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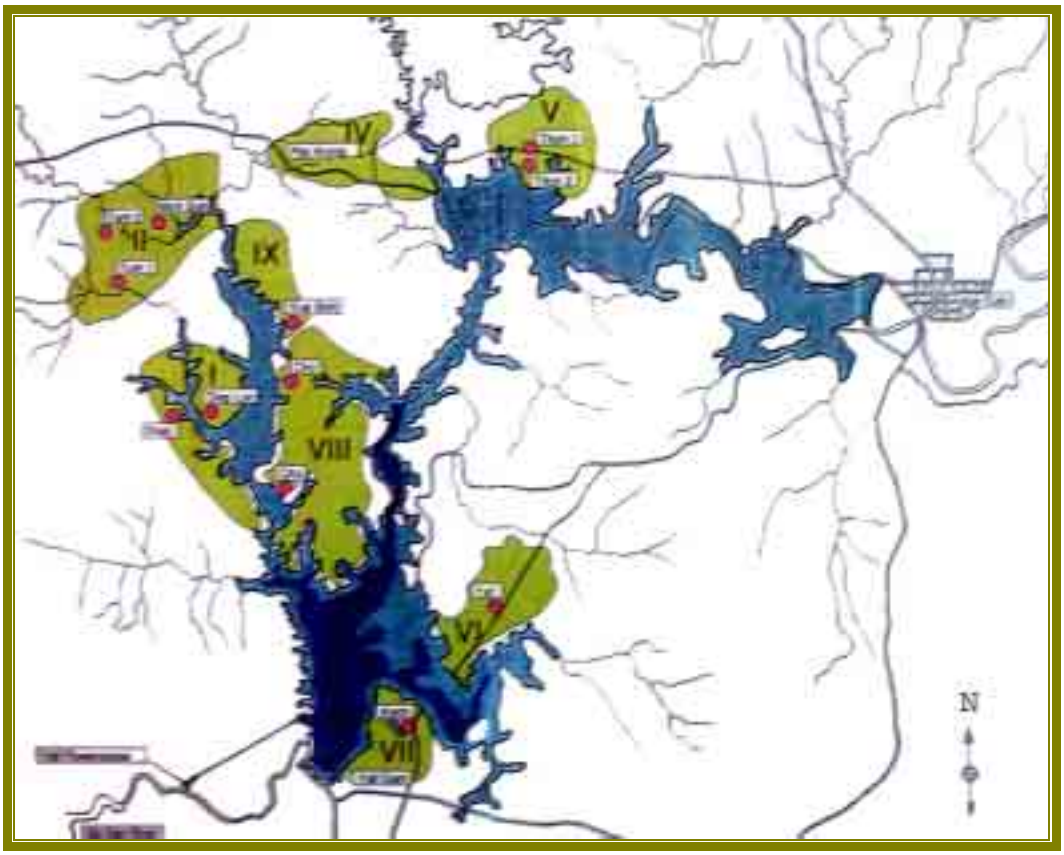
RESETTLEMENT IN HYDROPOWER PROJECTS



Cao Thi Thu Yen

Supervisor: Prof. Dick Urban Vestbro

Stockholm 2003

Master of Science Thesis within Programme Environmental Engineering & Sustainable Infrastructure in Built Environment Analysis, Division of Urban Studies, Department of Infrastructure, Royal Institute of Technology

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ABSTRACT

Large scale infrastructure projects, including large dams, are significant parts of socio-economic development in most nations of the world. Large dams will be constructed in the developing countries in the coming years even though it is still a controversial issue at global as well as national level. The important reason is its negative impacts in the local community and environment. For several decades, many displaced people have been suffering hardship in new places. The issues may lead to impoverished situations of people and this will be constrain society's development.

Vietnam is a poor country. Thanks to the paradigm shift since 1986, the economy has been strengthened considerably, enhancing the income level and welfare of Vietnamese people. As many other developing countries, large dams have been constructed in different regions of the country. Some projects have caused heavy impacts to affected people. Others have gained many sound results in resettlement.

This thesis addresses the resettlement issue and its problems and successes. Specifically, the thesis examines the relationship between the planning process and its actual results. The trend of resettlement in Vietnam and the currently global trend are also analyzed. Lessons from in depth studies of two hydropower projects in Vietnam are drawn, based on the analysis of documents and the use of questionnaires. The results may be useful for other projects in similar contexts in Vietnam and other countries.

Key words: Environmental impacts assessment (EIA), hydropower, social impacts, resettlement, and ethnic minorities, Vietnam.

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LIST OF ACRONYMS

ADB	Asian Development Bank
CRES	Center for Natural Resources and Environmental Sciences, Vietnam National University
EVN	Electricity of Vietnam
EIA	Environmental Impacts Assessment
ICOLD	International Commission on Large Dams
IWRM	Integrated Water Resources Management
NIAPP	National Institute of Agriculture Planning and Projection
PECC1	Power Engineering & Consulting Company 1 or PICC1 before 1999, under EVN
SIA	Social Impacts Assessment
VNESDC	Vietnam Environment Sustainable Development Center (local NGO)
VND	Vietnamese Dong (1$US = 15 000VND)
WB	World Bank
WCD	World Commission on Dams

1. INTRODUCTION

1.1 Problems to be addressed

Water is essential for the survival of mankind, not only in terms of drinking and hygiene, but also for ensuring agricultural production, industrial development, navigation, electricity generation and ecosystem conservation. People's life always heavily depends on water, which during the last centuries supports ever increasing human activities in domestic, agricultural and industrial sector.

The amount of water present on Earth is enormous, but a tiny percentage of fresh water could be used for human life. Besides, the uneven distribution of water over space and time creates floods and, droughts in different areas of the world or even in the same place as nation or region. The large dams have been regarded as the effective solutions to control natural rivers and reattribute water (An, 2000).

Worldwide, an estimated $2 trillion has been invested in more than 45 000 large dams. Between 1970 and 1975, the peak period of dam building, nearly 5000 large dams were built all over the world. Today dam construction has slowed down in the United States and Europe, while developing countries, which currently represent 70 % of the world population, are experiencing a large number of large dam projects. For example, India has seen the erection of some 1554 large dams in the past three decades, and stands for approximately 40% of dams currently under way (Shilva, 2002).

Dam construction has also the reason for many long-term impacts on the environment and social life. While large dams in India have displaced between 16 million and 38 million people, in China, the Three Gorges Dam in the Yangtze River Valley alone has displaced 10 million people. The World Commission on Dams estimates that worldwide, between 40 and 80 million people has been displaced by dam projects (WCD, 2000). Resettlement is the first among many challenges dam construction has to face.

According to Asian Development Bank (ADB), it is increasingly recognized that the people should be at the center of development. The people that may be adversely affected by the development intervention should be consulted, compensated for their losses, and assisted to rebuild their home and communities. Attention to such matters is especially important when the affected people are poor and vulnerable, do not have the capacity to absorb such adverse impacts and cannot remain productive without significant help (ADB, 1995).

The primary objectives of water development projects in the developing world should include poverty alleviation, improvement in the standard of living of populations, regional income distribution, economic efficiency, and protection of the environment. All of these issues have to be assessed against the considerable costs (financial and human) that go into planning, design and construction of any project. Together with classical criteria of technical, economic and financial feasibility, large development projects, like dams, have to satisfy an increasingly stringent criterion, namely social and political acceptance (Bhalla, 2001 cited in Torjtajada, 2001).

In Vietnam, as in most countries of the developing world, sustainable development also means economic growth and poverty reduction. The large amount of money to invest in key projects is becoming the engine for economic development of the nations. As one positive outcome, living standard of majority people of affected people step by step should be improved.

Dam construction is one of the infrastructure projects where there may be a reason to expect long- term impacts on the environment and social life. The dams' reservoirs occupy large areas of land and thus force local people to move to new places. It results in the resettlement of thousands of people, mainly poor and ethnic groups with limited education, this is always a complicated issue. It is almost a certainty that the affected people have to change their life styles because of many risks including poverty.

Since resettlement is such an important issue influencing human life and society, in the last years, various efforts to bring a better life for affected people and local people have been made during dam construction. Even if the process is getting better due to great efforts from governments, technical experts, economists, politicians as well as environmentalists all over the world, the challenge of maximizing positive and minimizing negative impacts of dam projects in different local contexts is still a big question for governments and dam-related activities.

1.2 Research needs

For several decades, thousand of dams were built all over the world. Their contribution in economic growth is significant, but their negative impacts were also recognized. From the 90's, Environmental Impacts Assessment (EIA) is regarded as an effective tool for decision-making in many countries. It is a process to assess potential impacts on environment and society before implementing the project and to offer mitigation measures. Based on the resulting environmental impacts statements (EISs), the decision maker can gain comprehensive understanding of both the benefits and the costs of the projects before the decision to implement project was made. This is an important procedure aiming at facilitating and enabling the prevention, minimization and mitigation of significant adverse environmental impacts of major construction projects in the early planning (Brismar, 2003). Up to now, it is possible to say that EIA gained considerable results in the decision-making process. EIA has become a key planning and decision-making procedure for supporting the advancement of sustainable development, as promoted by the Rio Declaration and Agenda 21 (Brismar, 2003).

Since many social environmental issues were often not comprehensively addressed in the past during the planning and construction of large development projects, there is now strong opposition to such projects. Large dams, because of the size of the areas they affect, have become the hub for opposition by various social and environmental groups. One of the demands of these so-called environmental movements has been the improved social and environmental performance by the governments and now the private sectors, involved in the planning and construction of dams. The increasing pressure exerted by these groups at the national and global levels has had many positive impacts, since the concerned institutions have been forced to improve the process relating to the construction of dams and their subsequent management. The social and environmental issues at the global level have resulted in changes of earlier processes and practices during the planning and construction phases of large dams. Two important benefits have been participation of the stakeholders and better treatment of project affected people (Tortajada, 2001).

In developing countries, large-scale infrastructure projects still continue to be launched. They are likely to have effects and implications touching many phases of life and involving most social, environmental and economic sectors. In the case of large dam projects, it is widely known that they have many economic, social and environmental impacts, both positive and negative. The benefits of these projects have reached millions of people at the regional and even national level mainly in terms of clean water supply, irrigation, hydropower generation, employment creation, and industrial and social development, all of

which contribute to improvements in the life style of the people. The current discussions on water projects at the national and international fora do not usually adequately reflect the consideration of total benefits, direct and indirect, or the nature of the beneficiaries, that stem from such projects. The arguments often exclusively center on the problems the development projects may create because of improper planning, management and implementation. As a result, the anticipated benefits from the projects may not be realized, and/or the beneficiaries could be different from those initial foreseen. In addition, the projects could contribute to unanticipated social and environmental problems, which could affect people and ecosystems adversely. Some people, especially many of those who are to be resettled, may become vulnerable, and thus may not even be able to maintain their previous life (Tortajada, 2001).

To bring good life to the people is the purpose of development projects in general. However, how to make a better life for all people is not easy to foreseen in reality. It is extremely difficult in most developing countries with weak policies, low awareness, poor knowledge and limited financial resources to support sustainable development. Even if there are global or regional laws on involuntary resettlement, the question for Vietnamese researchers is how to adapt these laws to the local context and find the way and the extent to apply them in practice.

1.3 The objectives

The objectives of this thesis are to analyze resettlement-related aspects of how to stabilize the life of project-affected people towards sustainability. The basic purpose of the thesis is to investigate the role that participatory planning resettlement can play in the success of hydropower projects, poverty reduction and the preservation of social values.

The thesis will analyze the major social impacts from hydropower development in Vietnam focusing on the possibility to introduce a good planning of the resettlement process as a component of hydropower projects, which could be considered in the early phase of the projects associated results. It will also investigate to what extent the resettlement planning process has been developed and been implemented.

1.4 Structure of the thesis

The first part of the thesis is the Introduction, which addresses the problem, research needs, objectives and scope of the study. The second part is Theoretical Framework, comprising general concepts and key international and national policies. Next, the Methodological Approach will explain the process of case study selection and analysis. The fourth is the Case study, in which the investigation and discussions of the resettlement processes of two cases are presented. Finally, a Discussion is presented of the key aspects of the resettlement, followed by the Conclusions.

1.5 Scope

The thesis focuses on resettlement of affected people in Vietnam. The impacts due to hydropower development, especially of large reservoirs and dams, are always extensive in term of space. It covers upstream, on site, and downstream areas and surroundings of hydropower plants. It includes physical and social impacts that cover many aspects of nature and human society. The geographic scope is here limited to the areas concern for the resettlement process. These areas are mainly on-site of the hydropower project and surroundings. Social impacts will be in focus. The thesis does not go in depth on the physical environment, technical issues and issues in upstream and downstream areas. The study

reflects the few last decades, in which consideration of human development and environment issues has been rapidly changing in Vietnam and in the world.

