C	C	D	D
Groundwater level drawdown	D	D	D	D
Disturbance to regional groundwater flow	D	D	D	D

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				4/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
12. Accidents				
Potential of increased traffic accidents	D	C	B	B
Potential of increased vessel accidents (e.g. vessel collision)	C	B	B	B
Potential of finding UXO	D	D	D	D
13. Global Warming				
Increased CO2 emission	C	C	C	C

Impacts on Natural Environment

Major Impacts during Construction Phase

- **Water Quality**
 - Risk of Pollution to Major Tributaries due to Construction Works
 - Accidental Spill of Hazardous Materials due to Construction Works
- **Waste Disposal**
 - Generation of Large Amounts of Construction Wastes
- **River Bed Material & Benthos**
 - Disturbance due to Construction Works

Impacts on Natural Environment

Major Impacts during Operation Phase

- **Soil, Sedimentation, and Topography**
 - Regional Flow Change due to Dike Road Construction
 - Creation of New Inundated Area
 - Road Bank Erosion by Wind-Induced Wave (SW-side: Rain Season)
 - Enhanced River Bank Erosion/Scouring due to Construction Works
- **Second Impacts (Inundation)**
 - Outbreak of Water-Borne Disease
 - Outbreak of Mosquito-Borne Disease
 - Creation of Bad Smell
- **Flora/Fauna**
 - Negative Impacts on Local Aquatic Fauna and Fishery

2. Summary of Final Results of IEE Study

Impacts on Social Environment: Planning/Construction Phase)

1/4

Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
1. Involuntary Resettlement				
Involuntary resettlement due to acquisition of land	D	A	A	A
2. Impacts on Local Economy				
Decrease in sales of market, retailers and restaurants	D	D	D	D
Decrease in sales of vendors	D	D	D	D
Decrease in procurement by abolishment of N.L. Ferry	D	D	D	D
Increase in sales by inflow of massive construction workers	D	P	P	P
3. Utilization of Land and Local Resources				
Increase in land values by creation of flood-free land	D	C	B	B
Decrease in agricultural production by creation of flood-free land	D	C	C	C
Decrease in fishery production by creation of flood-free land	D	C	C	C

2. Summary of Final Results of IEE Study

Impacts on Social Environment: Planning/Construction Phase)

2/4

Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
4. Social Infrastructure				
Improvement of access to medical and educational services in urban areas	D	D	D	D
Aggravation of improvement of access to medical and educational services in urban areas	D	D	D	D
Improvement of access to medical services in rural areas	D	D	D	D
Aggravation of improvement of access to medical and educational services in urban areas	D	D	D	D
5. Impacts on Local Economy				
Division of communities inside communes	D	D	D	D
Division of communities among communes	D	D	D	D
6. Vulnerable Social Group				
Involuntary resettlement of landless farmers	D	B	B	B
Involuntary resettlement of female-headed household	D	B	B	B
Involuntary resettlement of minority group	D	B	B	B

2. Summary of Final Results of IEE Study

Impacts on Social Environment: Planning/Construction Phase)

3/4

Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
7. Equity of Benefits and Losses				
Enlargement of disparity in income	D	D	D	D
Enlargement of disparity in assets	D	C	B	B
Enlargement of disparity in convenience to cross the river	D	D	D	D
Enlargement of disparity in accessibility inside communities	D	D	D	D
8. Conflicts of Interests				
Conflicts of interests stemming from land disputes	D	D	C	C
Conflicts of interests stemming from other economic reasons	D	D	C	C
Conflicts of interests stemming from other social reasons	D	D	C	C
9. Gender				
Aggravation of serious social problems such as human trafficking	D	C	C	C
Decrease in income and aggravation of livelihood of women	D	D	D	D

2. Summary of Final Results of IEE Study

Impacts on Social Environment: Planning/Construction Phase)

4/4

Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
10. Children's Rights				
Aggravation of serious social problems such as human trafficking	D	C	C	C
Decrease in income and aggravation of livelihood of children	D	D	D	D
Children's delinquency in schooling	D	D	D	D
11. Cultural/Archaeological Heritages				
Resettlement of pagodas	D	D	D	D
Resettlement of other cultural/archaeological heritages	D	D	D	D
12. Infectious Diseases				
Increase in prevalence of HIV/AIDS stemming from massive inflow of construction workers	D	B	B	B
Increase in prevalence of HIV/AIDS stemming from increased mobility	D	D	D	D
Increase in prevalence of other infectious diseases	D	U	U	U

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				1/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
1. Involuntary Resettlement				
Involuntary resettlement due to acquisition of land	D	D	D	D
2. Impacts on Local Economy				
Decrease in sales of market, retailers and restaurants	D	D	B	B
Decrease in sales of vendors	D	D	B	B
Decrease in procurement by abolishment of N.L. Ferry	D	D	B	B
Increase in sales by inflow of massive construction workers	D	D	D	D
3. Utilization of Land and Local Resources				
Increase in land value by creation of flood-free land	D	C	B	B
Decrease in agricultural production by creation of flood-free land	D	C	C	C
Decrease in fishery production by creation of flood-free land	D	C	C	C

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				2/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
4. Social Infrastructure				
Improvement of access to medical and educational services in urban areas	D	P	P	P
Aggravation of improvement of access to medical and educational services in urban areas	D	D	D	D
Improvement of access to other social services in urban areas	D	P	P	P
Aggravation of improvement of access to other social services in rural areas	D	D	D	D
5. Impacts on Local Economy				
Division of communities inside communes	D	U	U	U
Division of communities among communes	D	U	U	U
6. Vulnerable Social Group				
Involuntary resettlement of landless farmers	D	B	B	B
Involuntary resettlement of female-headed household	D	B	B	B
Involuntary resettlement of minority group	D	C	C	C

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				3/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
7. Equity of Benefits and Losses				
Enlargement of disparity in income	D	C	C	C
Enlargement of disparity in assets	D	C	B	B
Enlargement of disparity in convenience to cross the river	D	D	C	C
Enlargement of disparity in accessibility inside communities	D	D	C	C
8. Conflicts of Interests				
Conflicts of interests stemming from land disputes	D	C	B	B
Conflicts of interests stemming from other economic reasons	D	C	C	C
Conflicts of interests stemming from other social reasons	D	C	C	C
9. Gender				
Aggravation of serious social problems such as human trafficking	D	C	C	C
Decrease in income and aggravation of livelihood of women	D	C	B	B

