

Key Issues:

7-Resettlement

13-Improvement of Infrastructure

Climate Zone:

Af: Tropical humid

Subjects:

- Socio - economic and health survey for evaluation of resettlement issues



Effects:

- The resettlement in Song Hinh has been successful.
- The consolidation of infrastructure, the compensation was only over what mitigation measures provided but apparently has enhanced the living standards of the resettlers.

Project Name: Song Hinh Multipurpose Project

Country: Vietnam (Asia)

Implementing Party & Period

- **Project:** Electricity of Vietnam
1996 -

- **Good Practice:** Electricity of Vietnam
1996 -

Key Words:

Song Hinh Multipurpose Project, Resettlement, Project Management Board

Abstract:

Song Hinh Multipurpose Dam Project has improved the quality of life of the people emigrating from the reservoir area and resettling elsewhere. The government took mitigation measures that included various compensation options and was characterized by public involvement, presenting the resettled people with sufficient information and opportunities to participate in decision making.

1. Outline of the Project

Song Hinh Multipurpose Project is a part of Vietnam's strategic plan of power development for the nation and of the socio-economic development plan for the central part of the country.

The Government of Vietnam officially approved the Song Hinh Project in November 1993. Construction started in November 1995. In January 1996, Hinh River was diverted for the construction of the main dam. The Song Hinh Power Plan started electricity generation from April 2000 and contributes to the surrounding area about 370 GWh per year.

Key features of Song Hinh Project are summarized in Table 1. The basic components are the main dam on Hinh River, a number of cofferdams, and a diversion tunnel which diverts water from Hinh River to Con River. This creates a designed head of 141 m for power generation.



Photo 1: The Song Hinh Power Plant

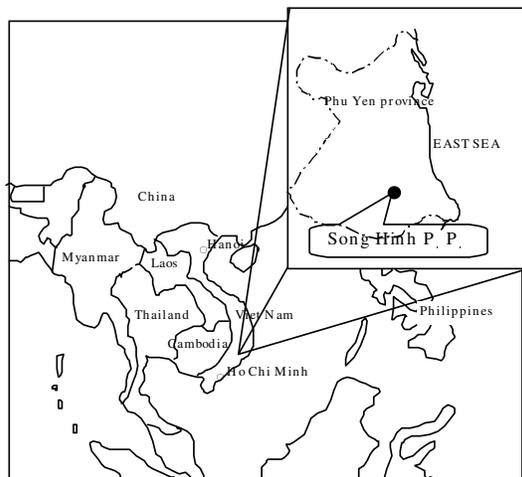


Figure 1: Location of Power Plant

Table 1: Key features of Song Hinh Multipurpose Project

Parameter	Value
Reservoir	
High water level (HWL)	209 m amsl
Low water level (LWL)	196 m amsl
Surface area at HWL	4,100 ha
Gross storage capacity	357 millions m ³
Main dam	
Crest elevation	215 m amsl
Length	880 m
Height above foundation	42 m
Saddle dam	
Crest elevation	215 m amsl
Total crest length	6,190 m
Height above foundation	19 m
Others	
Installed power capacity	70 MW
Mean annual energy	370 GWh
Designed head	141.00 m
Plant Discharge	55.50 m ³ /s
110 kV transmission line length	20 km