2. THEORETICAL FRAMEWORK

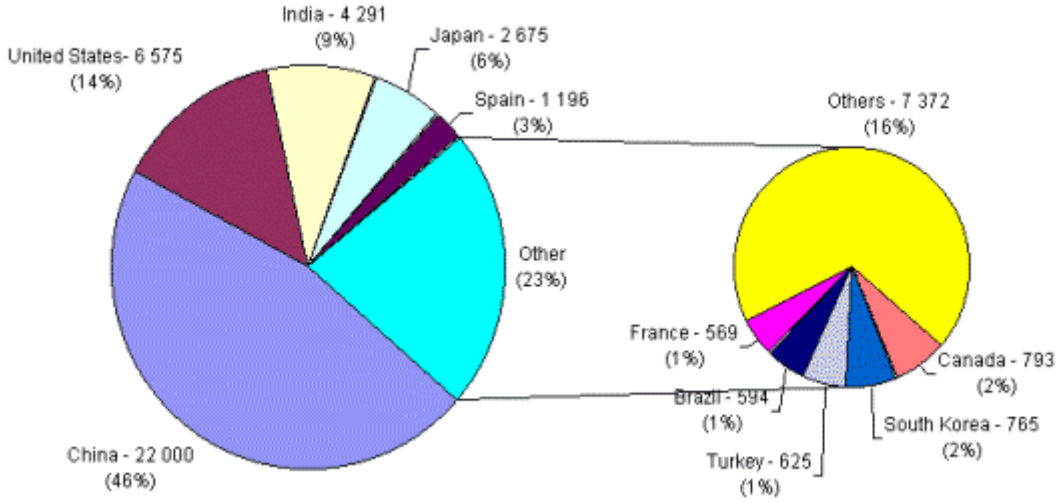
2.1 General concepts

2.1.1. Dams

Dams have been promoted as an important means of meeting the need for water and energy services and as long-term, strategic investments with the ability to deliver multiple benefits. Some of these additional benefits are typical of all large public infrastructure projects, while others are unique to dams and specific to particular projects. Regional development, job creation, and fostering of an industry base with export capability are most often cited as additional considerations for building large dams. Other goals include creating income from export earnings, either through direct sales of electricity or by selling cash crops or processed products from electricity-intensive industry such as aluminum refining. Clearly, dams can play an important role in meeting people's needs (WCD, 2000)

Hydropower accounts for more than 90% of the total electricity supply in 24 countries, such as Brazil and Norway. Half of the world's large dams are built exclusively for irrigation, and dams are estimated to contribute to 12-16% of world food production. In addition, in at least 75 countries large dams have been built to control floods. For many nations, dams remain the largest single investment project in the country. These hydropower, irrigation, water supply and flood control services were widely seen as sufficient to justify the significant investments made in dams, and other benefits were often cited as well. These included the impact of economic properties on a region due to multiple crops, rural electrification and the expansion of physical and social infrastructure such as roads and schools. The benefits were seen as self-evident. When balanced with the construction and operational costs - in economic and financial terms - these benefits were seen to justify dams as the most competitive option (WCD, 2000).

Figure 1: World population of dams, by country



Source: WCD estimates, based on ICOLD and other sources.

There are 45 000 large dams in the world today. A large dam is defined as a dam with a height of 15m or more from the foundation, or a height of 5 m or more but with a reservoir

volume of more than 3 millions cubic meters (WCD, 2000). Dam construction is one of few attractive options of many nations and investors in the last decades. Their contribution to economic growth cannot be denied, but the impacts were also recognized on environment and human beings.

The two principal poles in the debate illustrate the range of views on past experience with large dams. One perspective focuses on the gap between the promised benefits of a dam and the actual outcomes. The other view looks at the challenges of water and energy development from a perspective of 'nation building' and resource allocation. In terms of the social impacts of dams, the WCD found that the negative effects were frequently neither adequately assessed nor accounted for. The range of these impacts is substantial, including those on the lives, livelihoods and health of the affected communities dependent on the riverine environment (WCD, 2000).

Among all dams that were built during the last century, the vast majority of irrigation and hydropower dams are single purpose. In the early 1970s, the environmental movement, notably in the USA, claimed that water resources projects, single or multipurpose, should encompass multi objective analysis. Economic efficiency should be considered at national and regional level and environmental impacts and mitigation measures should be part of the decision making process. More recently, a full multi objectives and multipurpose analysis with public participation is required for water resources development. Multi objectives include consideration of economic efficiency at national and regional levels, equity, environmental conservation, social and political acceptance and national security (Braga, 2002).

The concept of Integrated Water Resources Management (IWRM) provides a holistic approach- based framework for water management, that places due emphasis on equitable social welfare, poverty reduction and sustainability of ecosystems. IWRM is defined as *"... a process which promotes the coordinated development and management of water, land, and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*." (Ahmad, 2003).

2.1.2. Involuntary resettlement

Involuntary resettlement is often a direct consequence of a planned change generated by a major development project or program. It has been a companion of development throughout history, and has been written into the evolution of industrial as well as developing countries.

Several categories of development interventions primarily those that revealed major changes in land and water use are likely to require mandatory population dislocation. Dam construction has been the largest single cause for involuntary resettlement, although its proportional importance currently is dropping as increasing numbers of people are moved due to the construction and renewal of transportation corridors (railways, highways, airport, transmission lines, irrigation canals, and others that require right of way); new ports and towns; urban infrastructure, such as sewerage systems, intercity roads, and subways; mining development; major industrial estates or zones that require considerable land ; and protection for forest reserves or national lands (Cernea, 1991 cited in Tortajada, 2001).

Voluntary movement of people such as rural-urban migration and transmigration programs organized by governments often aims to stimulate economic growth. The people involved in such movements are likely to be self-selected, young or middle-aged men that are single or households headed by such men. They are dynamic, initiative, and with willingness to take risks and pursue new opportunities and challenges. Successful government-organized

transmigration programs are often planned with significant attention not only to new home sites, but also to new livelihood opportunities, social services, and community organizations and even cultural and religious needs (ADB, 1995).

On the other hand, involuntary resettlement involves people of all ages and genders, some of whom may be evicted against their desires. Many of these people may be risk averse and may lack the dynamism, initiative to move and reestablish in a new location and undertake new avocations. Women and households headed by them are likely to suffer more than men because the compensation is often paid to the men, households headed by women usually have fragile economic status, and women have limited access to many support services. Without significant help, people who are involuntarily resettled may become impoverished. If involuntary resettlement is unavoidable, it should be well planned and executed so that economic growth is enhanced and poverty reduced, especially for such vulnerable people (ADB, 1995).

Impoverishment is a state of having little or no money and few or no material possessions. A recent study of resettlement and development revealed that forced population displacement may lead to eight forms of impoverishment: unemployment, homelessness, landlessness, marginalization, food insecurity, loss of access to common property, erosion of health status, and social disarticulation (Cernea, 1990 cited in Tortajada, 2001).

World Bank experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks: production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. This policy includes safeguards to address and mitigate these impoverishment risks.

However, development is a complex issue. Involuntary displacement due to certain projects, imposed by more broadly based interests, is only one such case. Recognizing that some degree of involuntary displacements cannot be avoided during certain development projects does not mean that these should not be accepted. It should be realized that development projects must contribute to the local and national well being, but these could have unavoidable negative impacts on certain population groups. What is thus necessary is some means for reconciling the conflicting interests between those who benefit and those who pay the costs. People who are negatively affected should be properly compensated (Cernea, 1991 cited in Tortajada, 2001).

Involuntary resettlement is a complicated process for the government and a hardship process for the persons that have to move. The people have to face many risks brought on by the new life situation, as said above. They may meet big changes in physical terms or psychological terms or both of them. It is clear that they need to be fully compensated and assisted.

2.1.3. Ethnic minorities

Ethnic minorities or indigenous people are generally described as social groups with a social and cultural identity distinct from the dominant society that makes them vulnerable to being disadvantaged in the development process. According to WCD and the World Bank, some of the following characteristics of indigenous peoples can be identified. They include (i) a close attachment to ancestral territories and to the natural resources in these areas; (ii) self-identification and identification by others as members of a distinct cultural group; (iii) an indigenous language, often different from the national language; (iv) presence of customary

social and political institutions; and (v) primarily subsistence-oriented production (ADB, 1998).

It is increasingly recognized that the diversification of culture and social aspects is a benefit of social development. Development of the life condition of ethnic minorities is a result of a combination of economic development and considerations of community development and social, cultural and environmental conditions. All cultures have their values and equal opportunities to access development benefits. Just like majority people, ethnic minority groups are entitled to use their own dialect and language, scripts and writings, to preserve and promote their own fine traditions, customs and cultural characteristics. There is a policy of equity, unity and mutual assistance among ethnic groups on international and national levels.

World Bank's Operation Directive 4.20 describes policies and processing procedures for projects that affect indigenous peoples. It sets out basic definitions, policy objectives, and guidelines for the design and implementation of project provisions or components for indigenous peoples, and processing and documentation requirements.

How to approach indigenous people affected by development projects is a controversial issue. Debate is often phased as a choice between two opposed positions. One pole is to isolate indigenous populations whose cultural and economic practices make it difficult for them to deal with powerful outside groups. The advantages of this approach are the special protections that are provided and the preservation of cultural distinctiveness; the costs are the benefits from development programs. The other pole argues that indigenous people must be accord to dominant societal values and economic activities so that they can participate in national development. Here the benefits can include improved social and economic opportunities, but the cost is often the gradual loss of cultural differences (WB, 1991).

The World Bank's policy with respect to the strategy for addressing the issues pertaining to indigenous peoples is based on the informed participation of the indigenous peoples. Thus, identifying local preferences through direct consultation, incorporation of indigenous knowledge into project approaches, and appropriate early use of experienced specialists are core activities for any project that affects indigenous peoples and their rights to natural and economic resources.

The ethnic community of Vietnam is composed of 54 different ethnic groups in which, the population of the Kinh group is 86% of the total country population. The population of the rest of the 53 ethnic groups is about 11 million people; accounting for 14 % of the total population. The community of the ethnic minorities of Vietnam possesses diversified and profound cultures with respectively unique traditions and characteristics. The ethnic minority groups belong to different language families, but because they often live together, one ethnic minority group, while retaining its own cultural identity, can know the language, traditions and customs of the others through daily relations and cultural exchange. The ethnic minority groups of Vietnam inhabit mainly the mountainous areas. Different ethnic minority groups live closely together and there is no unique area for any ethnic group. The habitat of the majority of ethnic minority groups is the far and remote mountainous; highland; and border areas, where abundant natural resource potentials. However, there are numerous difficulties, such as poor infrastructure, simple farming and production practices, low productivity as well as slow socio-economic development, limited educational background and knowledge, and a small portion of people practicing self-subsistence and shifting cultivation. Over the last decade, with the country's economic growth, the socio-economic situation of the ethnic minorities in mountainous areas have been improved and changed for the better but at a low rate. The big gap on income, material and spiritual life between these areas and others still exits.

Ethnic minority people who were forced to move due to development projects have experienced all risks like dominant groups. Besides, they may face more risks since they do not preserve all the characteristics of traditional communities.

2.1.4. The role of basic infrastructure projects in poverty alleviation

Poverty reduction requires economic growth which, when accompanied by sound management and good governance, results in sustainable and socially inclusive development. In order to improve quality of life, greater access of the poor to education and heath services, and water is needed. Moreover, enhancing their well being and encouraging investment in human capital must reduce the vulnerability of the poor to economic shocks and natural disasters. Public policy reforms and investment in physical infrastructure will significantly contribute to social development.

Road density has a significant positive effect on the consumption expenditure of rural farm households in poor regions in China. For every 1% increase in kilometers of roads per capita, household consumption rises by 0.08 percent. An evaluation of World Bank-assisted rural electrification projects in Asia indicates that in Bangladesh and India rural electrification raises the use of irrigation, thereby significantly reducing poverty. The beneficiaries also feel an improvement in their lives, a diminution in the sense of powerlessness and instability, and an increase in empowerment. Irrigation significantly contributes to farm productivity and wages, reducing poverty and income inequality. Research in India, Philippines, Thailand, and Vietnam suggests that poverty is substantially lower in irrigated areas compared with un-irrigated areas (ADB, 2003).

Rural infrastructure investments can lead to higher farm and no farm productivity, employment and income opportunities, and increase availability of wage goods, thereby reducing poverty by raising mean income and consumption levels. If the higher agricultural and non-agricultural productivity rates and employment levels will directly benefit the poor, these investments can reduce poverty even faster by improving income distribution as well. However, targeting government interventions to reduce poverty can only be regarded as supplementary to fostering economic growth, which is the more durable approach to sustained poverty reduction and overall improvement in living standards. Public investment in physical infrastructure is needed to raise productivity and achieve long-term growth. Such investment is especially critical in rural areas for at least two reasons: firstly, because ample potential remains for raising rural productivity and employment level, thereby contributing significantly to faster overall economic growth in many developing countries; and, second, because rural areas are home to the majority of the poor in these countries (ADB, 2003).

2.1.5. Sustainable Development

According to UNEP, sustainable development is the development that improves peoples' quality of life, while caring for the earth's life support system.

Sustainable development is necessary in order to create better living conditions. Achieving sustainable development will not hinder poor countries from developing. Environmental protection is not in contradiction of poverty elimination, but rather its precondition. Despite the fact that the population growth rate in most developing countries has steadily declined during last years, the total number of poor people in the world is still increasing. Furthermore, information and communication revolution has meant that expectation of the people has increased radically in recent years. Disenchanted with overall results of the past development policies, government and development professionals over the world are now searching for new and implementable paradigms which can simultaneously contribute to

issues like reduction of poverty, improvement in quality of life, social cohesion, and environmental protection. (Tortajada, 2001).

There is a trend in development of societies toward plurality with a combination of modern and traditional ways. A basic difference between the ideals of eco-development and modernization of society is the fact that diversity is acknowledged as an asset and not a hinder for expansion of the economy. Diversification also means flexibility in the context of development. That multiple forms of organization can coexist in the same space is proved in the different forms that the poor have found to make their living both in urban and rural areas of the developing world. There are different markets for different types of labor and goods. There are enormous needs to be attended in poor regions such as improvement of water and sanitary services, housing upgrading, health care etc, which demand large amount of investments. Considerable improvements can be attained and life conditions improved in a diverse environment even before a complete modernization is accomplished and this should be the first objective of a development strategy (Silveira, 2002).

The need for reformation of development policies is becoming increasingly apparent and urgent with the passage of time. The current general thinking is that exclusive reliance on techno- economic aspects of development policies cannot provide all necessary conditions, which could ensure that all people concerned in an equitable manner enjoy the fruits of development policies. Development policies thus must go beyond techno-economic consideration and must include social and environmental factors, as well as objective review of capacities of the institutions that are likely to implement them. It is thus essential that development policies be formulated within a much broader and integrative framework than has been in the past. The objectives of development planning must include improvements in the quality of life of people, to fulfill their needs and expectations, as well as protection of the environment (Tortajada, 2001).