2. Summary of Final Results of IEE Study				
Impacts on Social Environment: Operation Phase)				4/4
Impacts to be assessed	Zero Option	Ferry Improvement Option	Bridge Option	Ferry+Bridge Option
10. Children's Rights				
Aggravation of serious social problems such as human trafficking	D	D	C	C
Decrease in income and aggravation of livelihood of children	D	D	C	B
Children's delay in schooling	D	U	U	U
11. Cultural/Archaeological Heritages				
Resettlement of pagodas	D	D	D	D
Resettlement of other cultural/archaeological heritages	D	D	D	D
12. Infectious Diseases				
Increase in prevalence of HIV/AIDS stemming from massive inflow of construction workers	D	C	C	C
Increase in prevalence of HIV/AIDS stemming from increased mobility	D	C	B	B
Increase in prevalence of other infectious diseases	D	U	U	U

Involuntary Resettlement					
Estimated Scale of Involuntary Resettlement					
Commune		Acquired Area of Land (M2)	No. of Houses	PAP per household	Total PAP
Bridge	Route A	227,000	51	5.2	263
	Route B	184,000	69	5.2	356
	Route C	216,000	65	5.2	336
Zero Option		0	0	0.0	0
Ferry Improvement		239,800	70	5.2	364
Ferry+Bridge (Route A)		227,000	51	5.2	263

Involuntary Resettlement				
<ul style="list-style-type: none"> Planning/Construction Phase <ul style="list-style-type: none"> The most important impact in terms of social environment during the planning/construction phase is acquisition of the land needed for the construction works associated with the construction of a bridge and additional piers in case of the <i>bridge option</i>, the <i>ferry+bridge option</i> and the <i>ferry improvement option</i>. Possible project sites such as the construction yard as well as the associated approach roads in case of the <i>ferry+bridge option</i> and the <i>ferry improvement option</i> will require considerable level of resettlements of houses with PAHs (Project Affected Households) ranging from 51 to 69 and PAPs (Project Affected Persons) ranging from 263 to 356. Possible project sites such as the construction yard, the additional piers and the associated approach roads in case of the <i>ferry improvement option</i> will require considerable level of resettlements of houses with 70 PAHs and 364 PAPs. 				

Social Institution (Local Decision-making Institution)

■ Construction Phase

- During the construction phase, there are no significant negative impacts on the function of decision-making activities of communes in the project affected area by the construction of additional piers or a bridge in case of *the ferry improvement option, the bridge option and the ferry+bridge option*.

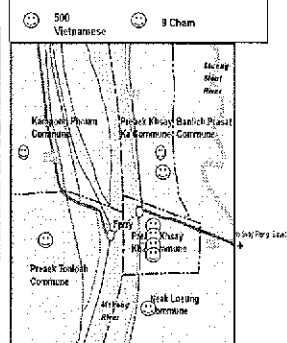
■ Operation Phase

- The approach roads associated with the construction of additional piers or a bridge in case of *the ferry improvement option, the bridge option and the ferry+bridge option* will not hamper any function of decision-making activities of communes in the project affected area.

Vulnerable Social Group

Population of Minority People

Commune	Total Population	Vietnamese Population	Cham Population
Banlich Prasat	2814	0	0
Preak Khasay Ka	6756	234	9
Preak Khasay Kha	11906	2146	0
Neak Leung	3128	408	0
Prey Veng Side	24596	2788	9
Kampong Pinon	6300	167	0
Preak Tonleab	8328	553	0
Kandal Side	14828	960	0
Total	39234	3449	9



Vulnerable Social Group

■ Category of Vulnerable Social Group

- Landless farmers and family members
- Physically-handicapped persons
- Female-headed households and family members
- Minority people and family members

■ Planning/Construction Phase

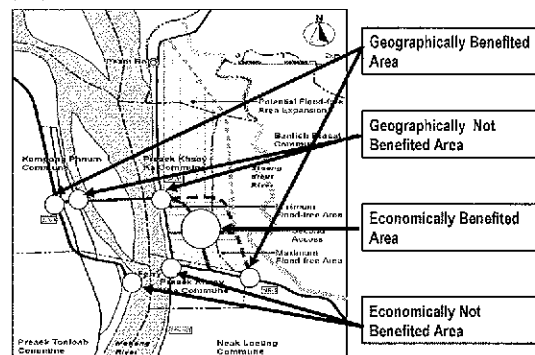
- There exist concerns that vulnerable groups of people and households might have more serious effects on the involuntary resettlement in case of *the ferry improvement option, the bridge option and the ferry+bridge option*.

■ Operation Phase

- There exist concerns that vulnerable groups of people and households who are engaged in retailing and vendors at the ferry terminals might have more serious effects on their income in case of *the bridge option and the ferry+bridge option*, since the rate of stopovers of drivers and passengers at the terminals might significantly decrease.

Equity of Benefits and Losses

Economic and Geographic Disparity



Equity of Benefits and Losses

■ Construction Phase

- During the construction phase of *the ferry improvement option, the bridge option and the ferry+bridge option*, there might be no significant negative impacts on economic and geographic disparity in the project affected area.

■ Operation Phase

- The abolishment of the ferry services associated with *the bridge option and the ferry+bridge option* might significantly decrease the income of poor people such as vendors without capitals, thereby enlarging the economic disparity in the project affected area.
- The construction of a bridge in case of *the bridge option and the ferry+bridge option* might change the crossing convenience of people, thereby enlarging the geographic disparity in the project affected area.

Conflicts of Interests

■ Planning/Construction Phase

- Even in the planning and construction phase, the planned flood-free land which will be created by triangular spaces surrounded by the National Road No.1, the National Road No.11, and the approach roads associated with *the ferry improvement option, the bridge option and the ferry+bridge option* might increase its value in comparison with other areas, thereby having possibilities of conflicts of interests among land owners.

■ Operation Phase

- The flood-free land which will be created by triangular spaces surrounded by the National Road No.1, the National Road No.11, and the approach roads associated with *the ferry improvement option, the bridge option and the ferry+bridge option* might increase its value in comparison with other areas, thereby having possibilities of conflicts of interests among land owners.