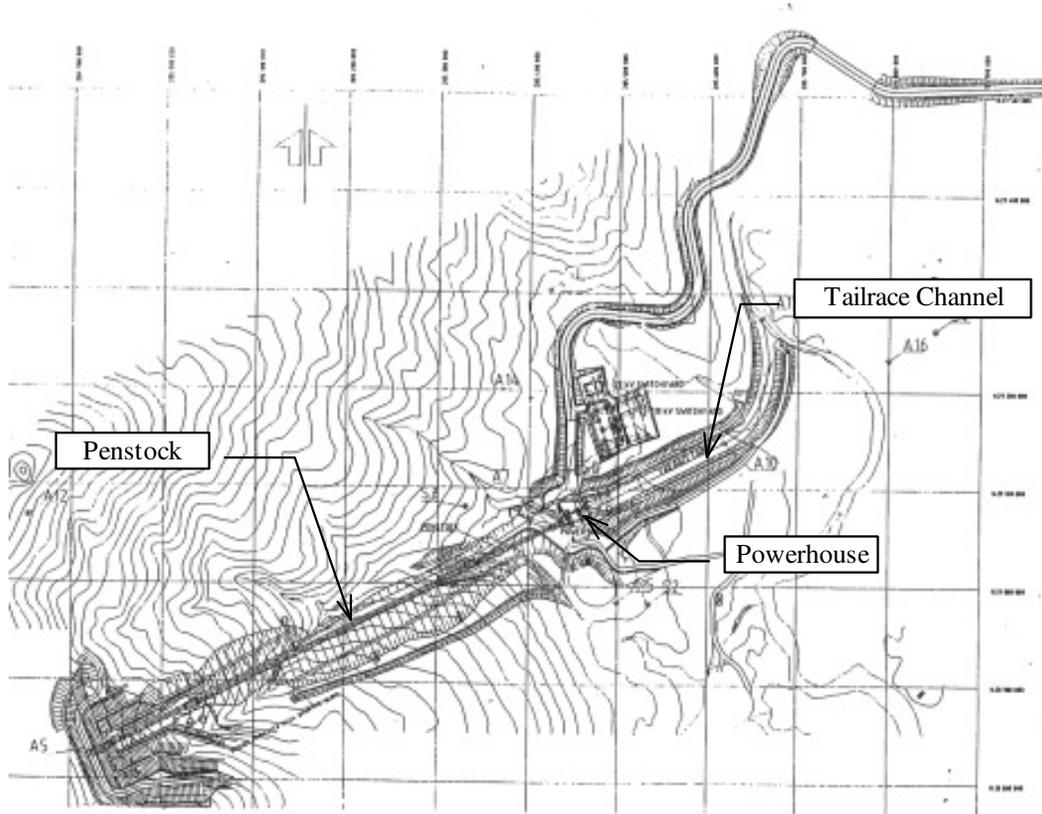


Figure 2: Plan of Waterway

2. Features of the Project Area

Song Hinh flow is a branch of Ba River, located in the west of Phu Yen province. The area's co-ordinates are about at latitude $12^{\circ}35'$ - $12^{\circ}55'$ north and $108^{\circ}45'$ - $109^{\circ}07'$ east. Both sides of river have a slope of 5-10 degrees into eastern direction. In the south and west there are greater slopes. The mean height is 580m. The Vegetation of the basin is mainly thin forests. In downstream, however, it is mostly bare hills or grasses. The river system in the area is quite dense. The main flow rises from Truong Son Mountains, flowing along the direction of SE-NW and meets with Ba River.

Song Hinh hydropower works are located in a big area raging over two districts: Song Hinh and Tuy Hoa. The distance from the conjunction dam area to the hydropower station is 10km. The total area of reservoir is 43.3km^2 and the norm-raised water level is 208-210m as designed and approved. This reservoir is of medium scale, and located in the mountainous area, so the flooded area will create not so big losses. When it was finished, however, there were 10 villages belonging to two communes: Song Hinh and Eatrol were going to be under water and the people had to move. The socio-economic development in these villages has been very slow, programme of resettling and resettled agriculture have been carried out in these areas.

Investigation records show that the society in the area of the hydropower reservoir to be flooded consisted of different ethnic groups such as Cham, Hroi, Bana, and Ede. Ede group was the biggest group, 46% of the total population. Shifting cultivation and wandering hill were very popular with these groups. Although the area of cultivated lands was quite large, it mainly was in mountainous fields. Population was very scattered and earned their living from agriculture of self-provision characteristics. The area was very backward in science and technique with insufficient food and low quality of life. In

the whole area, there are 13 hand trucks, 208 bikes, 1 plough machine, and 3 motorbikes. The main traditional crafts were textiles.

The mean quantity of food per capita in the whole area had reached 300-350 kg/person/year, and was mainly from maize and cassava. So, poverty was the dominant situation. Tradition of making alcohol mainly from rice and maize is very popular; mean quantity of food used for making alcohol per household was about 50 kg/year. As the area maintained self-sufficient economy, mean income per capita was only 20000 VND/year. This figure does not express the real quality of life in the area, because in the area the economy was still based on “barter exchanges”, it means that quantity of goods sold in markets was still not considerable.

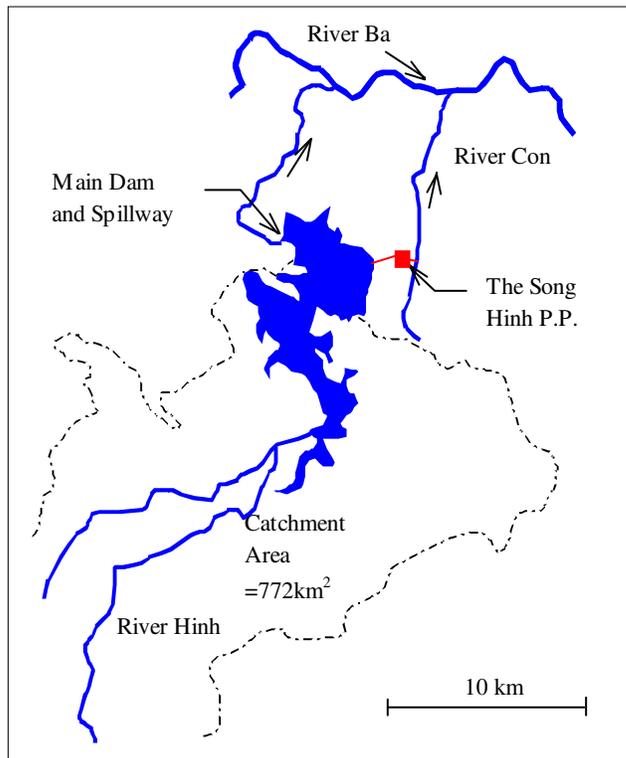


Figure 3: Topographical map



Photo 2: Reservoir water surface area



Photo 3: Area affected by reservoir

3. Major Impacts

Total area inundated by the reservoir is about 4,100 ha. The approximately about 470 families with 2,000 people have resettled in the new area (Table- 2).

