(4) IEE for the alternative route and JICA proposed route

Alternative A is the most suitable due to the lowest numbers of Wat and archaeological site within its vicinity from Kok to Ing for the diversion from Kok to Ing.

For the diversion alternative of Ing-Nan section, the Alternative C is the most suitable due to the lowest numbers of Wat and archaeological site within its vicinity.

Generally speaking, it can be concluded that the most suitable diversion alternative from Kok to Ing and Nan is alternative C with only little difference in degree of suitability from Alternative A, B and JICA proposed route.

The project construction activities might cause some adverse impacts on the structure of Wats or archaeological sites in the project vicinity and on religious activities. The impacts expected from the project development comprises mostly noise and vibration etc., impacts from the construction activities. If Wat and archaeological sites which are nearer to the project site, it would be more affected than those located far away.

According to the preliminary study, we could conclude that there is not serious adverse impact for archaeological property. However, it can be concluded that the construction activities of the project would cause rather minimal impact to the archaeological sites except for the diversion canals and culverts which there are a lot of Wat/archaeological sites in this vicinity, especially for diversion canal and culvert of Kok-Ing section.

3.2.4.6 Public Health and Nutrition

(1) Present Health Condition in the study area

a) Introduction

The provision of adequate water supplies and excreta disposal has been acknowledged as an essential public health measure with significant public health benefit. Of the diseases that better water supplies may help to control, the feco-oral infections are greatest worldwide public health importance. The infections include not only cholera and typhoid, but also diarrheal diseases. It is estimated that each year these diseases cause more than 5 million deaths among children in developing countries. Also, diarrheal diseases can remain an important cause of death well into adult life.

In Thailand, diarrhea is by far the highest cause of morbidity. Diarrhea and food poisoning have not been reduced due to lack of water supply, hygienic latrine and food sanitation.

Therefore, the operation of water resources development project could cause either positive or negative health impact. It is necessary to study the existing public health condition before project operation so that careful analysis of causes and problems could be done.

b) Method and Scope of Study

In order to analyse the existing health situation and to recommend mitigation measures, the study has been made. The study includes 1)collection of health data, 2)community health survey including physical examination, clinical nutritional assessment and stool examination, 3) snail, mosquito and fish surveys in the study area. The places survey conducted are as follows:

1) Community health data: Tambon Yod and Tambon Chondan Song Kwae Subdistrict (King Amphoe), Nan Province
2) Physical examination: Ban Yod Tambon and Ban Pang Kom, Tambon Chondan, Song Kwae subdistrict, Nan Province
3) Snail survey:
   - Ban Pang Kom from Kom river, pond and rice field
   - Yod river and Yao river (Ban Yod, Tambon Yod)

- Nam Tom stream (Tambon Pha Changnoi, Pong District, Payao Province)
- Yao river at Ban Hae, Tambon Mae Lao, Chiang Kham District
- Lao river at Ban Pee, Tambon Ngao, Thoeng District, Chiang Rai Province
- Ing river at Ban Tung Khao, Theoeng District
- Kok river at Ban Payangmon, Tambon Rob Vieng, Muang District, Chiang Rai Province.

c) Results of the study

Areas selected for study are not far from local health centers which were adequately staffed. Villagers received sufficient health services provided by health centers and a community hospital. Important water-related disease found in the study was malaria whereas encephalitis and hemorrhagic fever were not present in the record. Common malnutrition problems were goitre and anemia.

Stool examination of 172 villagers revealed 53 were positive, 12 opisthorchiasis, 21 strongyloidiasis, 6 hook worms infection, 6 Giadiasis and 3 Entamoeba hystolutica infection. There were 15 snail species collected. *Bithynia (Dignoniostoma) siamensis siamensis* was found at Ban Pong Kom, Ban Muang, and Ban Pee. *Lymnaea (Radix) auricularia rubiginosa* and *Filopaludina (Siamopaludina) martensi martensi* were found almost everywhere, *Pila* spp and *Pomacea* were also collected. No *Neotricula aperta* was found.

d) Assessment

(1) Construction Phase

The main problem is the outbreak of malaria among labors and communities in areas around the tunnel outlet and shaft construction sites. Besides, the spread of AIDS and diarrhea could also be found among sorkers.

(2) Operation Phase

- Snail-born disease: the possibility of wider spread of opisthrochiasis is high due to wide distribution of *Bithynia* spp.
- Mosquito-born diseases: None or slight changes of problem magnitude of malaria and hemorrhagic fever is expected whereas encephalitis may be increased due to more irrigated areas.