[illegible]

- **Construction Phase**
 - During the construction phase of the *ferry improvement option*, the *bridge option* and the *ferry+bridge option*, there might be no significant negative impacts on women's livelihood in the project affected area.
- **Operation Phase**
 - The increased mobility accrued from the construction of a bridge in case of the *bridge option* and the *ferry+bridge option* might increase a risk of trafficking of women as well as the associated chronic problems such as prostitution and spread of HIV/AIDS.
 - Due to the abolishment of the ferry terminals in case of the *bridge option* and the *ferry+bridge option*, the rate of stopovers of drivers and passengers at the terminals might significantly decrease, thereby accordingly decreasing women's vendors income through selling various products.

[illegible]

- **Construction Phase**
 - During the construction phase of the *ferry improvement option*, the *bridge option* and the *ferry+bridge option*, there might be no significant negative impacts on children's livelihood in the project affected area.
- **Operation Phase**
 - The increased mobility accrued from the construction of a bridge in case of the *bridge option* and the *ferry+bridge option* might increase a risk of trafficking of children as well as the associated chronic problems such as orphans and spread of HIV/AIDS.
 - Due to the abolishment of the ferry terminals in case of the *bridge option* and the *ferry+bridge option*, the rate of stopovers of drivers and passengers at the terminals might significantly decrease, thereby accordingly decreasing children's vendors income through selling various products.
 - Due to the construction of the approach roads in case of the *ferry improvement option*, the *bridge option* and the *ferry+bridge option*, there might exist a slight possibility that children are forced to detour in their schoolings.

[illegible]

- Construction Phase
 - Possible project sites such as the construction yards as well as the associated approach roads in case of *the bridge option* and *the ferry+bridge option* are not proximately located in any of archeological and religious heritages in the project affected area.
 - Possible project sites for additional piers in case of *the ferry improvement option* are not proximately located in any of archeological and religious heritages in the project affected area.
- Operation Phase
 - During the operation phase of *the bridge option* and *the ferry+bridge option*, there are no major negative impacts on any of archeological and religious heritages in the project affected area.

Infectious Diseases (HIV/AIDS)

- Construction Phase

- Massive construction workers needed for the construction of a bridge in case of *the bridge option and the ferry+bridge option* might have a considerable risk of increasing the prevalence ratio of HIV/AIDS.
- Massive construction workers needed for the construction of additional piers in case of *the ferry improvement option* might have a considerable risk of increasing the prevalence ratio of HIV/AIDS.

- Operation Phase

- The increased mobility accrued from the construction of a bridge in case of *the bridge option and the ferry+bridge option* might bring about a risk of increasing the prevalence ratio of HIV/AIDS.
- The increased mobility accrued from the construction of additional piers in case of *the ferry improvement option* might bring about a risk of increasing the prevalence ratio of HIV/AIDS.

THANK YOU !



for your attention and patience.

Ministry of Public Works and Transport

**The Stakeholder Meeting 2-3
for the Construction
of the Second Mekong Bridge
in the Kingdom of Cambodia**

Part II
Evaluation of the Best Alternative to Cross the Mekong River

March 10, 2005
Conference Hall, MPWT

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

Part II Evaluation of the Best Alternative

1. Analysis of Alternatives
2. Evaluation Method (AHP) and Procedures
3. Results of Traffic Demand Survey
4. Evaluation Results of AHP

1. Analysis of Alternatives

No.	Option			Remarks
I. Ferry Option				
I-1	Ferry	Existing Ferry with Proper Maintenance	Zero Option	
I-2	Ferry	Upsizing of Ferry Boats with Additional Piers	Ferry Improvement Option	
II. Bridge Option				
II-1	Bridge	Route A		
II-2	Bridge	Route B		
II-3	Bridge	Route C		
III. Procurement of Additional Ferry + Best Bridge Option				

1. Analysis of Alternatives

Zero Option (Option I-1)

- 'Zero Option' assumes that the present ferry system is properly maintained and operated as it is.
- The ferry system at present is operated by two ferries, though they are reduced to one ferry in off peak or added by one ferry from other ferry terminal in a special high season.

Image of Zero Option (Option I-1)

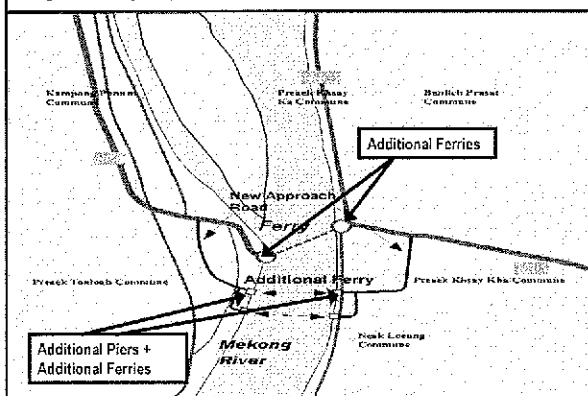


1. Analysis of Alternatives

Ferry Improvement Option (Option I-2)

- 'Ferry Improvement Option' assumes that the ferry capacity is improved as the traffic demand increases.
- More concretely, "Ferry Improvement Option" assumes that it is only allowed to add another ferry boat to the existing route on a regular operation basis; and if the demand grows much further, new additional two piers will have to be built to the south of the existing ferry route with the maximum capacity of three ferries per pier.

Image of Ferry Improvement Option (Option I-2)



1. Analysis of Alternatives

Bridge Option (Option II-1, II-2, II-3)

- The following three alternative routes for the bridge were set up paying attention to:
 - (a) a total crossing distance over the Mekong River
 - (b) a crossing distance over the main stream of the River, and
 - (c) a length of the approach road.
 They are considered to significantly affect the cost of construction.
 - Route A: Located to the North of N.L. Ferry route and where the river width of the main streaming is the shortest in the N.L. area.
 - Route B: Located to the North of N.L. Ferry route and intended to minimize the involuntary resettlement in crossing the NR-11 as well as the extension of approach road.
 - Route C: Located to the South of N.L. Ferry route, and intended to minimize the crossing distance over the River.

Preliminary Implementation Schedule of Bridge Option

a) Preparatory Work: 1~3 years
(including Official EIA Procedures, Land Acquisition and Compensation, Fund Procurement and Administration)

b) Detailed Engineering Design: about 2 years and Tender Process

c) Bridge Construction and Supervision: about 3 years

Since the preliminary economic analysis of the bridge option verifies the economic feasibility of the project, it can be justified to set out the project preparation after the Feasibility Study.