2.1.6. Public participation

Today, in connection with large infrastructure projects, it is common practice to organize participatory activities as a part of the EIA studies. The main purpose of the participation is to secure that the interest of the affected population are treated adequately in the project planning. Participation can be beneficial to the local people, helping to reduce negative socio economic impacts from development project including hydropower and making people able to take better advante of potential positive impacts. Participation can also introduce democratic element into negotiations and agreement that may form a base for a long term and solid relationship between the parties. It is also implied that the local people can strengthen their organizational structure which will make them better prepared to define their role in the development process. One result may be that the people will be better prepared to adopt new technologies. Popular participation will not means any reduction of the responsibility and authority of project management. On the contrary, it will strengthen the position and increase the possibility that project will be executed in a spirit of co-management based on some common interests (Ismode, 2000).

Popular participation has become a widespread central principle of development activities. "*Putting people first in development projects mean giving people more opportunities to participate effectively in development activities. It means empower people to mobilize their own capacity, become social actor rather than passive subjects, manage resources, make decision and control the activities that effect their lives*" (Cernea, 1985 cited in Ismode, 2000).

According to Ismodes, there are four levels of participation. The minimum level is Information with the provision of information and expression of opinions on the project purposes. The higher level is Consultation characterized by the use of local knowledge and two-way communication. Meeting, workshop and community gatherings will be organized in order to rank priorities and select project alternatives and options. The next level is Joint-decision making in which the people directly contribute to the decision-making process by analyzing available information, evaluating the impacts, and suggesting the changes to enhance benefit or mitigate risks.

The most advance level is Co-management that creates organizational change. The point of view of all participants contributes to an improved outcome of the project. This relationship recognizes and promotes the development of the common goals based on a philosophy of win-win. Besides, the concept of empowerment has been used in recent years as a tool to improve the living standards of the local people and fight poverty. The concept's focus is to raise the people capacity to change their own situation (Ismode, 2000).

2.2 Resettlement policies

2.2.1. Vietnam policies

Vietnam ranks among the poorest countries in the world and at present it is in the course of restructuring. The economic growth rate has been rather high in last years and significant changes occur everyday. So legal documents, although they have been issued, are still to be amended in the process of implementation, especially in the fields where Vietnam still lacks experience. Find below some legal documents related to resettlement.

a. Before 1993

The economy is centralized and cultivated land is considered as property of the whole people in the country and managed by Agricultural Cooperatives or State Farms. The resettlement process was regarded as a simple compensation issue of moving the affected people by Agricultural Cooperatives or State Farms to new places.

The compensation guideline rarely included restoration measures and improving the living standards of affected people. There were a few guidelines related to development before 1993 that could be seen in the first part of Yali hydropower project.

b. After 1993

The country's economy has been developing in a market-oriented manner since 1986. The renovation enables further investment and development. The number of projects that cause involuntary dislocation of people is increasing. The Government of Vietnam has made some efforts to study and regulate policies and regulations, directories, and guidelines aiming to create legal environment appropriate for socio- economic development in reality. From 1993 a range of policy and guideline documents related to resettlement were issued. The documents facilitate resettlement plans as well as economic growth that bring improvement of to the living standards of Vietnamese and reduce poverty. The Government also issued legal papers on affected people-related issues, such as compensation of land, forests, houses, infrastructure, service facility, dislocation and other social issues.

In the constitution of Vietnam, among others, it says that the State and society seek to preserve and develop Vietnamese culture, which shall be national, modern, and humanistic; it shall inherit and promote the values of all nationalities in Vietnam (article 1). The State

shall promote diversity in literacy and artistic (article 32) education and training are top-priority policies. The state develops educational work with a view to heightening the people's spirit, training manpower, and fostering talent. (article 35) The State makes investment that ensures the development of the protection of people's health; prevention shall be combined with treatment, etc. Priority is given to the program of health care of highlanders and national minorities (article 39). (Selection of Fundamental Laws and Regulations of Vietnam, 1995).

Law on Land 1993

The Law on Land came into force in 1993 and replaced law on land of 1987. The law has been regulated continuously in order to match with the new situation of the country. The law includes seven chapters and 89 articles. It defines administration of land, use of various types of land, rights and obligations of land users and regulations on land rent. The law says that land in the Vietnam territory is property of all Vietnamese and is subject to administration by the State. The State shall allocate land to organizations, family household, and individuals for use on stable and long-term basis (article 1). The State shall protect the legal rights and interests of land users. Households or individuals shall have the right to exchange, transfer, rent, inherit, or mortgage the right to use land allocated by the State (article 3). Where necessary, the State shall, for the purpose of national defence, security, national or public interest, recover possession of land, which is currently being used. In such cases the land user shall be entitle to payment of compensation in respect of recovery of possession by the State (article 27). Where the land is reclaimed for other uses, the purposes must be in accordance with the zoning and planning approved by competent State bodies. Before recovery of possession of the land, the land user shall be notified of the reasons for which the land is to be recovered; the time; the plan for transfer; and the methods of compensation (article 28). Local People Committee is to be entrusted implementation of national management at different levels (Selection of Fundamental Laws and Regulations of Vietnam, 1995).

Law on Environment

The law includes seven chapters and 55 articles that were passed in 1993. Environmental protection as defined in the law includes activities to keep the environment clean and healthy; to prevent and overcome unfavorable influence on environment by people and nature; to exploit and use rationally environment components (article 1). The State manages environmental protection throughout the country (article 3). The use, exploitation of agricultural and silvis cultural land must be in compliance with the land protection. Measures to limit the rate of erosion, desertification of land must be taken in production, business and construction activities (article 19). Overcoming environmental accidents, pollution, degradation include activities among others, rescue human lives and properties; relieve and help to stabilize people's living, restore production and create environmental hygiene, reduce pets and diseases (Selection of Fundamental Laws and Regulations of Vietnam, 1995).

Decree 64/CP 1993 on the right of cultivated land is transferred to farmers

This is a basic guideline on agriculture land for household and individuals in the long term. It certificates on the right of land use to be in the hands of the majority of land users aiming to limit redistribution. Provincial People Committee is responsible for consideration and handing in certificates on right of land use based on proposals by communities, ward, and town People Committee. The maximum area is two ha for annual cultivated land and 10 – 30 ha for forestland depending on plain land or hilly and mountainous land. The article has also some exceptions. (article 5, 13) The paper also defines that a few percentages of total

cultivated land area for common purposes of the community mainly for compensation of development policies.

Decree 87/ CP 1995 on land prices of land

Agricultural and forestland are both divided into plain, hilly or mountainous area. The provincial People Committee defines the prices of all types of land based on the price frame set by the Government of Vietnam. From the detailed price, the tax is identified when the host wants to transfer the right of land use, rent or compensation. The price can be changed timely depending on the level of infrastructure provision.

Decree 22/1998/ND-CP on compensation for damage when the State recover land

The guideline has replaced decree 90/CP 1994, which defines resettlement –related issues of key projects as infrastructure provision and others. The land for compensation is the land to be defined for common purposes. The principle land for land is applied. The resettlement area should be suitable with urban and rural planning and criteria of construction in these areas. Infrastructure is available in compensation of land before it is transferred to resettled households and individuals. Some important and detailed articles of the decree address of affected people of hydropower projects as follows:

Cultivated land area is compensated by cultivated land in new places. Higher quality or surplus area of compensation land is free for affected people. Contractively, the compensation in cash in timely price is used if the affected people receive lower quality or smaller area than their old- land. In addition, the land for house and garden with area of 400m2 to 1000 m2 is provided each household. The compensation following certain price that should be paid in case the land received has lower quality or smaller area. All legal papers on right of land use should be handed to affected people without any fees.

All households are provided drinking water in suitable measures and condition. Building of main roads that support regional socio- economic development including resettlement is a priority in investment. The connected road to closest main road is defined and built according to rural area prompts. Affected people have right to access of electricity. In the place where the national network can reach new villages, the priority is considered to connect soon. In the region electricity is still off grid, the small hydropower or others are studied to supply electricity to affected people households with the basic equipments. Health care and education system in resettlement area is given priority to meet master plans professionally with all affected people's health taken care of and all children have the right to go to their school.

Summing up about legal environment in Vietnam

Legal papers related to resettlement have made progress in recent years. The policies, decrees have become more detailed and flexible to minimize the undesired impacts for project-affected people. However, "three times to move house equal one time the house is burnt"- a Vietnamese proverb emphasizes the hardship and risks that people have to face when being displaced in general. There is thus a need for more comprehensive and in-depth studies to obtain an advanced legal framework on involuntary resettlement in Vietnam.

2.2.2. International policies on Involuntary Resettlement (WB, ADB)

Many development projects that require involuntary displacement of people generally have adverse economic, social, and environmental impacts on the displaced people. Homes are abandoned, production systems are dismantled, and productive assets and income sources are

lost. Displaced people may be relocated to environments where their skills may be less applicable, the competition for resources may be greater, and the host populations may be hostile or culturally incompatible. Well-established community structures, social networks, and kinship ties may be broken or weakened. Cultural identity, traditional authority, and the potential for mutual help may be diminished. For survival, displaced people may be forced to over-exploit ecologically fragile areas, exacerbating environmental degradation. The adverse impacts on the host populations may also be significant. The absence of appropriate development measures for compensation, resettlement, and rehabilitation of the displaced people may (i) cause severe long-term hardship impoverishment, and even decimation of the affected communities (ii) adversely affect the host populations; and (iii) lead to severe environmental damage.

Involuntary resettlement should be an important consideration in project planning. The three important elements of involuntary resettlement are (i) compensation for lost assets and loss of livelihood and income (ii) assistance for relocation including provision of relocation sites with appropriate facilities and services, and (iii) assistance for rehabilitation to achieve at least the same level of well-being with the project as without it. Some or all of these elements may be present in projects involving involuntary resettlement. For any project that requires relocating people, resettlement should be an integral part of project design and should be dealt with from the earliest stages of the project cycle taking into account the following basic principles, according to the Asian Development Bank (ADB, 1995):

Involuntary resettlement should be avoided where feasible. Where displacement of population is unavoidable, it should be minimized by exploring all viable project options.

If individuals or a community must lose their land means of livelihood social support systems or way of life in order that a project might proceed they should be compensated and assisted so that their economic and social future will generally be at least as favorable with the project as without it. Appropriate land housing infrastructure and other compensation comparable to the original (without project) situation should be provided to the adversely affected population including indigenous groups, ethnic minorities who may have customary rights to the land or other resources taken for the project.

Any involuntary resettlement should, as far as possible, be conceived and executed as a part of a development project or program and resettlement plans should be prepared with appropriate time bound actions and budgets. Re-settlers should be provided sufficient resources and opportunities to reestablish their homes and livelihoods as soon as possible.

The affected people should be fully informed and closely consulted on resettlement and compensation options. Where adversely affected people are particularly vulnerable, resettlement and compensation decisions should be preceded by social preparation to build up the capacity of the vulnerable people to deal with the issues.

Appropriate patterns of social organization should be promoted and existing social and cultural institutions of re-settlers and their hosts should be supported and used at the greatest extent possible. Re-settlers should be integrated economically and socially into host communities so that adverse impacts on host communities are minimized. One of the effective ways of achieving this integration may be by extending development benefits to host communities.

The absence of formal legal title to land by some affected groups should not be a bar to compensation. Affected persons entitled to compensation and rehabilitation should be identified and recorded as early as possible, preferably at the project identification stage, in order to prevent an influx of illegal encroachers, squatters, and other nonresidents who wish

to take advantage of such benefits. Particular attention should be paid to the needs of the poorest affected persons including those without legal title to assets, female-headed household and other vulnerable groups. Such as indigenous peoples and appropriate assistance provided to help them improve their status.

The full costs of resettlement and compensation, including the costs of social preparation and livelihood programs as well as the incremental benefits over the "without project" situation should be included in the presentation of project costs and benefits (ADB, 1995; WB, 2000).

2.3 Conclusion

Even though large dams continue to be an object of many global discussions, it is clear that they will continue to be constructed in coming years in developing countries thanks to their largely positive effects. EIA has become a formal procedure in most countries to mitigate their negative impacts but it will take more time to make it an effective tool for decision makers. Over the world, there are many studies about dam related issues including anti dams issues and certainly such studies will be continued. The large dams gradually are on the way towards sustainability. At present, the analysis of dam projects on the basis of multiple-objectives has become rather popular. IWRM has also been implemented in many countries. These approaches have enabled more comprehensive and in depth consideration of economic, social and environmental issues at different levels with the aim to ensure sustainable development.

The need to develop the economy in developing countries is imperative for meeting the demand to improve the life quality of the people, the majority of which are the poor. During construction of large-scale projects, large areas of land are occupied. It should be noted that there is a much higher density of population in these nations than in developed ones. Depending on the location and scale of the project, the scale of involuntary resettlement will be different but for many projects it will be unavoidable. Such as general case for the large dam since the reservoir almost always occupies flat and fertilized land area with very high density of inhabitants. Therefore, the resettlement has become an important issue in hydropower development.

Sustainable development could be regarded as a dynamic process to gain a healthy, prosperous and stable life for mankind. Undoubtedly, economic development is necessary to ensure the existence of society in general and individuals in particular. Individuals belong to the society and the nature. The sustainability only becomes feasible if the development processes are appropriately considered in the context of economy, environment and culture.

However, the nature of society is complex. In fact resettlement may be regarded as a moving unit of society. Those people may face many risks. Therefore, if it happens, very careful consideration with full public participation has to be given to all aspects of resettlement, from physical to socio- economic. It is especially important when target groups are "ethnic minorities".