- Schistosomiasis: Though *Neotricula aperta* was not collected in this survey but it was collected at Khong-Ing confluence in Chiang Khong district, Chiang Rai province in the past survey. It is expected that the operation of this project will not affect the occurrence and distribution of this snail since its habit is confined to Khong river.

(2) Recommendation for Further Study

Findings based on this study was very limited due to time constraint. More comprehensive public health survey is desirable to understand existing problems and to foresee health impact which will be brought by the water resources development project.

(1) First of all, health information relating water-related diseases should be collected from all three Provincial Health Offices. Hopefully, morbidity of these diseases should be analyzed by district or tambon along three rivers. Annual Epidemiological Report (Division of Epidemiology, Ministry of Public Health) indicates that Phayao and Nan rank as provinces with the third and forth highest prevalence of acute diarrhea in the whole Kingdom. As for prevalence of encephalitis, Nan is the top province in 1993.

In addition, study on present situation of sanitation and hygiene such as types of drinking water and latrine is necessary. Most of the health impact studies show that improved access to water in quantity, not quality, brought a significant reduction in diarrheal disease.

(2) In-depth physical examination and interview survey in all three provinces should be made. Interview survey to health staff (both provincial medical officer and staff in health centers) in areas which have high prevalence of water-related diseases at present helps in understanding present problems.

(3) Health education for people in communities is useful to change inadequate health behavior. Select areas which will be most affected by this water resource development project in terms of water supply and sanitation, and then implement health education program in these areas to ensure that the available water is fully used for hygienic purposes, and to minimize fecal contamination of the environment.

Table 3.2.4.1 SUMMARY OF INITIAL ENVIRONMENT OF KOK - ING DIVERSION CANAL

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer: selection of proper times for construction			X		
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable			X		
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data			X		
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage		X			
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard				X	

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem				X	
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion				X	

Table 3.2.4.2 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF KOK DIVERSION DAM

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer: selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable	X				
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data			X		
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage		X			
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem		X			
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion			X		

Table 3.2.4.3 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF ING DIVERSION DAM

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer: selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data		X			
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage		X			
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem		X			
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion			X		

Table 3.2.4.4 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF ING DIVERSION CANAL TO ING - YOT TUNNEL

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer; selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community(hilltribe) and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data Sufficient PR activity will be needed before implementing the project			X		
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage			X		
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem			X		
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion			X		

Table 3.2.4.5 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF ING RIVER TRAINING

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer: selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data		X			
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage		X			
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem		X			
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion		X			

Table 3.2.4.6 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF ING - YOT TUNNEL

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer; selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community (hilltribe) and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data			X		
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage			X		
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem			X		
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident	X				
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion		X			

Table 3.2.4.7 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF FLOOD CONTROL DAM

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer; selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearly community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data		X			
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage		X			
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard		X			

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem		X			
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident				X	
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion				X	

Table 3.2.4.8 SUMMARY OF INITIAL ENVIRONMENT EXAMINATION OF YAO RIVER TRAINING

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect			Not Clear
				Small	Moderate	Major	
I Socio-Economic Impacts							
1 Air pollution	Nuisances and health hazards to neighbors, travelers and wildlife	Sprinkling water during construction period		X			
2 Noise and Vibration	Nuisances to neighbors, tarvelers and wildlife	Usage of low noise vibration construction equipment, such as vibro hammer: selection of proper times for construction		X			
3 Archaeological and Historical properties	Loss of cultural properties and increased possibility of these properties being stolen	Rerouting; relocation of properties, if applicable		X			
4 Aesthetic and Tourism	Loss of scenic value	Careful planning to minimize and offset losses	X				
5 Transportation	Adverse impact on the structure of existing road. Disturbance to the nearty community and transportation	Careful planning and scheduling of transportaion of construction material based on the traffic data			X		
6 Sanitary	Insect Born Disease (Encephalitis, Malaria, etc)	Careful planning and managing of construction and operation					X
7 Drainage	Impact on natural water courses or drainage ways	Temporary accomodation of storm water will minimize any problems with regard to drainage			X		
8 Hazard	Hazard of construction site for local people during construction period, such as unstabilized	Managing and a program of patrolling, fencing and warning will mitigate the Hazard			X		