When the dam construction was completed and the water level reached to the norm level, these construction works did not make so much land flooded. Flood in district centres and commune centres has not happened. The flooded area only consisted of 10 villages of 2 communes: Eatrol and Song Hinh. The rest is wild lands, bare hills, grass fields and young and poor forests. In the flooded area, there is no industrial works.

Table 2: Number of resettling people

Area Name	Number of Families	Number of Inhabitants	Number of Houses	Number of Compensated Houses
Duc Binh Dong Commune	163	555	105	99
Ea Bia Commune	6			
Ea Trol Commune	170	671	142	142
Duc Village	63	254	54	54
Mui A&B Village	88	363	69	69
No.2 kinh Te Village	19	54	19	19
Song Hinh Commune	134	704	123	123
NO.1 Village	19	100	16	16
NO.2 Village	28	165	28	28
NO.3 Village	33	135	27	27
Suoi Dua Village	23	139	22	22
Kit Village	31	165	30	30
Total	473	1,930	370	364

The losses from reservoir fill as latest investigation (April 1998) are:

- 10 km of earth road
- 18500 m² of houses in 10 villages
- The numbers of households to have to move is 412, up 113 households compared with that in 1992. Total people to have to move are 2020 persons, up 228 persons compared with that in 1992.
- Total area of land: 887.6 ha
- Cultivated land area flooded: 446.7 ha
- Resident land area flooded: 440.9 ha

In the area, the dominance was shifting cultivation of wandering hill tribes. So although statistics shows total flooded area was large, almost all area was shifting cultivation mountainous fields (446.7 ha / 412 households, means 1 household has 1.1 ha). According to the district investigation, the size of resident lands and that of mountainous field land are equal; there is nearly no land for fruit and industrial trees.

4. Mitigation Measures

The Song Hinh Project Management Board (PMB) has made a great contribution to the general issue of mitigation. Thus the PMB has agreed not only to replace what is lost but also to improve the general living standard of the affected people. This has contributed greatly to the generally good housing condition and infrastructure. It deserves attention and should be applied in other projects dealing with resettlement and compensation.

When it was known that each household would receive a certain sum of money, the resettlers expressed concern how to handle the money and how to ensure that houses of good quality and of their taste were constructed. The district and the Local Fixed cultivation Office met this demand by engaging the local bank and by contracting reliable constructors. This innovation should be regarded as a great contribution to the management of compensation and should be followed by other resettlement and compensation

schemes both in Vietnam and abroad.

Main mitigations measures that were applied in the resettlement program are:

- **Defining and announcing of stop day for compensation**

During the first resettlement mission 1996, this issue was brought up. The stop day was announced very early in the resettlement process in order to avoid manipulations of registration cards, land specification, and "invasion" from outsiders

- **Due and timely information to the resettled people**

The resettled people have been relatively well informed and have been invited to take part in decisions (making meeting) directly related to the resettlement (choice of resettlement area, choice of location inside resettlement area, day of relocation etc.) and compensation (level of needs for reimbursement, decision etc.)

- **Choice of resettlement areas**

It is clear that giving rights to decide and/or choose (among given alternatives) their future area for habitation (and cultivation), encourage people to take a greater responsibility in all aspects of not only resettlement but also development issues.

In the case of Song Hinh, when villagers changed their mind, it caused some delay in the general process. But this was a minor cause of the delay. As a lesson for the future the planning of resettlement should take such delay into account. "Participation" certainly takes time but proves to contribute to a more stable development.

- **Compensation**

Housing: people have chosen what type of house they prefer: traditional wooden house (tile roof) or Kinh style house in bricks. Among 338 houses, some 20 houses are Kinh style. Most houses are in good quality.

People decided for themselves for other investments such as purchasing motorbikes, using compensation money to buy rice for their first 6 month of relocation, etc.

- **Safe water** is supplied through the construction of wells (72 in total).
- **Roads** were constructed to enable the access to local communes.
- **School and health stations** are generally sufficient and in good quality.

5. Results of the Mitigation Measures

Generally, it should be said that the resettlement in Song Hinh is successful. Especially when it comes to housing and infrastructure, the compensation was more than what mitigation measures provided and has raised the living standard of the resettlers.

6. Reasons for Success

- Good investigation on the current situation of the group of affected people as well as on the possible areas for resettlement;
- Active involvement of affected people;

- Involvement of other related parties such as local people committee, fixed cultivation and resettlement office, Song Hinh Project Management Board, etc.;
- Good design and sufficient fund for resettlement program.

7. Outside Comments

- 1) Vietnam Economic News No.5 1999

8. Further Information

8.1 Inquiries

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