3. METHODOLOGICAL APPROACH

3.1 Research perspective and approach

Research will always be driven and modeled by interests, attitude, and perspective of the researcher, as well as circumstances under which the research is performed. Despite any personal drive, the researcher should always strive to be critical and systematic in selecting and analyzing the material, in order to generate results of high reliability and validity (Brismar, 2003).

The selection of the thesis questions originates from the interest in economic development to be harmony with preservation of social and environmental values within the carrying capacity of local resources. The key focus in this study is consideration of social issues in hydropower development.

Some different studies methodologies were considered, and the case study method was found to be the most suitable approach for the purpose of the thesis.

A case is phenomenological in its context. Cases can be of different nature; they may be determined and defined in social, spatial or temporal terms. A case study is both a process of learning about the case and the product of our learning from the case, i.e the case study report. There are two methods that have an influence on case study methodology. One is the qualitatively oriented method from the humanities and the second is the quantitatively oriented experimental method originating in the natural science (Johansson, 2002).

According to Yin, there is a distinction between different types of case studies. A case study may be holistic or embedded. A holistic case study has its focus on the case as a unit of analysis. In an embedded case study, the case is still a unit of analysis, but there are also subunits of analysis of the case. There is also a difference between a single case design and multiple-case design (Yin, 1984 cited in Johansson, 2002).

The embedded case study was applied in this study. The author wishes to analyze the resettlement process through both the units of the projects and its subunit. The qualitative method and comparative method of studying were combined in data collection and analysis. A systematic analysis and comparison of key aspects of the resettlement process and a survey was used to look deeper into the issue.

In the study, the descriptive strategy was promoted to examine the procedure of resettlement in the local context. Besides, the explanative strategy was combined in analyzing the process to obtain further results. The selection of two case studies enables the author to study intended issue from not only analysis of specific events in each case but also from comparison.

The aim of the thesis is to find a better procedure for planning resettlement in the national context through investigation, analysis, explanation and comparison of the gathered information. The study requires a suitable research design that is presented in the next sections.

3.2 Selection of cases

In a case study, the choice of case is of the greatest significance and crucial for the possibility of generalizing to theories and to identify general categories (Johansson, 2002).

There are four criteria of the selection of case studies. In this study, the first criterion is Vietnam's electricity power projects that originate from the wish of the author to contribute the sustainability of the energy development in the country. The second one is large dam, which causes large numbers of displaced people, therefore many aspects of resettlement may be in critical contexts, and accordingly more lessons may be drawn. The third criterion is that dam projects to be addressed should have been completed with the hope to get better understanding of resettlement issues. Finally, choosing different projects in different development periods of the country could enables lessons to be drawn from the whole history of resettlement in Vietnam.

We are now in the initial stage of hydropower development in Vietnam. Until 2000, there were eight hydropower projects in large and medium sizes completed with total installed capacity of 3300MW, about 17% of the estimated potential of the country. Electricity of Vietnam (EVN) has a plan to build dozens of additional hydropower projects by the year 2020 in the whole country (table 3.1 and figure 2).

Table 3.1: Large scale hydropower projects in Vietnam

Projects	Installed capacity (MW)	Reservoir area (km2)	Displaced People (person)	Phase	Year Start-Comple.
Thac Ba	108	235	-	Commissioned	1971
Tri An	420	326	-	Commissioned	1985
Hoa Binh	**1920**	**208**	**56 295**	**Commissioned**	**1979-1994**
Son La	2400	260	65983	Feasibility Study	2005-2015
Tuyen Quang	300	80	20676	Implementation	2002
Ban Mai	480	153	36605	Feasibility Study	-
Rao quan	78	9	1299	Feasibility Study	-
Yali	**720**	**65**	**8475**	**Commissioned**	**1992-2002**
Se San3	273	6.4	-	Implementation	2002
Pleikrong	100	53	5851	Technical Design	2003
Se San 4	360	67	1585	Feasibility Study	-
Ankhe Kanak	160/13	20	2036	Technical Design	-
Song Hinh	70	41	1390	Commissioned	2000
Da Nhim	160	-	-	Commissioned	-

Source: PECC1

Two cases among the above projects were selected. The projects are expected to provide learning lessons. They are different in terms of planning, implementation and results in the commissioned phase of each project (table 4.13).

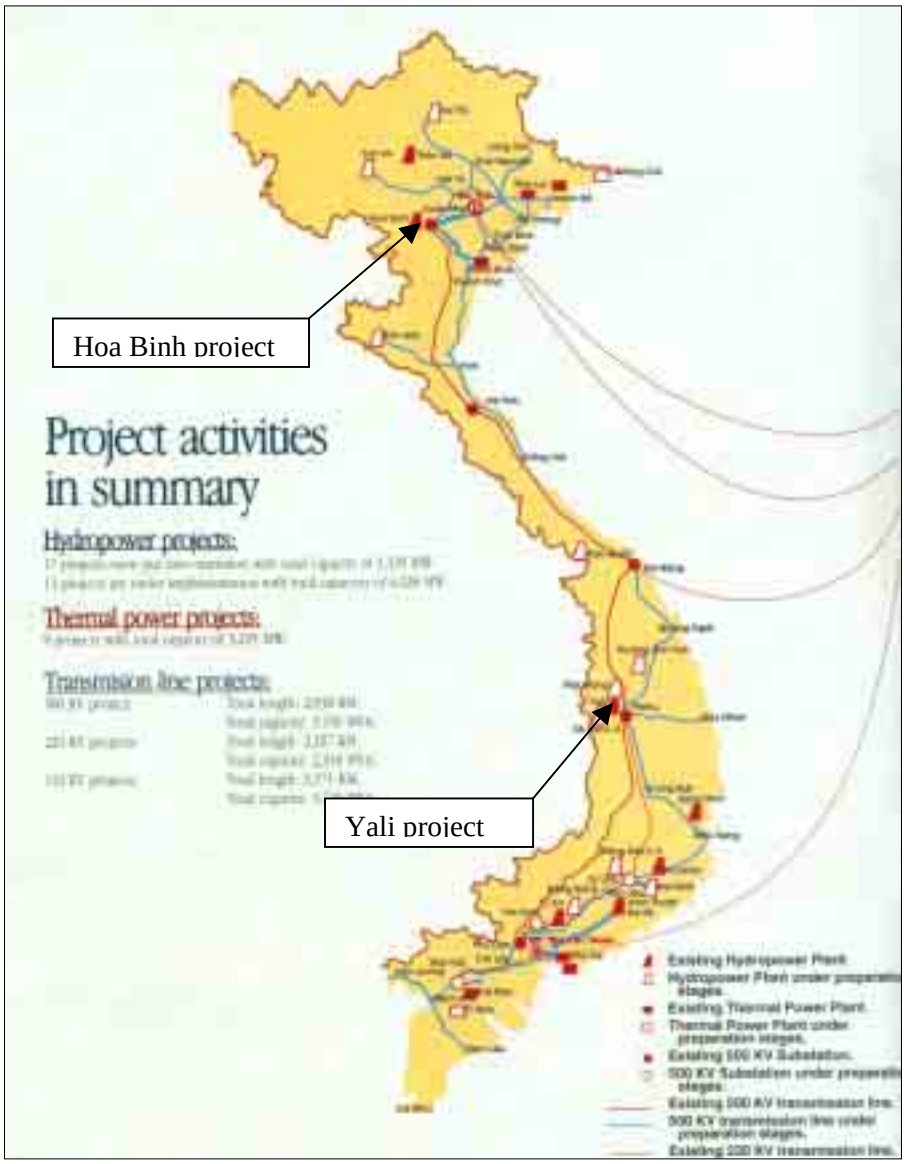
Hoa Binh project is selected as the first case. It is well known firstly because many pieces of evidence showed its huge positive impacts on Vietnam's development. It has been contributing a significant part of 40% electricity to the national grid system and for flood control for the Northern region of the country. The second reason is the heavy consequences for people and environment. In this case, EIA was implemented after the completion of the project. Many lessons therefore may be drawn when studying this case.

The second one is Yali hydropower project. In Vietnam, Yali is the first hydropower project, in which EIA were carried out **before** the launching of the dam project. Many researchers believed that the Yali project has had a good guideline on resettlement, wherefore it has been regarded as standard for other projects. From analysis of its successes and drawbacks, further knowledge and experiences could be obtained.

3.3 Methods for collection of data and analysis

Most of the analyzed documents were gained in Vietnam from EVN and other organizations to gain overall knowledge on interested issues. The data were provided through the most common methods such as documentation and interview. Analyzed material is selected against a set of the criteria the author wants to work out (table 4.13 and figure 3). All process of data collection and analysis was conducted to find the final studied results.

Figure 2: Vietnam energy system



(Source: PECC1)

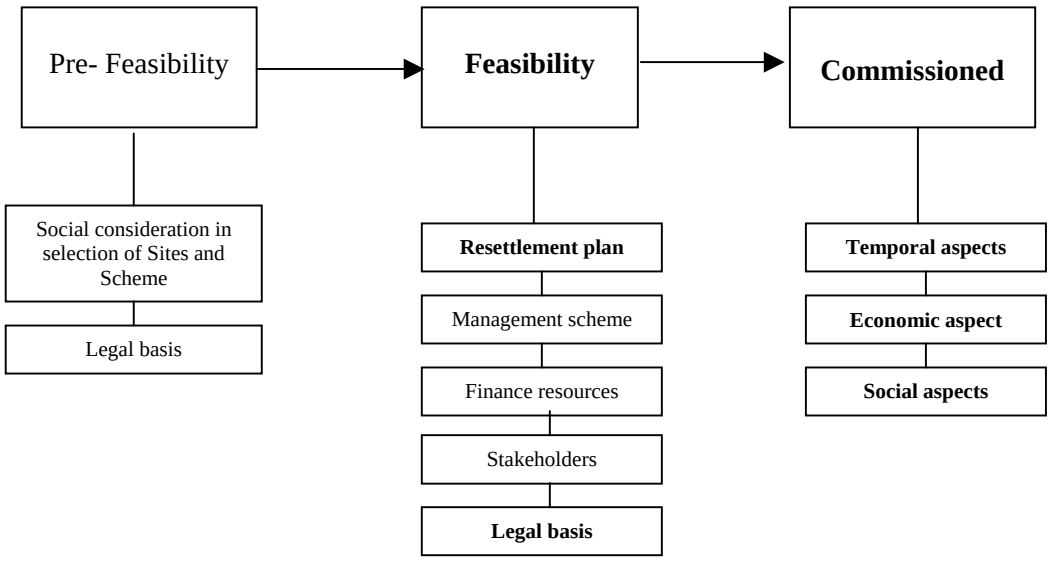
Memoranda, written reports on the event to administration documents as proposals, progress reports and other internal documents on the related issues were gathered from people who have been involved in the resettlement process. Written policy, reports on resettlement by WB, ADB, WCD and several formal studies and evaluation about the issues from different organizations such as universities, NGOs and other documents as mass media and photos were collected.

Interviews in the form of semi structured interviews i.e. open and closed questions and semi structured questionnaire were used. Formal and informal interview was conducted with a wide range of people who have experiences of EIA, SIA and resettlement in consulting, management and designing bodies aiming to validate the results. A survey was conducted in 30 households of Dieploc village. The questionnaires were distributed to people randomly chosen. About one of each three households in the list was marked for the distribution. The author has designed the questionnaire, done pilot study and analyzed the results (appendix 1). The survey aims firstly to obtain data of the intended period of study. The second aim is the specific example for the whole case's analysis. The third reason is to investigate the trend that was found through gathered documents.

The survey may have some limitations. The author may not have been provided with additional information that was not in the designed questionnaire. Other constraint could be that the predefined requirement may not be completely met because of the barriers of language, education level and awareness.

Project development is comprehensive process that includes different components that interact with each other. Several certain key components should be analyzed in the planning procedure. Many problems occur in the later phases of a development project, but it is normally initiated in the planning phase. The study's analysis and data collection are carried out based mainly on the component of the resettlement plan in the phase of Feasibility Study and some aspects of Commissioned phase as illustrated in figure 3.

Figure 3: Resettlement Process



The selected questions and approach, as well as the outcomes, should thus be interpreted in the light of the preconditions for the actual work. A short description is here given of the implementation steps for the thesis. Firstly, the review policy of international bodies on involuntary resettlement was done to understand the discourse in the world today to get the frame of knowledge on the issue. Next, analyze documents collected from involved

organizations such as consultant, planner, designer and manager of the whole process to get the implementer's viewpoint. Then, an analysis was made of several reviews and questionnaires conducted by NGOs and other bodies in recent years. Finally, the task was to integrate the gathered data and to make comparison with the actual investigation and to draw conclusions.