Image of Bridge Option (Option II-1, II-2, II-3)

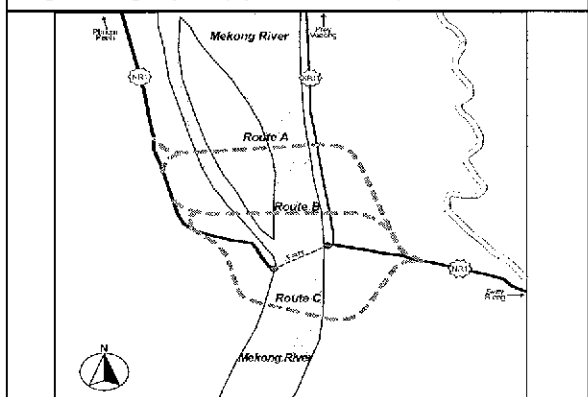
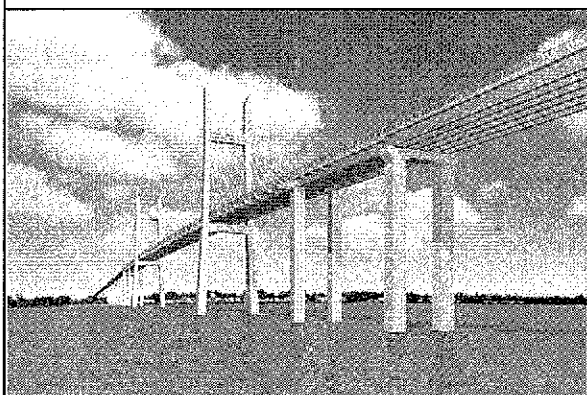


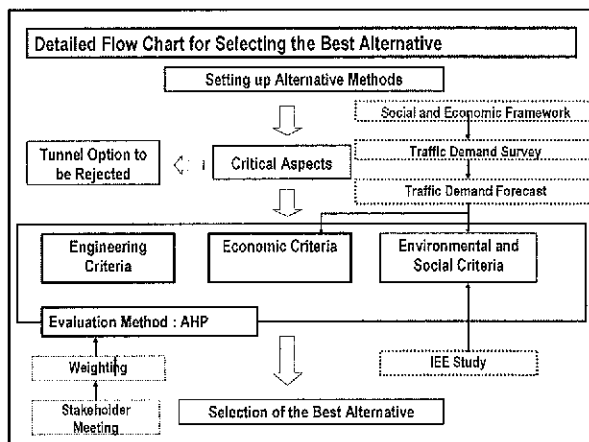
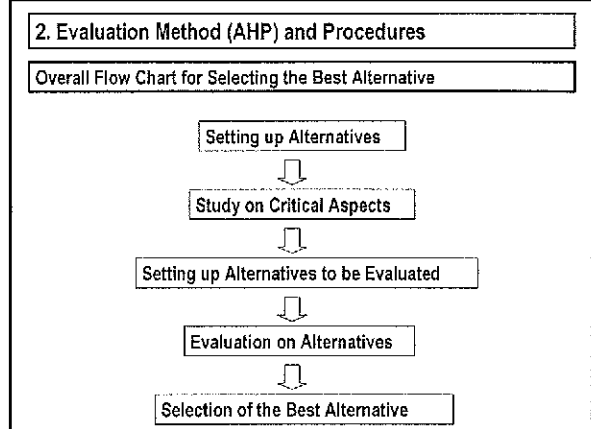
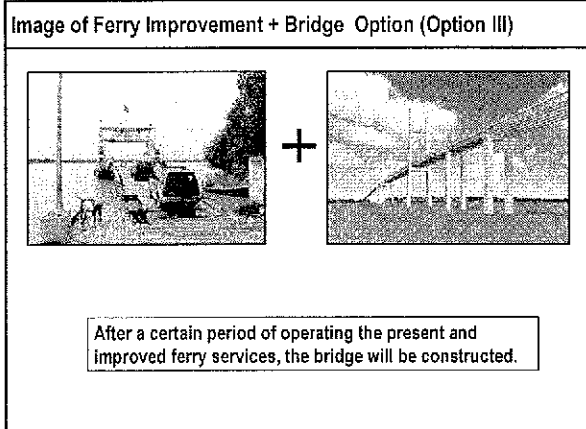
Image of Bridge Option (Option II-1, II-2, II-3)



1. Analysis of Alternatives

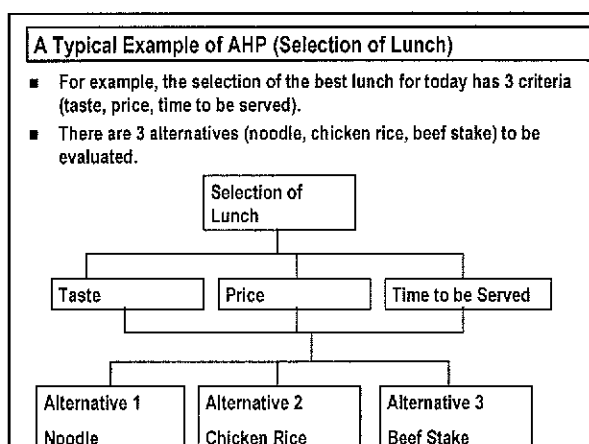
Ferry Improvement + Bridge Option (Option III)

- The Combined option of "Ferry Improvement and Bridge Option" may give as a step-by-step approach. The number of ferries should be increased to its maximum extent within the present pier before the bridge construction is proved economically feasible.
- An additional ferry will be provided to the existing ferry route in order to cope with the growing traffic demand.
- The ferry transport capacity with existing ferries will be saturated by the year of either 2014 or 2015.



Explanation on Evaluation Method

- **AHP (Analytic Hierarchy Process)**
 - AHP (Analytic Hierarchy Process) is one of suitable methods for selecting the best alternative from the various options under a wide range of criteria.
 - AHP has the following 3-step procedure.
 - The Importance (weighting) of criteria by evaluators will be relatively examined.
 - The importance (weighting) of alternatives by evaluators under each criterion will be relatively examined.
 - The rating for the overall priority will be calculated in accordance with the designated method.



A Typical Example of AHP (Selection of Lunch)

- In this case, an example of the weighting system for AHP is as shown in the below table.

