

Environmental considerations

Shunji USUI: JICA Study Team

Contents

1. Outline of environmental considerations
2. PSPP: What have we been doing?
3. Results
4. What do we need to do in the next stage?

1. Outline of environmental considerations

- What are environments?
- Why environmental considerations?
- Where?
- Criteria for environmental considerations

What are environments?

- Social environment
 - Ethnic minorities
 - Land utilization
 - Water utilization
- Natural environment
 - Ecosystem (protected areas)
 - Species

What are environments? Ethnic minorities



What are environments? Land utilization



What are environments? Ecosystem



Why environmental considerations? (1/3)

- Development may cause significant negative impacts on social and natural environments.



- These impacts should be avoided and mitigated as much as possible.

Why environmental considerations? (2/3)

- Through environmental considerations,

Valuable resources can be saved.

1. Human resources
2. Natural resources
3. Financial resources
4. Time

Why environmental considerations? (3/3)

- Considerations on other alternatives for this project.

1. Other sources of power generation
2. Import of electricity from other countries
3. Best mix of power sources
4. Public awareness

Where? (1/4)

- Affected areas

1. Site
2. Upstream
3. Downstream

Where? (2/4)



Site

- Impairment of navigation
- Effects on scenic value
- Effects on migration of fish species

Where? (3/4)



Upstream

- Resettlement
- Effects on important ecosystems
- Effects on watershed

Where? (4/4)



Downstream

- Land utilization and water utilization
- Effects on important ecosystems
- Effects on sedimentation balance

Criteria for environmental considerations (1/3)

- Guidelines

1. Japan International Cooperation Agency
2. Asian Development Bank
3. Japan Bank for International Cooperation
4. World Bank

Criteria for environmental considerations (2/3)

- Social environment

1. Villages and villagers
2. Historical and cultural heritages

Criteria for environmental considerations (3/3)

- Natural environment

1. Existing protected areas
2. Proposed protected areas
3. Important ecosystems such as wetlands
4. Critical habitats of endangered fauna and flora

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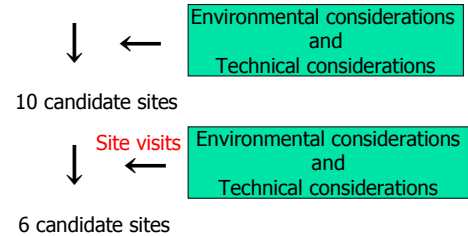
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2. PSPP: What have we been doing?

- First field survey (January - March)
- Second field survey (May - June)

First field survey (1/2)

List of 40 candidate sites for PSPP

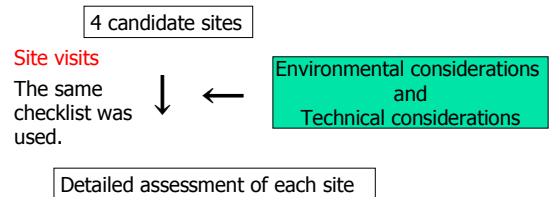


First field survey (2/2)

A checklist for environmental parameters based mainly on ADB checklist.

Parameter	Yes	No	Not Applicable
1. Environmental Impact Assessment (EIA) completed			
2. Environmental Impact Assessment (EIA) approved			
3. Environmental Impact Assessment (EIA) conditions approved			
4. Environmental Impact Assessment (EIA) conditions implemented			
5. Environmental Impact Assessment (EIA) conditions monitored			
6. Environmental Impact Assessment (EIA) conditions enforced			
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Second field survey



Second field survey



Interview at Suoi On village, JN5

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- 3. Results**
4. What do we need to do in the next stage?

3. Results

- JN3
- JN5
- P5
- JS6
- Important issue

JN3

- **Social environment**
 - Three villages will receive significant impacts.
- **Natural environment**
 - It will receive impacts, however they are expected to be limited.

JN3



Rice fields in Thung Lang village (lower dam / reservoir site). They will be submerged.

JN5

- **Social environment**
 - Four villages will receive significant impacts.
 - Another four villages along the planned approach road are expected to receive impacts.
- **Natural environment**
 - The aquatic ecosystem of Sap river will receive significant impacts.

JN5



Rice fields in Keo Lan village (lower dam / reservoir site). They will be submerged.

P5

- **Social environment**
 - One village at the upper dam / reservoir site will receive significant impacts.
 - Two villages along the planned approach road to the outlet are expected to receive impacts.

JS6

■ Social environment

- One village at the lower dam / reservoir site will receive significant impacts.

■ Natural environment

- Internationally recognised important terrestrial ecosystem will receive impacts.
- The aquatic ecosystem of Cai river will receive significant impacts. The impacts may reach to the downstream of the river.

JS6



A View from the upstream area of Cai river (lower dam / reservoir).

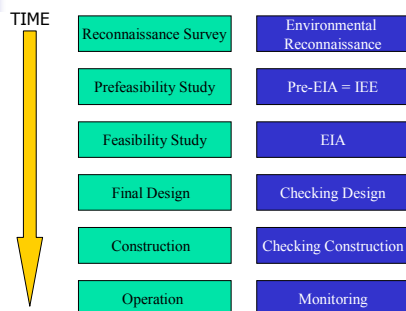
Important issue

- It is important to note that these results should be treated as PRELIMINARY ONES.
- They should be verified by more comprehensive survey in the next stage (e.g. feasibility study).