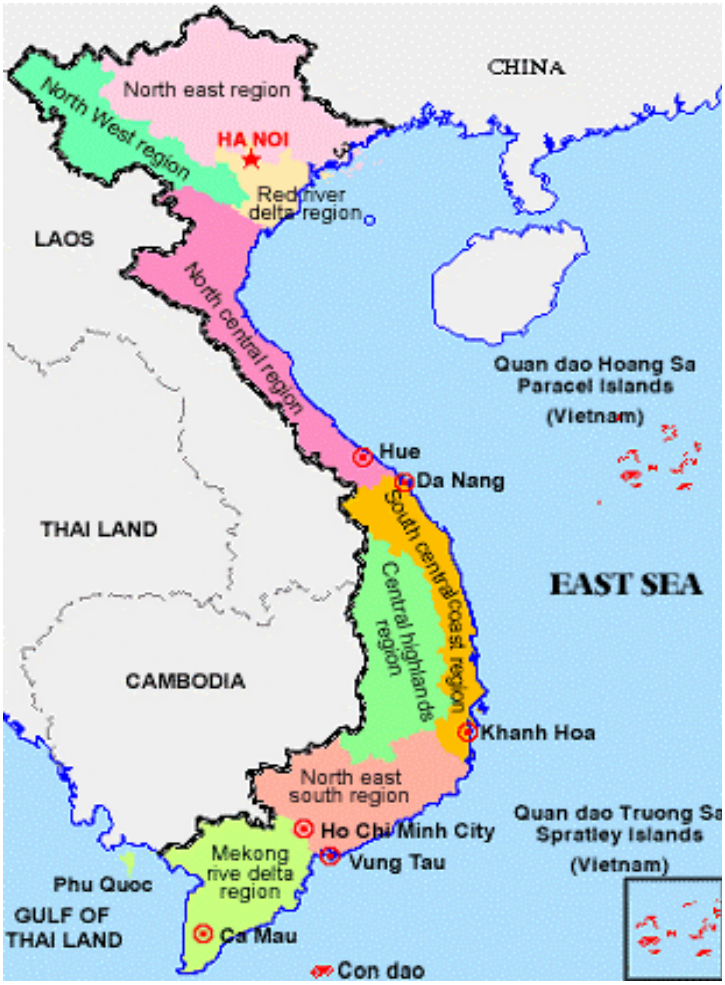
The applied method may not be the optimal one to approach the issue. The study would have been more detailed if there were a statistics survey. The author has made a great effort to gather existing documents. They covers the main aspects of the issues and are sufficient for answer the questions. However, the documents are not all very detailed. The best results are gained when there were available documents of the professionals of related issues. This requires a systematical review and monitoring of social impacts after resettlement.

4. CASE STUDIES

Vietnam is located in the center of the Southeast Asia, and is shaped like the letter "S". The country lies in the eastern part of the Indochina peninsula, bordered by China to the north, Laos and Cambodia to the west, and the East Sea and Pacific Ocean to the southeast (figure 4). The total land area is 329 566 square km of which mountains and hills represent 75%. Of the total population of 76 millions in 1999, approximately 80% are occupied in the agricultural sector, making Vietnam one of the most densely populated agricultural countries of the world. In 1986, the economic policies of Vietnam were re-assessed. The open door policy leads to big changes in economic development of the country. Energy has become a very important factor for the development of the country. There is considerable energy demand in most parts of the country, which could not be satisfied. In addition, a great amount of public resources was allocated to the energy sector for building large dams. As a result, in 1991, the Hoa Binh hydropower project that is located in Hoa Binh town belonging northern province of Ha Son Binh, was commissioned with installed capacity of 1920 MW. Meanwhile in the central part of Vietnam, the Yali hydropower project on Se San river was also launched in 1993 to meet quite rapid increasing demand of electricity with an installed capacity of 720 MW and mean annual energy production of 3300GWh.

Figure 4: Location of Vietnam

Landscapes in Cao Bang, Nha Trang and Da Lat.



Source: http:// www.vietnamtourism.com/

4.1 Hoa Binh hydropower project

4.1.1. Background

Large dams have been constructed during the last several decades. Thanks to the potential of hydropower and priority policy of Vietnamese government, Hoa Binh dam was built aiming to facilitate socio-economic development in the Northwestern region of the country. The dam, 70 km west of Hanoi capital city of Vietnam, is located on the Da river by Hoa Binh town. Its basin area in Vietnam is 2,586 000 hectares (The remain area occupies 40% of total area in China). The basin provinces are Lai Chau, Son La, Hoang Lien Son and Hoa Binh. The watershed protection area is 800 hectares, out of which 152,000 hectares is forested area (Dung, 1995).

The reservoir behind the dam reached its maximum normal level of 115 meters in 1991, which created a reservoir extending 230 kilometers towards upstream. The reservoir shoreline is 770 kilometers with its volume of about 9.5 billion cubic meters. Total area of the reservoir is 200 square kilometers.

4.1.2. Positive impacts

The benefit of Hoa Binh hydropower project to the development of Vietnam economy since 1988 is significant. With the annual energy production of about 8.4 billion kWh, equivalent to 40% of the national energy production, Hoa Binh hydroelectric is vital to the industrialization and modernization process of the country. Other important functions of the project are flood control and supplementary irrigation of about 30,000 hectares in the Red river delta downstream of the dam. With the surface area of around 200 square kilometers, the reservoir has created a positive change on the microclimate of the area: the weather is warmer during winter and cooler in summer than before the reservoir. (Institute of Scientific Study on Labor Protection, 1998 cited in Hoa, 2001).

Furthermore, the reservoir itself provides a new navigational transport medium and constitutes potential resource of tourism and fishing industries. With the establishment of the Hoa Binh reservoir, the opportunity to develop new occupation for people settling at the reservoir was created. Fish products have helped to improve the daily diet of farmers as well as created an important source of income. A study in Hien Luong commune, Da Bac district, Hoa Binh in 1989 had found that 30% of the households considered fishing in the reservoir as a supplementary source of income, and some families even had their income derived only from this new occupation. The reservoir with the length of 230 kilometers extending upstream provided favorable conditions for the development of waterway transportation. It did not only create new means of transportation but also pushed the remarkable development of an economy in the region. According to a study, by 1991 there had been hundreds of steamboats and cargo-ships each with the carrying capacity of between five to ten tons operating in the reservoir. In addition, at that time, ten new markets were established around the edge of the reservoir and promoted business activities of farmers within the region as well as between local farmers and people of the surrounding areas (Social Science Institute of Vietnam, 1991).

4.1.3. Negative impacts

Hoa Binh reservoir occupied an area of 200 square kilometers including houses, assets, crop fields and forests as well as fauna and flora systems.

People of Hoa Binh and Son La provinces have suffered from big changes in socio-economic and environmental conditions. The construction of the dam and formation of its reservoir inundated and dislocated 56294 people mainly belonging to ethnic minority groups of 10 districts of Hoa Binh and Son La provinces. The associated costs could not be measured and calculated. The ethnic minorities include Muong, Dao, and Thai etc. who lived in groups, used traditional production styles, and have particular cultures. Around 11,000 hectares of arable land were flooded, and hundreds of thousands of square meters of homestead areas, offices, schools, and heath care centers and many working places were inundated (Dung, 1995; Hirsh, 1992).

Table 4.2: Major losses due to Hoa Binh reservoir

Items	Unit	Amount
Number of dislocated people	person	56 294
Number of dislocated households	household	9 289
Inundated land:		
Farming land:	ha	4 632
Wet-rice crop field	ha	2 111
Other crops	ha	
Forest land	ha	10 000
Buildings (house +office)	sqm	631 326 + 92 700
School, class	sqm	93 310
Irrigation systems	system	177
Road	km	278
Tomb, grave	number	18 135

Source: Dung, 1995

Other than those affected people living in the watershed of the reservoir, many people located in the downstream of Da river were indirectly affected due to the change on hydrological pattern of the river. These and other changes in the environment have led to the loss and/or reduction of many rare species of fauna and flora. About 50% of bird- species have disappeared and those species remaining are very few in number. A study found that 26.2% of the mammal species were lost both due to the rise of water and to illegal poaching of local people (Social Science Institute of Vietnam, 1991). Flora and fauna systems in the reservoir also changed dramatically. A number of unmovable and less movable species were reduced in numbers while other movable species gained favorable conditions to develop (Institute of Scientific Study on Labor Protection, 1998 cited in Hoa, 2001).

4.1.4. Situation after resettlement

a. Present situation

According to a study conducted by the Urban and Rural Planning Institute (2003), most of the affected people currently in Hoa Binh resettlement areas have a stable life and make themselves comfortable in new villages except for few places as Suoi Han- Phu Yen or Chieng Ve-Moc Chau. In Son La province, 60 % of the households own motorbike or electric boats, 54% of houses are covered by tile roof, brick walls. The average income per capita annually is about 1.4 millions VND.

More investment is continuing in resettlement area. A budget of 540 billions VND was approved to solve remaining problems in the period from 2001 to 2006. Investment is put into agriculture and infrastructure. Other millions are spent on the stability of people's lives by preparing five new areas and Thung Reck, a planned area in Kim Boi district for re-

arrangement of affected people. Agriculture, forest and fishing are defined as key production strategies in resettlement areas. A detailed guideline for land use is applied. An area of 5.8 hectares including two hectares of agricultural land and 3.8 hectares of forest land is planed to transfer each household that are adjacent to reservoir villages, and a minimum area including 0.4 hectares of agricultural land and 2.6 hectares of forest land for each household who live together within host communes (Urban and Rural Planning Institute, 2002).

Hien Luong is a commune that is located in Da riverbank, six km away from Da Bac district-town. Before resettlement, the population was more than 2000 individuals of 334 households including 80% Muong and 20% Dao ethnic people. The commune was the richest commune of Da Bac district with good technique of cultivation in wetland with a using fertilizer and irrigation system. Today, it can be said that resettlement is mostly completed in Hien Luong commune; the life of Hien Luong people is stabilized and improved. Up to 2002, the poor households are 42/384 households making up 10%, which is much lower than the provincial figure. Some projects such as classes (8 rooms) in Roy village, a clinic station in Ke village, electricity and irrigation canals in the commune will be invested in Hien Luong commune in the period 2002-2006 (Urban and Rural Planning Institute, 2002).

This result has not been easy to achieve. Resettlement in Hoa Binh hydropower project was a long process of changing and standing sacrifices and hardship of affected people. It can be divided into two main stages:

b. The first 10 years- a hard period

Resettlement scheme for those whose land and homes are flooded by the Hoa Binh reservoir was the responsibility of a provincial level managing Board including: Ministry of Forestry, Ministry of Agriculture, Ministry of Irrigation, Ministry of Energy and provincial authorities. The resettlement planning commenced as early as 1975 but it was not implemented until 1982. Relocation was finished in 1994 (Hoa, 2001).

The purpose of the scheme was simply to transfer the people from the future reservoir area to new places. The stability and restoration of income for the people had not been given any attention. Therefore, the living standard of displaced people after moving was lower than for those who did not have to move (table 4.3)

Table 4.3: Comparison of Income in Phu Yen district, 1992

Income VND per year	Local people (%)	Displaced people
More than 350 000	10.7	3.3
From 250 000 to 350 000	36.9	17.8
Lower than 250 000	52.4	79.7

Source: Phu Yen People's Committee (Hoa, 2001).

According to Hoa Binh Foreign Economic Exchanged Board, 40% of the resettlement households experienced in shortage of food from 5 to 6 months per year. The social and cultural lives of the people were also affected due to extremely low income. Education and health standards appeared to suffer significantly in most of the areas. Due to the lack of schools and difficulty in the access to school, the number of children at school age who had dropped out in the resettled communities increased to 47% (Dung, 1995). Likewise, inaccessibility of health centers exacerbated the health problems, created both by increased level of poverty and by new environmental hazards such as lack of clean water, latrines and

diseases brought by the flood. In Ha Son Binh (which is now divided into three provinces of Ha Tay, Son Tay and Hoa Binh) within 3 years from 1987 to 1990, there were more than 90 people who died because of malaria (Hirsch, 1992). The traditional communes were hit due to moving and fighting for land or forest, water resources between hamlets, host people and new comers. Lack of wetland led to shifting cultivation because cultivated land fields have high productivity only for the first two years of cultivation. Thousands hectares of forest were burned and land was eroded.

Table 4.4: Food and Income of Displaced People in Hien Luong commune, 1989

Items	Unit	Rich households	Medium HH	Poor HH
Average food amount (Per capita/month)	Kg	19.7	7.4	5.2
Percentage other food (not rice)	%	15	55	85
Number of month lack of food	month	1.5 ÷2	4÷5	8 ÷10
Income per capita/month	VND	18 820	7810	4150

Source: Social Science Institute of Vietnam, 1991

Social Science Institute of Vietnam carried out a study in 1990 to investigate 71 of 334 households in seven villages in Hien Luong commune. The wetland area in the whole commune is only 17.6 hectares even if there have been many wet and terraced fields before being flooded. It is about 170 m^2 per capita according to regulation in that time and reality. In the survey, 71 households owned 2.5 hectares of cultivated land and 108 hectares of hilly land. The area of hilly land was 43 times larger than the wetland area, which varies from 4 hectares to 1.8 hectares for each household. A production cycle of three years was applied in hilly land since productivity is rapidly decreased from 800 kg/ha in the first year to 200 kg/ ha in the third year. Each person exploited 2240 square meters of forestland per year for cultivation (Social Science Institute of Vietnam, 1991).

Before forest banning, 50- 70 % of the total income is derived from forestry products. In the studied time, the income was mainly from food production (50%). The richest income is 3 times of the poorest one. The cattle breeding is self provided and 90% households used fishing in traditional method to get more protein. The average garden area of 1500m2 was used mainly for food production.

Before inundation there was no illiteracy except for old people in Hien Luong. However, the number of pupils dropping out of school was up to 25% in 1989. Among the main reasons for that was the difficulty to get to school from home. Many cultural activities did not exist due to a variety of reasons including low living standard of the people in that time (Social Science Institute of Vietnam, 1991).

Figure 5: Resettlement area at Hoa Binh (*Left: New village near reservoir; Right: Extra cultivation in dry field*)

c. The next 10 years- the changing period 1992-2002

Realizing the situation, the government of Vietnam had decided to reduce poverty and improve the living standard for the people in the whole resettlement area. In 1989, a program for poverty reduction was launched in Hien Luong including making terraced fields over an area of 2500m^2, garden area of 3000m^2 each household, developing forestation, husbandry, and fishing. Accordingly, a budget of 100 billions VND was invested in Hoa Binh Resettlement area in 1995–1997 mainly for in arranging the village' population and infrastructure (50%). As a result, a progress was gained in some resettlement area as illustrated in table 4.6.