Weight	Definition	Description
1	Same Significance	Both options has the same significance under a certain criteria.
3	A little Bit Significant	A little bit more significant than the option to be compared with.
5	Considerably Significant	Considerably more significant than the option to be compared with.
7	Extremely Significant	Extremely more significant than the option to be compared with.
9	Completely Significant	Completely significant regardless of the option to be compared with.
2, 4, 6, 8		Degree between 1 and 3, 3 and 5, 5 and 7, 7 and 9.

A Typical Example of AHP (Selection of Lunch)

- The selection of the best lunch for today has 3 criteria (taste, price, time to be served).
- The weights for priority of these 3 criteria by an evaluator are relatively evaluated as follows.

Criteria \ Criteria	Taste	Price	Time to be Served
Taste	1 (Same)	1/3 (A Little Bit Less Important)	5 (Considerably More Important)
Price	3 (A Little Bit More Important)	1 (Same)	7 (Extremely More Important)
Time to be Served	1/5 (Considerably Less Important)	1/7 (Extremely Less Important)	1 (Same)

A Typical Example of AHP (Selection of Lunch)

- For example, the selection of the best lunch for today has 3 alternatives (noodle, chicken rice, beef stake).
- These 3 alternatives are relatively evaluated under the 1st criterion (taste) as follows.

Option	Noodle	Chicken Rice	Beef Stake
Noodle	1 (Same Taste)	1/3 (A Little Bit Less Tasty)	1/7 (Extremely Less Tasty)
Chicken Rice	3 (A Little Bit More Tasty)	1 (Same Taste)	1/5 (Considerably Less Tasty)
Beef Stake	7 (Extremely More Tasty)	5 (Considerably More Tasty)	1 (Same Taste)

A Typical Example of AHP (Selection of Lunch)

- For example, the selection of the best lunch for today has 3 alternatives (noodle, chicken rice, beef stake).
- These 3 alternatives are relatively evaluated under the 2nd criterion (price) as follows.

Option	Noodle	Chicken Rice	Beef Stake
Noodle	1 (Same)	3 (A Little Bit Cheaper)	7 (Extremely Cheaper)
Chicken Rice	1/3 (A Little Bit More Expensive)	1 (Same)	5 (Considerably Cheaper)
Beef Stake	1/7 (Extremely More Expensive)	1/5 (Considerably More Expensive)	1 (Same)

A Typical Example of AHP (Selection of Lunch)

- For example, the selection of the best lunch for today has 3 alternatives (noodle, chicken rice, beef stake).
- These 3 alternatives are relatively evaluated under the 3rd criterion (time to be served) as follows.

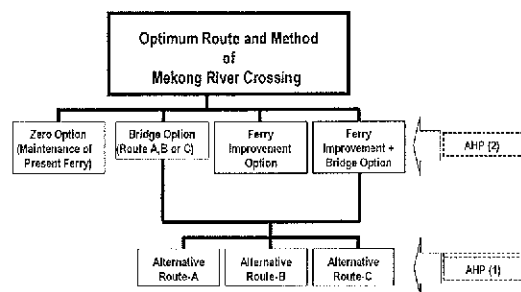
Option	Noodle	Chicken Rice	Beef Stake
Noodle	1 (Same Timing)	3 (A Little Bit Faster)	7 (Extremely Faster)
Chicken Rice	1/3 (A Little Bit Slower)	1 (Same Timing)	5 (Considerably Faster)
Beef Stake	1/7 (Extremely Slower)	1/5 (Considerably Slower)	1 (Same Timing)

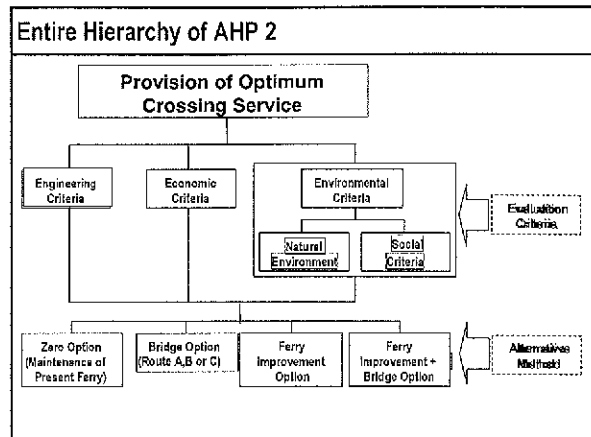
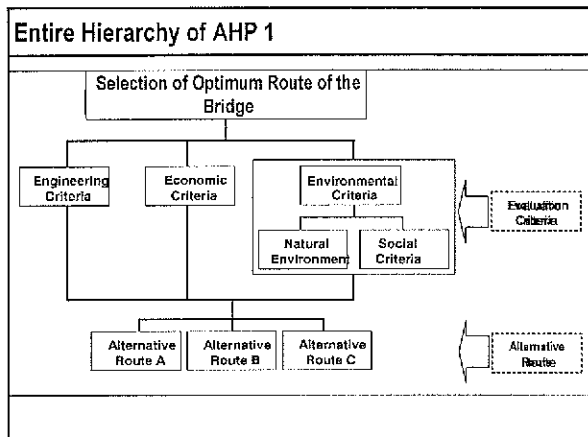
A Typical Example of AHP (Selection of Lunch)

- The weight for the overall priority will be calculated in accordance with the weights for priority of criteria and weights for priority of alternatives under each criterion.
- The following table is an example of the calculation results.

Option \ Criteria	Taste	Price	Time to be Served	Overall Priority
Weights for Priority of Criteria	0.300	0.500	0.200	1.000
Weights for Priority of Alternatives under Each Criteria				
Noodle	0.200	0.500	0.500	0.410 1st priority
Chicken Rice	0.300	0.300	0.300	0.300 2nd Priority
Beef Stake	0.500	0.200	0.200	0.290 3rd Priority

Phased Application of AHP





Description of Evaluation Criteria for AHP (Engineering Criteria)	
Sub Criteria	Description
Stability of Crossing Service	Whether or not the alternative can provide users with stable crossing service?
	Whether or not the alternative can regularly provide users with on-time crossing service?
Safety of Crossing Service	Whether or not the alternative can provide users with safe crossing service?
Sustainability of Crossing Service	Whether or not the alternative can provide users with crossing service in longer term?
	Whether or not facilities of the alternative will be durable in longer term?