(Cont'd)

Environmental Aspects	JICA's Proposed Route	Recommended Mitigation Plan	Magnitude of Impacts				
			No Significant Effect	Significant Effect: Small	Significant Effect: Moderate	Significant Effect: Major	Not Clear
	earthwork around construction sites						
9 Waste	Construction waste, surplus soils sludge, and domestic waste will occur during construction period	Considered deliberately waste place will mitigate the problem			X		
10 Resettlement	Relocation of project sites residents	Rerouting; adequate compensation for affected resident				X	
11 Compensation	Acquisition of land	Adequate compensation for affected resident based on proper procedure and their opinion				X	

CHAPTER 4 PUBLIC RELATION ACTIVITIES

4.1 Introduction

The RID is advised to take fully into account the views of affected groups, related people, and local NGOs (nongovernmental organizations) in the design and implementation stage of the project, and especially in the preparation of the Environmental Impact Assessment (EIA). The purpose of taking into account the views of the affected groups is to facilitate and strengthen the people's participation in the project, which could contribute to the eventual success of the project. It has been reported that where such views have been incorporated in the design, the projects are more likely to be successful, while community participation has not been found to be an impediment to overall project execution. On the contrary, projects in which affected people's views have been disregarded suffer from more frequent delays and, in the worst case, project suspension.

Collaboration with NGOs also urges us "as a matter of policy" to help the project proceeed smoothly. NGOs are defined as "private organizations that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, or undertake community development."

4.2 Methodology

The ultimate goal of the project is a sustainable development. In short, implementation of the project should contribute to an improved living standard for the people in the project area through public participation. Thus, public participation from the initial stage is an important strategy for project implementation.

One important principle of Public Relations (PR) activities is to focus on public participation through the use of two-way communications. This permits communication with the help of various media such as newspapers, radio, television, and leaflets to reach all concerned people. The arrangement of seminars in which concerned people can participate is also important to ensure open and accountable public decision-making.

Proposed procedures for PR activities are as follows:

(1) Preparation stage of PR activities

(a) Secondary data collection (March - April 1996)

(b) Project area survey (May and September 1996)

(c) Analyze the target group for PR activities based on secondary data and project site visits.

The above mentioned target groups are:

- The people who are expected to be impacted directly, positive and/or negative.
- Local community leaders.
- Various levels of government officials involved in the project area.
- Local politicians such as provincial representative committee.
- Private sectors such as The Chiang Rai Chamber of Commerce, the Federation of Thai Industries, Chiang Rai Chapter and representatives of shops/stalls/stores/groceries and restaurants.
- Mass media (local and national media)
- NGOs

(d) Media.

- 2 sets of folded printed matters.
- 3 series of Video tapes
- TV channel (Channel 11 and local channel 5) (Details are shown in Table 5.2-1)

Table 4.2-1 PR activities by media

Timing	Leaflet	Video	TV	Local Broadcasting
Project introduction period (First 6 months, March ~ August 1996)	No. 1[1]	Series 1 (Conceptual Planing) For small group meeting	Ch 11, 8	One station for each province
Feasibility study and EIA study period (to be scheduled in September 1996 ~May 1997)	No. 2	Series 2 (Feasibility study) For the first seminar	Ch 11, 8	One station for each province
Later stage of EIA study period (to be scheduled in June ~November 1997)	-	Series 3 For the second seminar	Ch 11, 8	One station for each province

[1] Leaflet sample is shown at Appendix I.

The PR activities through the seminar and mass media, such as TV and Local Broadcasting, should be carried out under the initiative of the RID.

(2) Implementation stage of PR activities

- Organizing a meeting for project introduction presentation (May - August 1996)
- Organizing meetings with target groups for explanation of the project to all leaders and others (to be held
  in October 1996 - January 1997)
- Video tape series 1-3 through TV channel 11 and 8 and local newspaper
- Arrange two seminars

  * 1st seminar after submission of the Interim report (April 1997)
  * 2nd seminar after submission of the draft final report (October 1997)

(3) Evaluation stage of PR activities

- Analysis of PR activities through mass media
- Evaluation of the PR activities in terms of strong points, weak points and risks.
- Study of future plans for PR activities after the completion of the EIA study.

4.3 Results and Future Activity Schedule

Brief results of PR activities as of November 1, 1996 are as follows:

Activity	Number of Activities done	Period	Media/ Method	Results
1. Project area visit	2	April - May 1996	Interview	Meet with leader group of village at project site. Hear about life style, living standard, etc.