Table 4.6: Survey in 5 districts in Son La province

Item for comparison (percentage)	Survey in 1993	Survey in 1998
Rich household	0	25
Medium household	65	50
Poor household	35	25
Illiterate	50	15
Villages with access to electricity	15 (Son La province)	50 (Resettlement area)
Forest cover	18 (Son La province)	22 (Resettlement area)

Source: NIAPP and Song Da Management Board, 1998

A long-term program was approved to improve the people's living standard. In the first 5-year period, 188 billions VND reported was invested in 146 villages belonging to 18 communes in four districts: Mai Chau, Da Bac, Tan Lac, Ky Son and Hoa Binh town. More than 60% of the budget was invested in agricultural production and forestation, 35% for basic infrastructure as classes, clinic stations etc., and several billions was spent for extending villages or establishing new villages to reduce population density nearby the reservoir and in extension of cultivated land.

As a result, scattering groups of affected people living without basic infrastructure was moved to new and more convenient places. Day by day their life became stable. Forest cover in protection area had reached up to 48%. The infrastructure system has been completed as planned in 50% of villages. A considerable reduction of hungry households was recognized, from 60% in 1994 to 38% in 2002. (Urban and Rural Planning Institute, 2002). However, this figure was still higher than for the average number of Hoa Binh province.

Figure 6: Agricultural activities at Hoa Binh (*Left: Irrigation canal; Right: Fixed cultivation field*)

4.1.5. Discussion about the planning process

The case of Hoa Binh provides an illustrating example of a hydropower project, which caused the resettlement of a large number of people. Affected people faced many difficulties since the resettlement scheme was plagued by many problems concerning the resettlement process including the planning, budgeting, implementation and compensation processes.

There were neither EIA nor any program aiming to reduce negative impacts on the environment and people. The resettlement plan did not draw considerable attention during planning and design of Hoa Binh hydropower project (table 4.13). Only 10 years after the time of the launch the project, in 1989, a late program with the purpose to study the socio-economic development just started to mitigate negative impacts causing the tension of many issues between project affected people. A study of resettlement should have been launched much earlier, in fact at the same time of that study of project' alternatives initiated.

There were overlaps and gaps among state organizations and professional offices. At high level, the responsibility was not defined clearly and many changes were made in the guidelines. The major responsibility of resettlement for affected people of Hoa Binh hydropower project was given to local authorities, mainly district and commune staffs, in an early stage of resettlement from 1983 to 1987. At local level, district level' authorities and many other sectors managed the budget such as transportation, irrigation, and agriculture. Song Da Tasking Board has played an important role only since 1989 (Dung, 1995).

The abilities of local staffs, especially at the commune level, to solve big and complicated issues such as resettlement were limited. The resettlement plan needs not only deep knowledge about the real situation but also comprehensive understandings of socioeconomic development in certain contexts. Overlaps and gaps always lead to irresponsibility. It is important that there should be one body that takes the main responsible for resettlement in the long term.

The compensation level was lower than real price, so the people could not rebuild their house or invest in cultivated land and other production activities with the same quality compared with that before resettlement. The formal compensation unit was not changed for

many years together with the condition of high inflation that made the situation of affected people become even harder.

Besides, timely compensation for affected people is an important factor of effective investment. In Hoa Binh, there were some poor households who received money too early. They spent their money on other things that might be their urgent demands but not on the houses or production restoration in new village. However, late compensation would make many difficulties for displaced households. The shortage of money in the beginning of resettlement led to selling cheaply their other assets to build their new house. In some cases, the conflicts between host people and new comers happened due to the lack of appropriate compensation for host people as promised (NIAPP and Song Da Management Board, 1998).

There were more critical problems related to the compensation. The people received compensation in cash or savings. Most families were unable to immediately access their entitlement. It was banked in the form of savings while the inflation rate was very high. In September 1985, the currency reform wiped out 90% of the value of banked funds (Hirsch, 1992).

In the case of Hoa Binh province, compensation was given in the form of sugar cane. This decision was based on the successful experience of a commune named Tan Dan. However, the combination of poor quality stalks and unsuitable condition led to a general failure of this crop, which resulted in losses for farmers. With the reduced soil fertility, limited arable land area and inexperience in sloping-land cultivation, resettled farmers had faced a very difficult economic situation. They had to cut timber and bamboo illegally in order to earn their living. Eighty five percent of the resettled households were reported having food shortage and 45% faced food deficiency up to five months or more. (Department of Economic and Foreign Affair of Hoa Binh cited in Dung, 1995).

There were unreasonable criteria to get formal compensation. The compensation was given to households whose was house under normal water level of reservoir. All other people who wished to move together with their commune, as traditional custom, could not receive compensation. In Phu Yen district alone, 400 households (1993) moved to new places without any compensation. Other households who were hit by indirect impacts did not get any compensation either.

There were the problems of under qualified arrangement of resettlement. All investigating, surveying and planning and designing of the resettlement areas were carried out insufficiently and imprecisely, which led to inefficient investment and unrealistically applied measures.

Many selected locations are not suitable for settlement due to lack of drinking water, cultivated land and transportation like Suoi Han- Phu Yen or Chieng Ve- Moc Chau. Therefore, many people had returned to their old places or sites near the reservoirs'. Many sites were designed in areas with steep land and high mountains and deep valleys. Some selected sites were inundated when the reservoir was filled up. The scattering of the resettlement area with over 400 sites created many difficulties of infrastructure provision (Urban and Rural Planning Institute, 2003).

The cultivated land is rare in the region and its vicinities. However, the potential of near-reservoir land was not known so the investment in these areas had not been paid full attention. In Hoa Binh, most money was invested in infrastructure provision for one fourth of the population living far from the reservoir. A large portion of remaining population still did not have access to qualified water and there was lack of access roads and classes for

children. Irrigation systems and replaced roads did not work due to imprecise design and implementation (Dung, 1995).

Resettlement had in some places been creating conflict and tension between resettled people and host people due to competing demand over resources. This was the case of Hien Luong commune, Da Bac district, and Hoa Binh province. Initially neighbor villagers were sympathetic and welcoming, helping newcomers move into Luong Phong village. However, as the numbers grew, this increasingly affected the two villages of Mai and Ngu as forest resources and land available for agriculture was placed under the pressure of over exploitation and exhausted. In Mai village, the depletion of the forest resources had caused shortage in supplementary food and income sources, and villages responded by over-harvesting the forest in order to gain as much as possible before there was nothing left. The relationship worsened among Luong Phong, Mai and Ngu people as the resources were lessen by the arrival of larger numbers of resettled people in Luong Phong than anticipated. Mai villages even shot Luong Phong farmers' buffaloes, which had trespassed the boundary and strayed into their cropland (Houghton, 1996 cited in Hoa, 2001).

The whole work of resettlement plan was left for local government. Lacks of experience, finance and professional equipments, the staffs at the district level were drawing up the resettlement areas based on their knowledge of site situation in practice. They did not have knowledge on resettlement and did not make a careful professional consideration of resettlement plan (NIAPP and Song Da Management Board, 1998). The selection of sites was made without making estimation of carrying capacity of land and other natural resources as well as production alternatives. Measures on how to help affected people stabilizing their life and harmonizing with new environment were not considered as well.

Environmental impact is closely related to resettlement. Most of the forest along the reservoir edge was cleared for cultivation. This results in deforestation and associated soil erosion, leading to accelerated sediment action of the reservoir. Forest was becoming increasingly an open access resource, outside community control and was exploiting in an unsustainable manner. A survey done on 71 households of Hien Luong commune, Da Bac district showed that on average each person exploited 2240 square meters of forest per years for cultivation. Based on the figure, it was calculated that areas of forest to be cut by the whole commune would be 270 hectares every year. An ethnographer George Condo Minas, who had done many studies about Vietnam, concluded that, *"Vietnam has eaten all of its forest*" (Condo Minas as quoted in Social Science Institute of Vietnam, 1991)

Resettlement sites had not been carefully prepared before people move into them. The situation is that the people had to bulldoze by themselves and level land for their house building and change wetland or forestland into cultivated land. For example, in Phu Yen district, each household had an area of 600 square meters after 16 years of resettlement. A water supply plant was built for 1000/3800 households in 1993. The lack of policy on compensation led to unsuitable scale of investment between direct (in cash) and indirect forms (infrastructure, service, support program). The proposal of infrastructure provision in some cases had taken very long time to be approved.

Generally, resettlement in Hoa Binh hydropower project was moving affected people out from reservoir but not facilitating improvement for affected people. Consequently, thousands of affected people had experienced a very hard period of living condition that lasted for a decade. The situation is improved now thanks to the new budget of hundreds of billions VND started 1995 until 2006 from the Government and the great efforts of affected people as well as local authorities in the last years.

4.2 Yali hydropower project

4.2.1. Natural condition and main parameters

The project area is located in Central high land on the western side at the south of Truong Son range running almost the full length of the country. The elevation in the study areas varies from 350m in the downstream area to about 1700m. Yali hydropower project is located at the Yali falls on the Se San River in Gia Lai and Kon Tum province of Vietnam. The area gets approximately 2200 mm per year of which the dry season has only less than 20%. Temperature is not much different between hottest and coldest month but a remarkable variation of 11^0C exist between day and night.

Yali Hydropower has components including a filled rock dam, 1190m long, 69m high, 10m large at dam's top, the altitude of which is 522m above sea level. A spillway on dam's left side, consisting of six gates, each 15m wide, enable a maximal flood discharge of 13733m^3/s, corresponding to 0.1% frequency flood at level of 517.86m above sea level. The powerhouse with an installed capacity of 720 MW, including four units of 180 MW each, is producing annually 3.65 billion kWh of electricity. The maximal discharge from turbines is 426 m^3/s. The powerhouse turbines receive water from the reservoir by a headrace tunnel, which are 3770m long (Chien, 1999).

The area of the basin is 7445 square kilometers and the annual rain of 2200 mm creates total amount of water of 8515 million cubic meters. The reservoir has a total storage capacity of 1037 million m^3 (corresponding to full supply level of 515 m), efficient capacity of 779 million m^3 and dead capacity of 258 million m^3 (corresponding to dead level of 490 m). At full supply level the area of the reservoir is 6480 ha; at dead level this area is 1720 ha. In the inundated area of 6480 hectares, there are 1240 ha of agricultural land; among these about 1300 ha are in draw down area between altitudes 510m and 515m seasonally inundated. The area could be used for cultivation of rice, corn, vegetables and other short time crops from April to September (NIAPP, 1992).

The key effects to be expected include changes in flood regime, changes in sedimentation and erosion patterns; changes in water quality and availability with effects for consumption, soil fertility and therefore for agricultural use; and impacts on aquatic and terrestrial ecosystems and fisheries development.

Table 4.7: Major losses due to Yali reservoir

Items	Unit	Amount
Resettled people	individual	5384
Resettled households	household	1149
Resettlement village	village	9
Inundated land:	ha	6480
Farming land:	ha	1933
Wet-rice crop field	ha	871
Other crops	ha	1100
Forest land	ha	3492
Houses	sqm	44 814
School	number	2
Irrigation systems	system	2
Road	km	33
Tomb, grave	number	2 356

Source: Compensation price in Kon Tum province, 1993

4.2.2. Social Characteristics

The provinces of Gia lai and Kon Tum are located in the Central Highlands of Vietnam and have a population of 875 398. The economy is predominantly agricultural, with 78.9% of inhabitants being registered as rural dwellers. Towns are administrative centers, with commerce centering on the needs of the agricultural community. There is no significant industrial activity. The ethnic composition of these provinces is roughly divided between the indigenous inhabitants of the area (51%) and Kinh immigrants (49%) from heavily populated lowland regions who have migrated to the area either voluntarily or under government sponsorship. The indigenous population includes several ethnic groups mainly Gia rai and Ba na.

4.2.2.1 Ethnography of population

Gia rai Ethnography have matrilineal descent and high level political from 17th Century with matrilineal kingdoms of the King of Water and King of Fire. The traditional religious includes belief of Ziang- the supernatural person who is believed to govern all things on Earth and natural phenomena that they could not explain as rain, wind, thunder, crop loss, flood, etc. Villagers usually kill animal to offer Ziang in their ceremonies and parties for securing its supports in Common house (Nha Rong). Mortuary rite is continuous ceremony in 3 days with slaughter of cow or pig and lasts one month with rice and water. Drinking rice wine is a part of ritual and ceremonial behavior. They live in vegetation houses and earn for their living from agriculture and forest. Gia rai graves are decorated with carved wooden figures, which are of historical and cultural interest.

Ba na Ethnography originated from the Khmer linguistic group. They believe in a common ancestor, which they worship. The live in non-permanent material houses and practice shifting rice cultivation. Council of Elders and male population makes the political decision of Ba na villages. After colonial period, the mixture of Catholicism and animism is apparent through burial practice and clothing.

Both Gia rai and Ba na people move to another places every 15 years. People of these groups were always living together in the long houses built on stilts to avoid flooding and sharing accommodation with livestock. Only 16 % of the households lived in private houses. The administration structure is join managers including both head of village and Elder in the villages (annex 3).

Kinh Ethnography originated from Indo-Chinese is a dominant group in Vietnam. They subscribe to a mixture of Buddhism and ancestor worship. The family is the main social component in Kinh's village. They are relatively recent immigrants to Central Highland. Kinh farmers practice fixed cultivation based on a combination of wet rice production plus additional crops. The majority of King household are members of a cooperatives who have had irrigated land allocated to them. There is no private ownership of land in Vietnam and the Province allocates land to Commune. This land is in turn allocated to the cooperatives. The farmers accept land on lease on a contract-yield basis, which is based on the estimated yield of the land (Electrowatt, 1992).