Description of Evaluation Criteria for AHP (Economic Criteria)	
Sub Criteria	Description
Appropriateness to Traffic Demand	Whether or not the alternative can meet the domestic transportation demand?
	Whether or not the alternative can meet the international transportation demand?
	Whether or not the alternative can significantly save the waiting time of users?
Investment Efficiency	Whether or not the alternative can generate sufficient benefits or returns against the huge investment cost?
	Whether or not the operation and maintenance cost of the alternative will be affordable?
Impacts on Regional Economy	Whether or not the alternative can contribute to the development of the national and regional economy?

Description of Evaluation Criteria for AHP (Natural Environmental Criteria)	
Sub Criteria	Description
Noise and Vibration	Whether or not the increased traffic caused by the alternative will bring about serious negative impacts on noise and vibration around the project affected area?
Traffic Accidents	Whether or not the increased traffic caused by the alternative will bring about possibility of increasing the risk of various traffic accidents?
Other Natural Environmental Impacts	Other Negative Impacts on Air Quality, Water Quality, Soil & Sedimentation, Waste Disposal, Subsidence, Bad Smells, Topography & Geology, River Bed Materials, Fauna & Flora, Use of Water Resources, and Global Warming

Description of Evaluation Criteria for AHP (Social Environmental Criteria)	
Sub Criteria	Description
Involuntary Resettlement	Whether or not the scale of the involuntary resettlement caused by the alternative will be considerably large and serious?
Impacts on Land Use	Whether or not the alternative will generate positive impacts on the land use around the project area? (For example, the bridge alternative will generate the flood-free land through the construction of the approach road.)
	Whether or not the alternative will have negative impacts on the land use around the project area? (For example, the bridge alternative will generate the flood-free land through the construction of the approach road.)
Impacts on Local Livelihood	Whether or not the alternative will affect women's and children's livelihood around the ferry crossing area?
	Whether or not the alternative will affect other socially vulnerable people?
Other Social Environmental Impacts	Other Negative Impacts on Social Infrastructure, Equity of Losses and Benefits, Local Conflicts of Interests, Cultural Heritages, and Infectious Diseases (HIV/AIDS)

3. Results of Traffic Demand Survey

Outline of Approach

- Social and Economic Framework
- Application of Base Data from F/S Report on NH-1
- Base Case Assumes Existing Ferry be Operational
- Facilities & Institutional Improvements Having Effects on Traffic Demand
 - Institutional Improvements to Cross the National Border
 - Improvement of National Road No. 1
 - Provision of Neak Loeung Bridge
 - Development of Neighboring Area

Ferry Capacity (2-ship Operation)

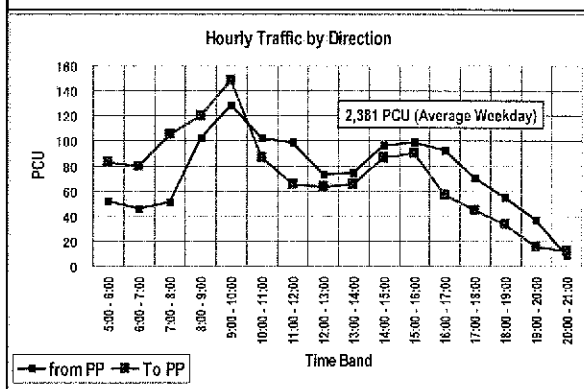
■ Service Time for Crossing

Season	One-way Trip	Round Trip
Rainy	14	28
Dry	10	20
Average	12	24

Ferry Capacity

- Full Capacity = 3,720 PCU
- Necessity for Introduction of Level of Service
 - 2,790 pcu in case of average daily waiting time of 36 minutes
 - 2,976 pcu in case of 48 minutes

Present Neak Loeung Ferry Onboard Traffic (2004)

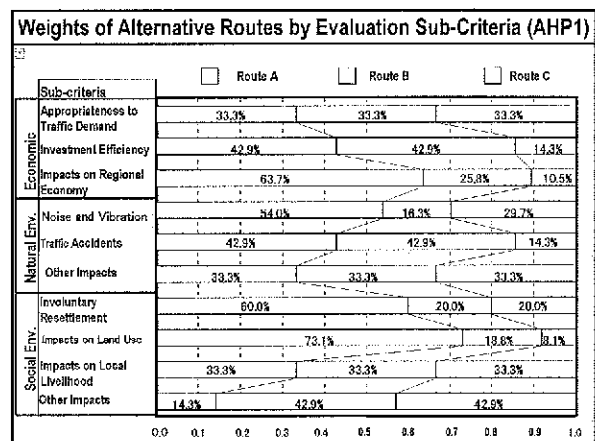
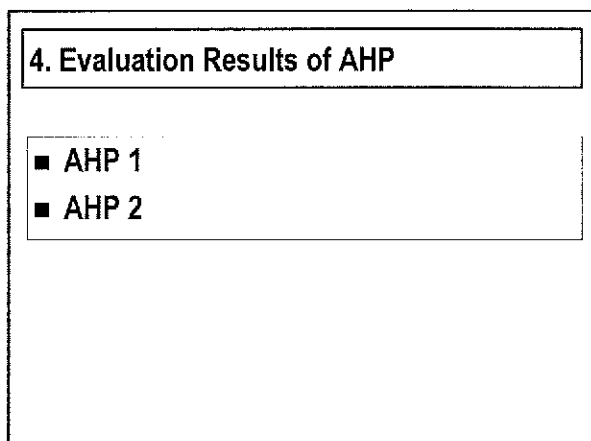
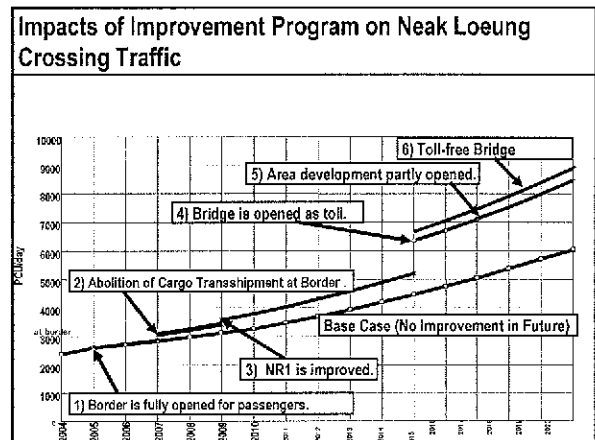
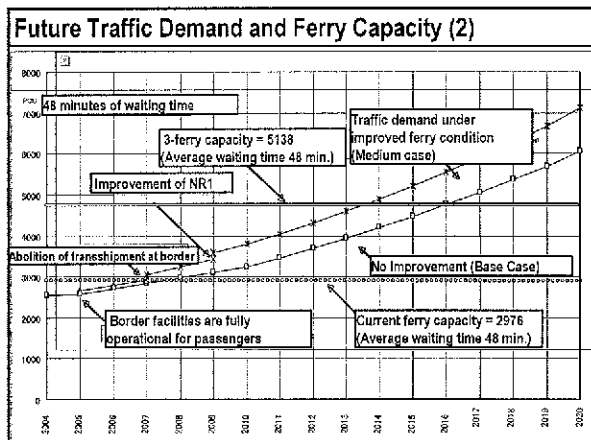
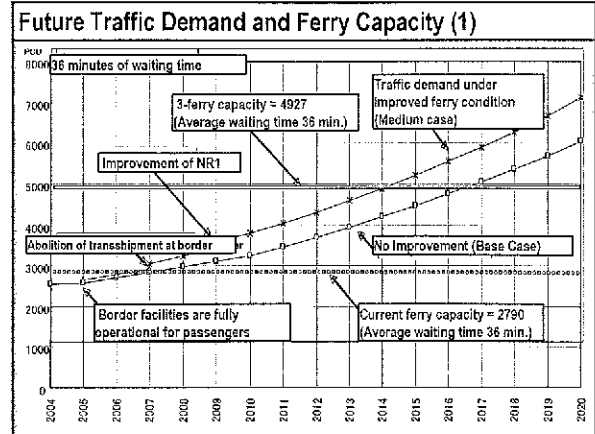
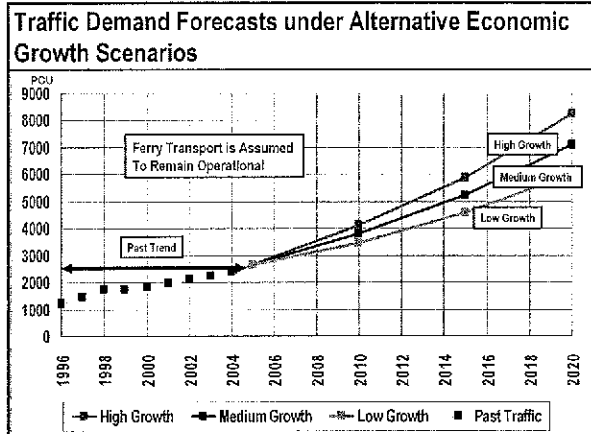