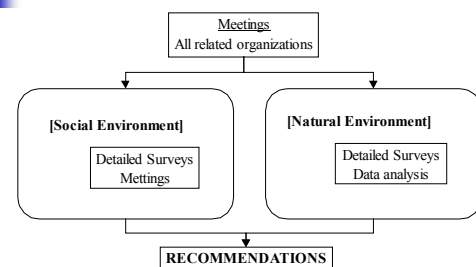
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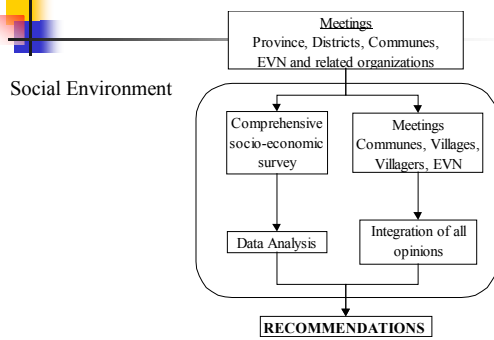
4. What do we need to do in the next stage? (1/2)



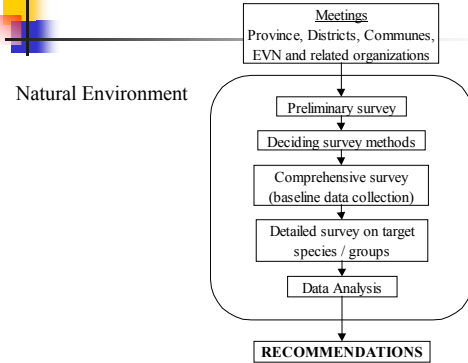
4. What do we need to do in the next stage? (2/2)



4. In the next stage:



4. In the next stage:



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Next Steps in this study

1. Peaking Power Supply Sources (PSPP)
2. Power System Planning and Analysis
3. Financial evaluation
4. Optimal Power Development Master Plan

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1. Peaking Power Supply Sources (PSPP)

- Preliminary study of conventional hydropower for peaking power
- Power system plan analysis on optimization of peaking power sources
 - PSPP
 - Conventional Hydropower
- Preliminary design and cost estimation as for the highest priority PSPP
- Optimum project study of PSPP(installed capacity,peak duration time)

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2. Power System Planning and Analysis

- Examination of Selected scenarios
- Quantification of annual costs saving
 - Demand-and-supply simulation
- Power system analysis
 - Stability
 - Power supply reliability

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3. Financial evaluation

- Diagnosis of Current Financial Situation
- Diagnosis of Future Financial Plans
- Diagnosis of the Impact of the Project on EVN's Financial Situation
- Diagnosis of the Financing Plans related to International Donor Assistance

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4. Optimal Power Development Master Plan

- Optimal power sources composition in 2020
- Master plan of peaking power sources development
 - PSPP – Timing, Amount, Place
 - Conventional Hydropower Extension Plan
- Optimal Interconnection plan
- Financial Plan of EVN

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APPENDIX 10-4-1

Agenda of the third workshop

**AGENDA FOR THE 3rd WORKSHOP
ON THE MASTER PLAN STUDY ON PUMPED STORAGE POWER PROJECT
AND OPTIMIZATION FOR PEAKING POWER GENERATION**

Venue: Fuji A, 2nd floor, Hotel NIKKO HANOI
25 February, Wednesday

<i>Time</i>	<i>Content/Activity</i>	<i>Person</i>
8:30 – 8:45	Register for participants	
8:45 – 8:50	- Welcome address by EVN	Mr. Lam Du Son, Vice General Director of EVN
8:50 – 9:00	- Introduction	Mr. Masayuki ITO
9:00 – 9:15	[1] Demand analysis & forecasts	Mr. Kazuhiko SHIBA
9:15 – 10:05	[2] Master plan on optimization for peaking power supply	Mr. Yasuhiro YOKOSAWA
10:05 – 10:20	Tea break	
10:20 – 10:40	[3] Optimization study on network planning	Mr. Masaharu YOGO
10:40 – 11:00	[4] Financial study	Mr. Muneo KAWAGUCHI
11:00 – 11:30	Q & A	Study Team members
11:30 – 13:00	Lunch (at the hotel)	Participants
13:00 – 13:30	[5] PSPP potential study	Mr. Masayuki ITO
13:30 – 14:00	[6] Optimization study on conventional hydropower plants	Mr. Hitoshi FURUKOSHI
14:00 – 14:20	[7] Possibility of installation of coal thermal power plant in the south	Mr. Masayuki ITO
14:20 – 14:35	Tea break	
14:35 – 15:05	[8] Environmental considerations	Mr. Shunji USUI
15:05 – 15:20	[9] Demand side management	Mr. Kazuhiko SHIBA
15:20 – 15:40	[10] Conclusions	Mr. Masayuki ITO
15:40 – 16:20	Q & A	Study Team members
16:20 – 16:30	- Closing remarks	Mr. Vo Danh Thuy, Son Ia PMB

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