Figure 7: Cultural activities in traditional festivals at Yali *(Left: Buffalo stabbing and gong playing; Right: Nha Rong-Common house*). Source: PICC1, 1992

Figure 8: Cultural activities at Yali. (*Left: T'rung playing; Right: Shooting arrow in cross bowl*) Source: PICC1, 1992

4.2.2.2 Health care and Education

Infectious diseases are reverse health problem in the area. They include vector born diseases like malaria, dengue, Japanese encephalitis, and plague. Health care organization is well, but not always correctly practiced. The mystical beliefs exist among ethnic minorities groups living in Central Highland. When the people move from their villages, it may be due to many reasons such as disease, accident, crop loss or conflicts or disagreement between heads of villages. Among the above reasons, up to one third is health related reasons (Dao, 1993).

The education is at low level in many villages. There is high percentage of illiteracy and high number of children who do not go to school. In the reservoir basin, up to 1995, there are 36 percent of children that drop out of classes (Dung, 1995).

4.2.2.3 Production activities

a. Agriculture

Permanent agriculture with or without irrigation is concentrated along the mainstream valleys as the best soils can be found here and water for irrigation is available year around. Shifting cultivation with its associated fallow stages occupies quite large areas in the different sub-zones, the corresponding approximate figures are 4% for the catchment's area and as much as 9% for the project area (NIAPP, 1992).

Shifting cultivation probably is the most sustainable form of agricultural use of tropical forests. In fact, it has been practiced in the all-tropical regions for centuries without making serious impacts on the forests as the whole. However, the fallow carrying capacity with this form of cultivation is very low, as the soils need a fallow period between 10 and 40 years for regeneration before being used again. With the growing population pressure, land resources are being exhausted rapidly. As shorter and shorter fallow periods are allowed, the overall fertility of the soils decreases, and the forests as a whole degenerate. As in most tropical countries nowadays, shifting or slash and burn cultivation is a major problem in Vietnam and also in the Yali catchment's area. Growing population density and progressing soil degradation lead to shifting cultivation in ever-shorter cycles and on ever sleeper slopes. They lead to both rapid soil depletion and strong erosion, which again puts more pressure on remaining sites. The available data for the study area clearly confirm this trend. A very large amount of slash and burn cultivation located on slopes of more than 25%, the plots usually produce only one or sometimes two crops, and the normal fallow period is about 10 years

b. Forest

Shifting cultivation and logging are the main causes of forest destruction eventually. Fixed cultivation was implemented many years before, but 30% of households backed again to shifting cultivation. About 5700 hectares of forest disappeared annually in Yali basin area (Statistics in Kon Tum, 1990, cited in Dung, 1995). The loss in forest cover has been very rapid in all the districts (table 4.8). Actually, if the same rate of decrease as recorded for the past 12 years had prevailed, forest would have gone from most districts before the year 2020.

Agro forestry is practiced in various places in the watershed area, mainly in flat areas with rather poor soils. Several plantations of tea or coffee are inter-planted with Cassia or Acacia. The mixing of various fruit trees with different annual crops is a traditional model of land use, especially applied to surrounding garden.

Table 4.8: Rapid reduction in forest cover

District	Forest 1978 (%)	Forest 1990 (%)	Decrease* (%)
Dak To	56.0	32.2	43
Dacley	63.1	45.2	28
Konplong	67.1	56.9	15
Sa Thay	35.8	25.7	28
Kon Tum town	39.8	4.4	89
Chupah	48.9	16.2	67
Pleiku town	5.5	0.0	100
Mangyang	72.2	45.0	38

*1978=100%

Source: Mekong Secretariat, 1993

In close proximity to the villages of Yali, SaBinh and Yasir, the villages are strictly protecting patches of young evergreen forests emerging from natural regeneration as measure of watershed protection for their drinking water sources.

4.2.3. Resettlement Plan

Resettlement and its social issue is an important aspect of an Environmental Impact Assessment. In case of human population affected by the construction of a hydropower project in form of inundation of their villages and production areas by the reservoir, special care has to be taken in order to provide the affected people with adequate resettlement and compensation. Resettlement is normally a traumatic experience for the population affected.

Based on national legislation and the analysis of the present situation, a compensation and resettlement strategy was developed as follows.

4.2.3.1 Basic aspects

The first important issue to be taken into consideration is to make resettlement part of the national laws.

a. *Legislation in Relation to Shifting Agriculture*

To encourage settled agriculture and reduce shifting cultivation among minority groups, a legislative provision is written in the Decree “Economic development of the inhabitants of mountainous regions and the implementation of equal rights between minority people and the national community".

This legislation aims at promoting protection of the natural environment by encouraging sedentary agriculture. Specific measures proposed are to carry out land leveling where appropriate and improving agriculture through supplying new seed varieties and promoting new agricultural techniques. Undertake irrigation and drainage work, livestock improvement through the supply of improved breeding stock and breeding techniques. Undertake public works such as building school, clinics, wells and water tanks for domestic use and for watering home gardens.

The allocation of agricultural and forest land for long- term use by farmers under this scheme should ideally comprise 5 hectares per family, with one hectare for food production, 1

hectare of land under ago-forestry, 1 hectare forest and 2 hectares grazing cattle. The average fund for each household included in this program is 3 million VND.

Further legislation to forest fixed agriculture passed in State Decree No. 72 of the Council of Ministers (March 17,1990) on " Policies and trends for socio-economic development in hilly and mountainous regions ". This specifies plans for the transference of land from the State to the individual households for long term use, with funds being allocated for support measures including tree planting and forest protection, the development of irrigation and drainage works and public infrastructure development.

There were no Vietnamese guideline or legislation concerning resettlement resulting from development projects other than Resolution 186 HDBT (31/5/90), where compensation was paid on different levels according to land types.

b. *Legislation for Forest Migration to Under - Populated Areas*

Additional legislation affecting development is Decree 95/CP (March, 1980) involving "The implementation of Resettlement Work and Labor Movement for the New Economic Zones". This legislation designed to promote migration from heavily populated coastal regions to under-developed areas such as the Central Highland. Migrants receive support through several means as follows. One is the organization of migrants into groups for traveling and supply travel passes, food and medicines for the journeys to New Economic Zone. Another is to supply basis production tools on resettlement and allocate land for production among migrants. To provide basic infrastructure such as roads, schools, clinics, and water tanks is a support. Other forms of support include reclaim land and support food for migrants for between the first 3 to 9 months. To subsidy agro-inputs during the first two years of settlement and education for children (Mekong Secretariat, 1993).

c. *World Bank Guideline*

World Bank guideline is one of the principal documents to consult when considering resettlement strategies. The guideline emphasizes the importance of viewing population resettlement not as a means of removing people who are in the way of development projects but rather as a means of offering the affected population a chance to improve their lives.

4.2.3.2 Agricultural Compensation and Resettlement

According to Yali Management Board's report in 1995, the reservoir impoundment implied the displacement of 5381 people belonging to households located in nine villages in Kon Tum and Gia Lai province. Among them the Kinh people is about 42% and Gia rai, Re Ngao and Ba na people is 58%. Percentage of woman estimated as 51%. The resettlement process divided into 5 Stages related to the water level in the reservoir.

Moving phase:

Stage I. In 1994-1995, 5 villages relocated when the water level reached the height of 482 m.

Stage II. In 1996-1997, another 8 villages belonging to 3 communes were moved when the water level reached the height of 500 m

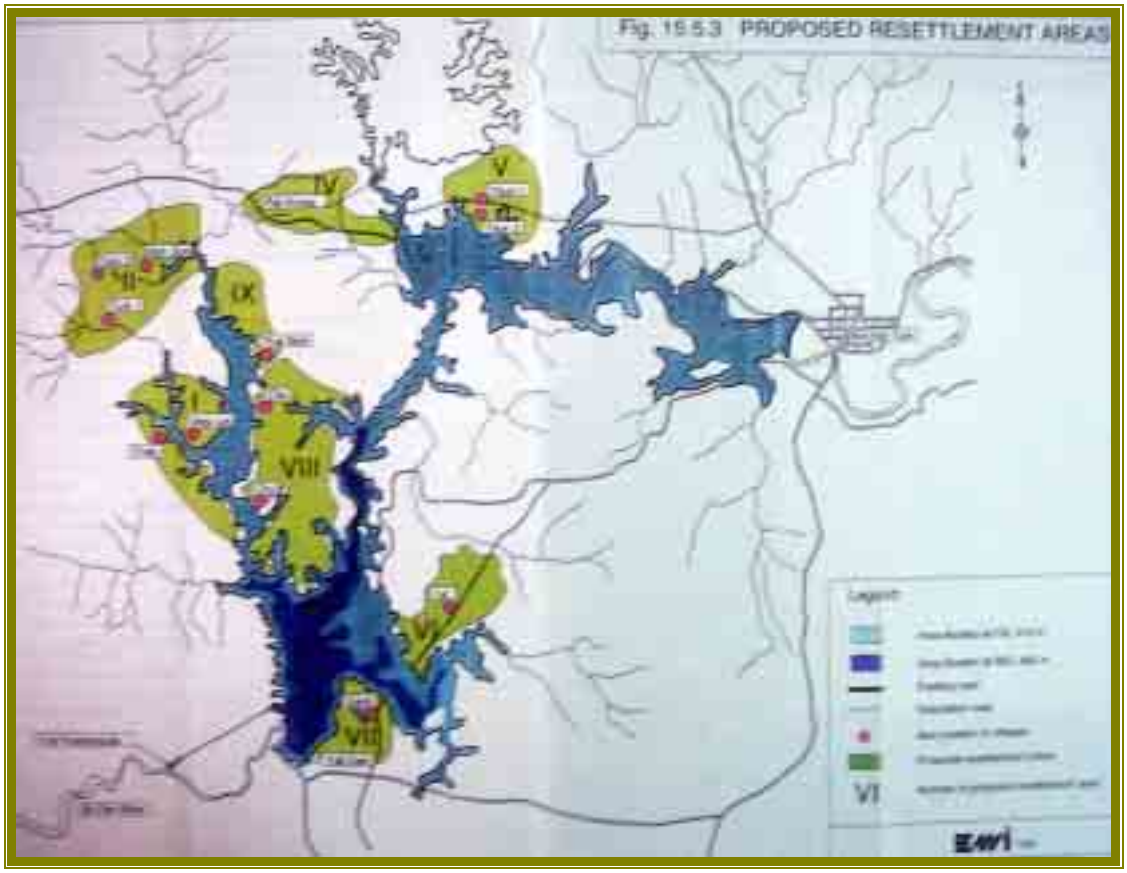
Stage III. In 1998, another 5 villages of Sa Binh, Sa Thay District moved when the water reached the level of 514 m.

Stage IV. In 1999, 6 villages of Ngoc Bay and Vinh Quang villages of Kon Tum Town removed.

Stage V. In 2000, people in inundated areas moved when the water level reached the height of 515-518m(YPMB, 2001; CRES, 2001)

Compensation strategy and resettlement principles were establishes based on Vietnamese governmental regulations, locality context and guidelines of World Bank on involuntary resettlement.

Figure 9: Resettlement area at Yaly



Source: Electrowatt, 1992

Principles for design of Yali resettlement plan:

a. All dwelling areas under full supply level of reservoir (517m at Chu Pah and Sa Thay districts under 518m at Kon Tum town) will resettle in the new resettlement areas designed and built up with agreement of affected people.

b. Villages of the agricultural lands of which is fully lost by inundation, will be compensated through provision of agricultural land of equal or greater productivity ("land for land ") strategy,

c. Villages, the agricultural land of which will be partly lost, and there is no land to allocate, will be compensated through provision of irrigation and other means of agricultural intensification to restore and develop their agricultural production,

d. In the draw down areas of the reservoir the 900 ha seasonally inundated area should be allocated to the resettled villages to be used to develop cultivation of short time crop (rise, corn, vegetables...) during the non-inundating period,

e. Resettled villages should remain close if possible to the place before inundation and household's groups especially ethnic people groups villages are not to be divided after resettlement

f. All resettled villages will be linked to improve or to provide new built roads, provided with safe water supply, electricity, common house for villages meeting, classroom, clinic station and office for commune's administration

g. Promotion of sustained land use, forest and watershed protection in areas surrounding resettled villages through education and implementation of Kon Tum province's sedentarization program for village Gia rai ethnic.

h. The resettlement process will be implemented in full consultation .The wishes of local people should be taken into account in the whole process. (Mekong Secretariat, 1993; VNESDC, 2000).

The task of resettlement planning was given to the National Institute of Agriculture Planning and Protection (NIAPP). After carrying out survey, consulting with effected people and local authorities of Kon Tum and Gia Lai provinces, NIAPP proposed a Resettlement Plan which was accepted and implemented by the Yali Project Management Board .The cost for the implementation of the plan was estimates to be of 256 billions VND equal 5% total project cost including compensation, building up of resettlement areas and development of new infrastructure, constructions servicing these areas, sanitation of reservoir bed and re-afforestation of reservoir bank.

All process of compensation as Moving, Restoration, stakeholders and public participation on different levels were defined from the beginning of the project.

4.2.4. Situation after Resettlement

a. Present situation

At present, it is 10 years since the first phase of Resettlement in Yali was initiated. The life of affected people is step by step become better and more stable. Even though there were several aspects that have not been considered there are progress in many areas that can be clearly noticed. Headman of Yali commune expressed *it is many years even the richest households could not build by themselves a house with brick walls and tile roof. Today in the whole Yali commune, every one owns such a house and has drinking water from wells but not streams, which prevent many diseases. It is convenient with school for children and clinic station inside each village. Electricity brings lights serving children to learn, adults to do extra work and to watch TV, etc* (Red villages in Yali reservoir- Phuong, 2001- Playku, Gia Lai cited in Urban and Rural planning Institute, 2003).