2. Project introduction to community leaders	1 (13 villages)[2]	May 1996	Explanation / Hearing	Explain the outline of the project to community leader.
3. Group meeting: Project orientation (District government officials)	4 (254 persons)	July-August 1996	Leaflets (350 copies)	Main questions are shown as follows:
4. Small group meeting: talk, question and answer (Official, people, local media)	2 (150 persons)	August 1996	Leaflets (150 copies)	Ditto:

The main questions from provincial-district government officials in the project area, private sector group and local media are as follows:

Chiang Rai Province

- Does the project plan to provide water for them or not?
- What are the impacts expected to derive from the project?
- Will the communities lying along the diversion canal receive the benefit from the project?
- How will this project generate local benefit / development in the future?

Phayao Province:

- Will the project cause flooding along diversion canal?
- How to prevent flooding, if it occurs.
- Will the communities lying along the diversion canal receive the benefit from the project?
- How will this project generate local benefit / development in the future?

---

2 Thirteen villages are shown as Appendix II.

Nan Province:

- Will the project cause flooding along the diversion canal and how to prevent it?
- Will the communities lying along the diversion canal receive the benefit from the project?
- How will this project generate local benefit / development in the future?

A future activity schedule is shown in Table 5.3-1.

4.4 Recommendation

PR activities and the schedule planned by the RID are principally in agreement with the World Bank guidelines, "Timing of Project Cycle with Community Participation" (see Table 5.4). However, attention should be paid to the following points in accordance with the progress of the project.

Firstly, correct information should be delivered to affected or concerned people in a timely manner as the project progresses. The residents of the area around the Yao River are likely to receive a more adverse impact than others, while the area where indigenous people such as hilltribes live should also be given special consideration. For these areas, PR activities should be conducted earlier than in the areas which will have less adverse or no impact. The most important point to implementing the project is to foster good relationships between affected people and the RID. Misunderstandings will lead to the collapse of the relationship between both parties and will also impede overall project implementation.

Secondly, during the feasibility study period, it is advisable to initiate preliminary contact with affected people. Most of the public participation activities begin at the start of the Environmental Impact Assessment (EIA) preparation, and at the time the feasibility study begins. Public participation is usually fostered by the EIA team, but the other two environmental disciplines, social and ecological, may be called in if necessary. Where social impacts are large in scale and severeness, or where they are particularly complicated, another social science team familiar with local environment may be required during the project feasibility study.

Although the bulk of the work occurs during the EIA stage, there is still a great deal of social input needed during construction, and somewhat less during operation and thereafter. The affected pesons, local NGOs, and the public at large should participate in project monitoring during the operation stage and assist in a post hoc evaluation.

Table 4.3.-1 PR Activity Schedule

Activities	1996										1997												1998	
	Mar.	Apr.	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Preparation Stage																								
1. Study & review projects data																								
2. Field data study and collection																								
3. Primary visits to project area																								
4. Visit the project area in detail																								
5. Analysis of target groups																								
6. Consult with related parties																								
7. Determine PR format																								
8. Collect field survey data																								
9. Create PR media (leaflet, pictures, VIDEO)																								
10. Recommend channels for project's information dissemination																								
11. Analysis of appropriateness of PR work plan																								
Implementation Stage																								
12. Meetings with provincial and district officials to introduce the project																								
13. Meeting with people who are expected to have direct impacts																								
14. Distributing leaflets and project's data to mass media																								
15. Organizing seminars																								
Evaluation Stage																								
16. Evaluation of information dissemination																								

Table 4.4.-1 Timing of Project Cycles with Community Participation

Approximate Duration (Years)	Borrower's Project Cycle	Public Participation Events
3	Master Plans Sectoral Investment Plans	
0.5		Dissemenation of information Seek views on concept
2-3	Pre-feasibility Feasibility study begins EIA study begins	Scoping begins Selection of EIA studies
	EIA study ends Draft EIA	Review draft EIA studies Revies draft EIA
0.1	Feasibility study complete EIA study complete	Revies final feasibility and EIA studies
0.2		Appraisal team meets people affected
5	Construction	Community input into implementing EIA findings
30	Operation	Community input into monitoring
0.2	Project completion Report (PCR)	Post-hoc evaluations

Appendix II

Thirteen villages are as follows:

Chiang Rai province

Amphoe Muang Chiang Rai : Ban Pa Yang Mon
Wiangchai : Ban Thuing Kong
Thoeng: Ban Don Chai
Ban Pii
Ban Mai

Phayao province

Amphoe Chiang Kham: Ban Nong Lao
Ban Hua Na
Ban Sob Sa
Ban Pha Daeing

Nan province

Amphoe King Amphoe Song Khwae: Ban Yod
: Ban Pha Ihak
: Ban Pang Gom
: Ban Wang Sao

APPENDIX LEAFLET FOR PUBLIC RELATIONS

Project History

Since the Kok and the Ing rivers have some surplus water in their basins, together with, the water canal connecting the rivers between the country known as the Mae Khong river, this caused the flowing out of the water from the country, during the rainy season. As the country becomes prosperous in economical and agricultural fields the need of water became higher. The water became an important factor to the agricultural land in the northern part and in Chao Phraya water basins; therefore, diverting of water from the upper basins during the rainy season was brought up as a subject. This is to prevent the water from flowing out of the country.

Since 1992, RID has started this project by taking the surplus water from the developed water basins, and used it in the Kok and Ing water basins cultivation, with full potentiality for the future. These water shall be passed through the water canal, or the natural canal; while, some passes through the pipe and tunnel, diverting into the Sirikit Dam in Changwat Uttaradit. It is to be used for agricultural and water supply for the people living along the river of both sides; such rivers are the Nan and Chao Phraya river

The feasibility study and the environmental impact of the project shall be started as soon as the RID employed the consultant firms. Here, there are Team Consulting Engineer, the leading firm, joined by Panya Consultant Ltd.; Sanyu Consultants (Thailand) Ltd; and Asdecon Corporation Ltd. started in march 1996, with the total study period of 24 months.

Objective

Kok-Ing-Nan project is located in Changwat Chiang Rai, Phayao, and Nan. The project has a major planning and practice procedure for developing the Kok and Ing water basins. This is to bring the surplus water, from the two water basins into the Nan basins, during the rainy season, by keeping it in the Sirikit Dam temporary. The water is to be made use of during the dry season with the followings purposes:

(1) Consider the feasibility of the project and the development condition stages in developing the Kok, Ing, and Nan water basins, in order, to be used for agricultural and irrigation purpose during the rainy and dry season.

(2) Lessen the flood disater in the Kok and Ing basins, since a large amount of water is caused by the rain from the rainy season. Divert the water into the Nan and Sirikit Dam to help drainage.

(3) Solve the water shortage problem in Nan and Chao Phraya basins caused during the dry season.

(4) Provide more water usage for other activities as such industrial, tourism, and for domestic consumption.

(5) The drained water from the Sirikit Dam that used for electricity production can still be brought back for agricultural purpose.

Steps of Study

Kok-Ing-Nan Project has the following important steps of study:

(1) Study the present and the future development water uses of the Kok, Ing and Nan basins. Arrange other development projects to prevent water shortage and other problems concerning the water basins.

(2) Calculate the surplus water in the Kok and Ing basins monthly, including the highest water level, the lowest water level and the yearly mean. Find the amount of water which could be diverted into the Nan basin without damaging the Kok and Ing basins.

(3) Set up the location and the basic design for the control building of Kok and Ing , as well as, the suitable diverting route which will be the canal, pipe and tunnel.

(4) Study the feasibility of the economic, social, financial, law, the institutes-organizations of the water diversion and other water basins development project.

(5) Study the negative and the positive points in the environmental impact and find the less distracting outcome for the enviroment.

(6) Estimate the catchment resulting from the diverted water and from the developing Kok-Ing-Nan water basins and the lower part of Chao Phraya, used in the agricultural, electricity production, by the Sirikit Dam, and others.

(7) Arrange the public relation and promote the project by setting up seminar and meeting, to provide the people, media, and other organizations to understand the purpose and the status of the project clearly.