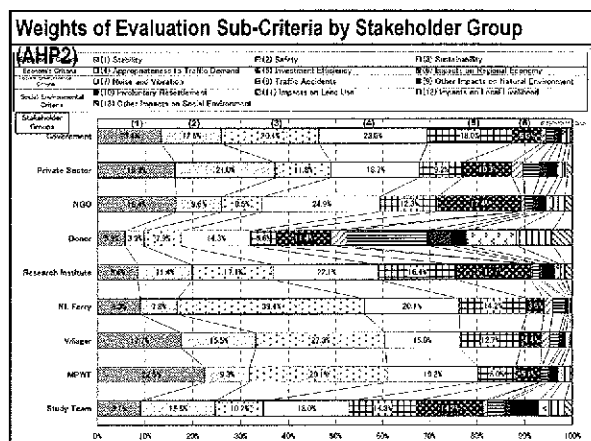
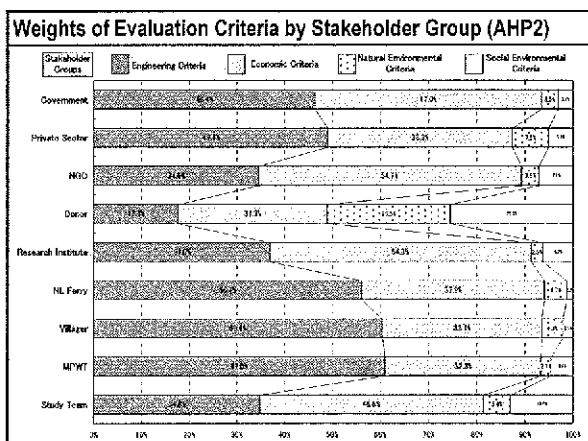
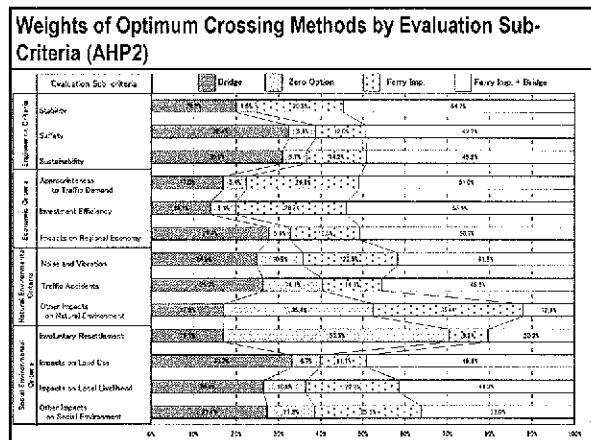
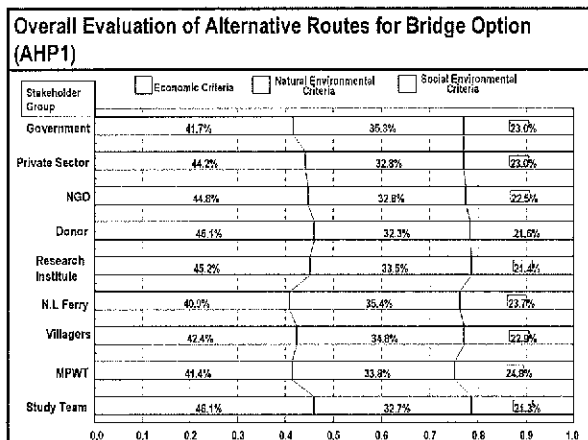
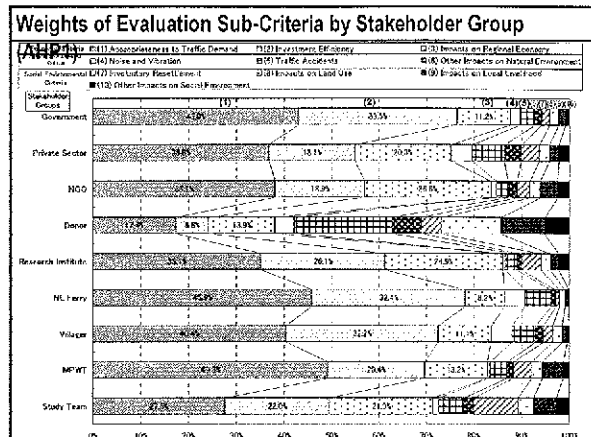
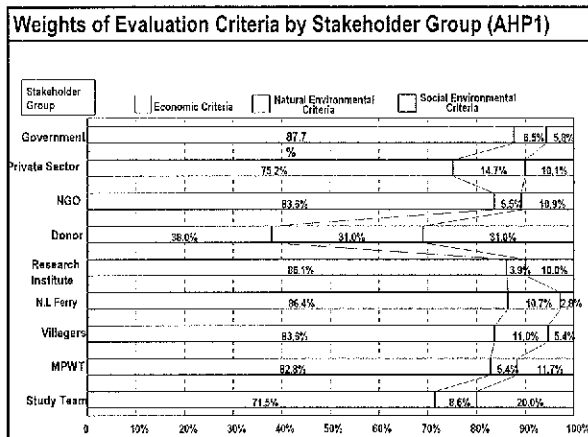
Scenarios for Economic Framework (Real GDP Growth per annum)

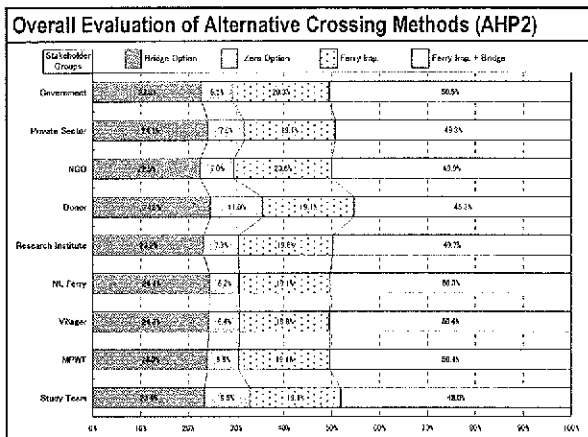
Scenario	2010	2015	2020
High	8.0%	8.0%	8.0%
Medium	6.0%	6.0%	6.0%
Low	4.0%	4.0%	4.0%

Program of Relevant Facilities and Institutional Improvements

Major Development	2005	2010	2015	2020
Full Open for Passengers at Border	□			
Abolition of Cargo Transshipment at Border		→		
Improvement of NR 1		□		
Construction of Bridge			□	
Area Development				→







- Conclusions (1)**
- "Ferry Improvement + Bridge Option" should be selected as the optimum solution to cross the Mekong River at Neak Loeung, based on the ratings on evaluation criteria by concerned stakeholders and the consequence of the comparative analysis by the Study team.
 - All the concerned stakeholders, as the result of their ratings on the evaluation criteria, lead to the conclusion that "Ferry Improvement + Bridge Option" is given to the highest priority among the alternative crossing methods, and it is justifiable from engineering, economic and environmental aspects.

- Conclusions (2)**
- Since it is assumed that the bridge construction will take about 6-8 years, including pre-construction and construction period, it is necessary to increase the existing ferry capacity to cope with the future traffic demand before the bridge is open to traffic.
 - Eventually, it is concluded that the 2nd Mekong Bridge Project, through the verification of the public consultation process, should be pursued and forwarded to the next stage of the Feasibility Study.

THANK YOU !

for your attention and patience.

Ministry of Public Works and Transport

The Stakeholder Meeting 2-3 for the Construction of the Second Mekong Bridge in the Kingdom of Cambodia

Part III Procedures for Final Consensus and Decision-Making

March 10, 2005
Conference Hall, MPWT

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

Part III 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 for Final Consensus and Decision-making

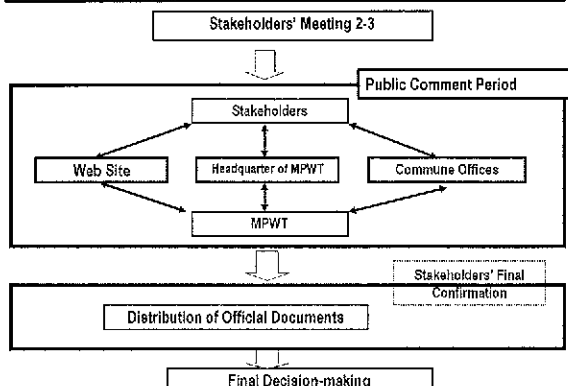
1. Basic Requirements for Final Decision-making Process

- All the information needed for selecting the best alternative to cross the River should be disclosed to all the stakeholders.
- The results and process for selecting the best alternative to cross the River should be fully explained to all the stakeholders.
- Negative social and environmental impacts including the involuntary resettlement should be fully explained based on the final results of the IEE-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 period for public comments.
- MPWT will disclose all the required information to all the stakeholders through the website and commune offices.
- Questionnaire and comment sheets will be available in commune offices.
- MPWT will reply to all the questions and comments by the website and official documents through commune offices.
- After the closing date, the documents on the final decision to select the best alternative to cross the River will be circulated among all the stakeholders with transparent and accountable reasoning.
- Through these processes, MPWT will finally decide the best alternative, thereby moving into the next stage based on the consensus among all the stakeholders.

3. Concrete Procedure for Final Decision-making Process



Public Comments through Website

- Questionnaire and Comment Sheets are available at the page of BBS (Bulletin Board Service) of the website for the project (www.2ndmekongbridge.com)
- Until April 13 (Wednesday), all the stakeholders are provided with opportunities to ask questions and make comments regarding all the related matters on the project and the study through the BBS of the website,
- Through the BBS of the website, MPWT will answer those questions and comments within 14 days 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.

Public Comments through the Headquarter of MPWT

- Questionnaire and Comment Sheets are available at the headquarter of MPWT.
- Until April 13 (Wednesday), 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 within 14 days 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.

Public Comments through Commune Offices

- Questionnaire and Comment Sheets are available at all the commune offices of the project affected area.
- Until April 13 (Wednesday), all the village stakeholders are provided with opportunities to ask questions and make comments regarding all the related matters on the project and the study.
- Through all the commune offices, MPWT will answer those questions and comments within 21 days 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		

THANK YOU !



for your attention and patience.

Ministry of Public Works and Transport