Planning Procedure

The procedure of the study is divided into 3 stages:

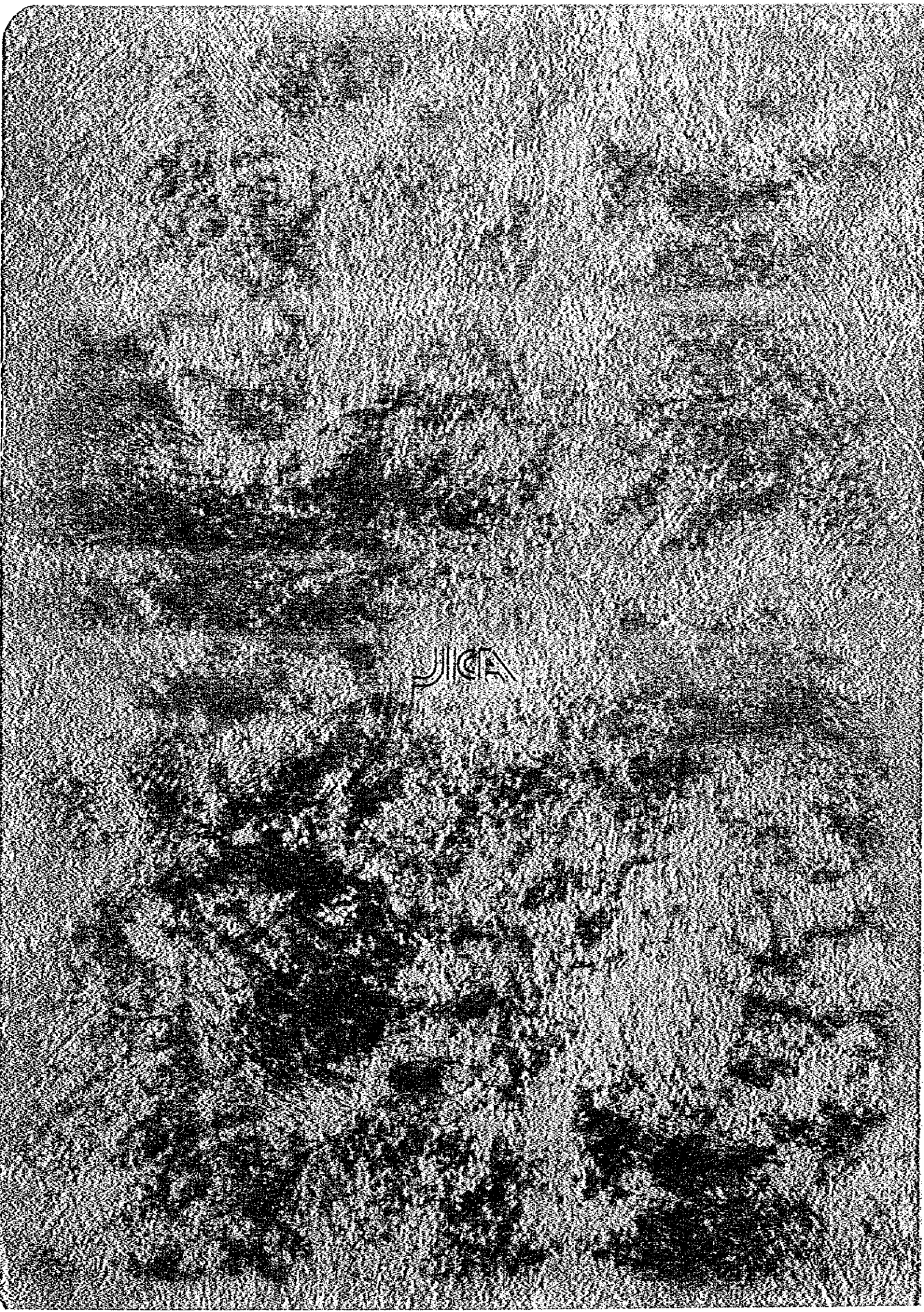
Stage 1 First stage of the investigation took about 7 months. This is to find the most suitable method in diverting the water into the Nan basin, till the selecting of important water basin for development.

Stage 2 Study the feasibility study and the environmental impact in diverting water into each selected water basin in the project. The investigation took about 13 months.

Stage 3 Development Plan for the Kok-Ing-Nan water basins, by putting the three stages of studies together, seeing the need in the development, the need of the locality and the feasible principle plan in developing the country. The investigation took about 4 months.

Public Relation

This is the first brochure for this project. There will be another brochure coming up, as there is a progress in the study. The result of the project study will also be publicized through the media in Changwat Chiang Rai, Phayao, and Nan. We also received all public comments, by mail. Mailing address: P.O. Box 5, Bhun Thong Lang, Bang Kapi, BKK 10240 (Kok-Ing-Nan). By Aug. 1996, a suggestion box will be set up at the Irrigation Office in Chaing Rai, Phayao, Nan.


JICA