In all 12 villages of 8475 dislocated individuals (the number in 2001), basically, process of moving and compensation is completed. In all new villages, houses and basic infrastructure were provided. The common houses were rebuilt in most of villages except Dieploc. Agricultural land and forestland were transferred to farmers. The limitation of land source requires effective use of draw down land in this area. Replaced land area of 2 hectares is provided each household as planned in most villages. Restoration process is continuing with

many agricultural support programs. Most of the people have practiced new methods of cultivation in terrace rice fields and draw down land. Shifting cultivation has been reduced. More effective use of forestland and meadow is achieved.

A survey conducted in Dieploc village by the present author contributes to the confirmation about the situation. Dieploc was a village belonging to Yali commune with population of 458 individuals mainly of Gia rai ethnology. There is a high percentage of illiteracy of 40%. Primary classes and kindergarten are available in the village for teaching and learning. Nevertheless, the number of children who go to classes is of 70%. Visiting magicians who offer scarifies such as chicken, pig etc of patients to demons (who believed to cause illness) is not so popular. The convenient clinic station inside the village is the address to visit for 80% of the village people when they get ill. Housing and sanitation are recognized to be improved or in the same quality for about 90% of villagers. More than 97 percentage of the interviewed said that the infrastructure and services are better off (table 4.2). Resettlement has changed the access of people to information and cultural activities. Today a high percentage of people that have access to television (97%) compared with the number 8% before resettlement. The access to reading material as book and newspapers is still low (20%) but much higher than before.

Table 4.2: Comparison of infrastructure in new village with old village

Items	Equivalent		Much better	
Road	1	3%	29	97%
Electricity access	0	0	30	100%
Irrigation	3	10%	27	90%

A household of about six people today owns a private house with an area of 48 square meters. Before resettlement, there were 80% of households that lived collectively in long houses. The new houses are built in cement stilts with iron sheet roof, floor and stairs made by wood (table 4.3). The villagers often cook their meals inside the houses. Common house of Dieploc is a traditional nice one that has been moved from old village.

Table 4.3: Change in accommodation

Items	Before resettlement		After resettlement	
Permanent house	25	83%	29	97%
Good vegetation house	2	7%	0	0%
Temporary house	3	10%	1	3%

There is however still the problem of food shortage and a poor income. Living and production conditions of villagers depend firstly on agricultural production activities. There are few people who could receive regular salary. After resettlement production activities is almost the same (table 4.4).

Table 4.4: Change in production activities

Activity	Before resettlement		After resettlement	
Farming	29	97%	28	93%
Wage earner	1	3%	2	7%
Extra job	7	23%	5	17%

Fifty percents of the interviewed evaluate that there is no change in their production activities conditions. Twenty-seven percents of interviewed believe that these conditions are ameliorating and remains that these conditions are deteriorating.

b. Changing period 1992-2001

Affected people were moved to new villages in planed stages. The biggest number of people was in 1992, 1995 and 1998. The villages were selected with intensive participation of stakeholders and representatives of groups of people who had to move. Moving process was said to be carried out in two forms. In early phase in 1992, vehicles were used to take dislocated people and their assets to new places, in later phase of resettlement support in cash were given to households depending on the amount of their assets. All people reported to have received the supports for moving.

Dieploc was a typical Gia rai village before resettlement. According to the survey that was conducted in 1992 by Electrowatt, the village owned more than 80 ha of shifting cultivated land. Average area of cultivated land was 2.2 hectares per household, of mainly hilly land. Traditional production however provided sufficient food for 80% of villagers with productivity of 1.5 tons rice per household annually. Their average income was 1.9 millions VND per household. Most of the households were farmers sustaining their living by rice and other crop production. Eighty percent of houses were made by non-permanent material and 10% homeless. Eighty percent villagers visited magicians when being sick (Electrowatt, 1992). Most of villagers moved to new village in 1997. Moving or leaving ancestor's tombs were compensated by a certain amount of money given to prepare traditional ceremony. Compensation for moving was flexible in the form it was paid (YPMB, 2001).

Housing

All households with houses lying under altitude of 515m was compensated a new house in resettlement areas. These houses were built in the middle of the garden that having area of from 2000 to 2500 square meters. There are two kinds of houses, one is ground house with brick walls, tile roof and cement floor for Kinh groups, the other is houses on stilts made by cement with wooden floors and stairs that match ethnic people's life style. Many people said that they were very happy to receive their houses since many of them could not build such houses by themselves in their old villages before. Most of the ethnic households, which in the old places were living in the same house (long house), received private houses. Each household is now much smaller with from 5 to 7 persons. According to researchers, more convenient design and new material- combination was applied including houses and common houses (NIAPP, 1998). Most people reported that housing condition is better off or equivalent even though there were still some complaints about material issues and detail damages.

Basic infrastructure was provided for all resettlement villages. Roads was built to connect communes and new villages to district centers. Irrigation system was also provided to serve wet rice fields. Access to electricity enabled communication equipment's and provided many people, especially ethnic villagers to have a chance to follow televisions, radios channels from Governmental or provincial Centers. It was expected to support new production activities and reduce hardship for local people. Health care station was built for treating and preventing dangerous diseases as malaria, dengue fever and other water related diseases by sanitation, spraying of insecticides, bush clearing, etc. Yali catchment’s area was heavily sprayed by herbicides during the American war (1966-1969), so the health care for local people was given a lot attention by the researchers when considering resettlement solutions. Other services as shops and market were rather convenient for domestic and production activities.

Other studies by Center for Natural Resources and Environmental Sciences (CRES), Vietnam National University, reviews and self-results show that there is a greater improvement of basic facilities compared with previous villages.

Finding solution for lack of cultivated land is always a very important issue and Yali is not an exception. According to VNESDC (2000), the criteria of provision of agricultural land for every household had not been met. In average, there was a lack of 3000-4000m^2 of agricultural land for every household. Relatively fertile land in draw down (seasonally inundated) areas still could not be used. The income per household annually was lower compared with the figure before resettlement. In general, lack of cultivated land was rather frequent in many villages until 2000 due to different reasons from limitation of land resource, uncompleted allocation of draw down area to dispute between local people.

In cases of Kinh, Yut and Tum 2 villages that moved all in 1995, reclaimed land area of 360 hectares was provided households. However, dispute between villages belonging to Iaphi and Iachim communes led to 60 hectares (20%) was left as fallow (YPMB, 2001).

In case of Dieploc, despite the fact that only 5 hectares of wet rice land was inundated, the other 74 ha is protection area of reservoir so that the village had to move and find replaced land. There was a plan to use 59 ha draw down and 62 ha hilly land replaced. (Electrowatt, 1992). In 2000, there was a lack of about 3000 m^2 for each household and the slow changing method of cultivation (YPMB, 2001). The income of 1.7 millions VND per household annually is a little bit lower compared with the figure before resettlement (VNESDC, 2000).

*In term of food***,** replaced land was reclaimed to cultivate crop as rice, maize, or cassava. Project affected people before resettlement are principally self-sufficiency farmers. The decisive factor influencing the life quality of people in these areas is the food production as rice, corn, cassava and other food crops. According to Electrowatt, before resettlement, the food sufficiency for the ethnic groups living in these areas was as follows: 74% of Gia rai households have sufficient agricultural production to meet subsistence requirement; 16% has food shortage from 1 to 6 months and 10% has food shortage for more than 6 months. For Ba Na group: 82% of households had sufficient food over all year, 18% has shortage from 1 to 6 months/ year. For Kinh group: 80% of households had sufficient food over all year, 20% has stated that they were lacking food in 6 months. Some villages had a serious lack of land. For example, the three villages Cho, Chu and Chap with 1000 people have only 19 ha of wet rice field and 96 ha of hilly land. The average annual food production of this land could be about 250-300 kg per capita, or about 1200-1400 per household (Electrowatt, 1992).

According to the interviewed by VNESDC's survey in 2000, the average annual food production of household before resettlement could be estimated to about 2600 kg of paddy rice. This estimation seems to be too high and it could be possible in years with very good harvest. After resettlement, this number decreased (table 4.9).

Table 4.9: Food production before resettlement, planned and after resettlement

Ethnic group	Estimation of food production before resettlement (kg of paddy)	Planned average food production (kg of paddy)	Estimation of food production after resettlement (kg of paddy)
Gia rai	1690	2000	1290
Ba Na	1960	2000	1060
Kinh	5460	2000	3530
Total	2600	2000	1720
Dieploc	1850	2000	1060

Source: VNESDC, 2000

There was shortage of food for a number of affected people. However, reliable information is difficult to obtain. The interviewed tend to increase the production quantity before

resettlement and decrease that after resettlement in the hope to receive more food support from the authorities.

Considering the localities, as well as the ethnic groups, there is a decrease of food production in the resettlement areas. The main reason for this change could be that the land use planning and related land distribution to resettled people has not been completed. After the completion of this work, food production will increase. However, if the solution comes too late this issue could create serious social, economic and environmental negative impacts (VNESDC, 2000).

*In term of income***,** It was estimated by Electrowatt in 1992 that before resettlement the income of people living in Yali reservoir area by ethnic group was as following: For Gia rai group the average was about 2.7 million VND/year, with 15% below 2 million VND, 32% between 2 and 4 million VND, 32% between 4 and 8 million VND and 20% above 8 million VND. 80% was coming from cultivation, 10% from livestock sales and 9% from other sources. For Ba Na group the average was 4.9 million VND. 85% was coming from cultivation, 6% from livestock sales, and 9% from other sources. For Kinh group the average was about 6.5 million VND. 49% of households earned 10 million VND and above, 51% had an average of 2.5 million VND.

According to the survey in 2000 by VNESDC, before resettlement the average annual income of households in the area was about 6.4 million VND (high estimation compared with 1993 survey). It has decreased after resettlement to 3.5 million VND. Differentiation in current annual household income is presented in tables 4.10.

Table 4.10: Change in annual income per household after resettlement

Group or village	Annual income/ household Before resettlement (million VND)	Annual income/household After resettlement (million VND)
Gia rai	2.33	1.72
Ba na	2.51	1.66
ReNgao	2.91	1.78
Kinh	3.53	2.28
Average	3.53	2.28
Dieploc Village	2.31	1.37

Source: VNESDC, 2000.

By the year of 2000, all villages in resettlement area have been provided with houses and basic infrastructure like water, electricity, irrigation system, road, etc. This is one of the essential factors to improve the living stand of people. However, under influence of lack of cultivated land and change of production pattern as well as limited savings of money of local households, many people in resettlement villages still face difficulties.

4.2.5. Discussion about planning process

Resettlement is a complicated and time-consuming process. It was a decade from the day first groups of the people moved to the day Yali hydropower project was completed. Today, several subprojects are still carrying out to support affected people in Yali resettlement area. Compared to several hydropower projects before like Hoa Binh, Tri An and others, Yali resettlement plan has made advances (see below). A great effort has been made by central government, professional organizations, local authorities and affected people to minimize

negative impacts due to the development project. Even though there still are several issues that have been neglected, generally, the resettlement has been considered in the right way from the very beginning of the Yali hydropower project.

In 1992, Electrowatt, a Swiss company, carefully conducted EIA of Yali hydropower project, even if in that time there was no Law on Environment in Vietnam. (The Law was issued in 1993). Even though resettlement was not new in Vietnam, there were also quite few guidelines. However, in Yali hydropower project, the resettlement plan has been recognized as an essential part of the project. Therefore, it was studied very early and a compensation strategies and planning and design principles were identified.

Strategy land for land, which met the real requirement of affected people, among them more than 80% were farmers, gained great acknowledgement. In the beginning, the viewpoint of compensation to make affected people have an equivalent or better off living standard caused many discussions. Worrying about the limitation of national budged, many experts wanted to reduce investment level only equal to old villages had been before. Meanwhile, the majority of affected people are ethnic minority people or Kinh people who were voluntary re-settlers sponsored by the Government (from densely area to build New Economic Zones in Central Highland). They all belong to the groups that should be helped. Therefore, finally, all resettlement process has been carried out in the line of the solution toward long-term development that can be seen in 4.2.2. The transparent strategy and guidelines provide people with all information about compensation. People participation therefore becomes more effective in the process.

Following this spirit, budget preparation, research studies, planning and activities were launched to meet the requirements. After a general initial socio-economic survey, selection of resettlement strategy was carried out with full participation of the heads of dislocated villages. Professional knowledge and wishes and advised of local people were added to find out suitable new places. According to VNESDC and YPMB, local authorities, Elders and representatives of households closely cooperated with Yali project authority in survey, investigation and choice as well as the design and construction of resettlement areas.

However, the level of people participation was not the same in all villages. In some villages, it is difficult to get the opinions or comments from vulnerable groups as women or the poor due to traditional customs. Most of the members in the village act on advice of Elder. In Dieploc village, for example, the number of people that had opinions about the resettlement was only 15% (VNESDC, 2000). Surveying was conducted carefully from beginning to define the basis for compensation, budget estimation and resettlement plan.

In Yali, the process was carried out comprehensively and detailed with active participation of representatives of affected people groups and assistance of local working groups. What the groups reported played an important role in the process due to the context of high percentage of illiteracy and low education in the area (80% of heads of households in the survey 1992 of Electrowatt). In many cases, the people and heads of households could not calculate or had no awareness of measure system. Many people are not familiar with expressing own ideas with local authorities and others. Therefore, the process has taken too long time and it was laborious. Misunderstanding may be one of the main reasons that lead to the fact that precise data was not obtained and the real and involved situation was not completely described.

In Chu village, Yali commune, the people did not want to move to another places because they are afraid that Kinh groups would occupy their villages land. They did not want to even make up a list of land and assets with risk to be flooded. Clear land marks was set up at elevation of 515m and 517m, however the villager believed that it would be area to build

new road but not full water level and resettlement boundary land marks. The reason is that the Kinh villages were interested in living in the sites located near main roads (Dung, 1995).

Together with misunderstanding, no-feedback data and too long time from first survey to implementation were regarded as reasons of inaccuracy of the data. The number of dislocated people is remarkably increased (table 4.11).

Table 4.11: Changes in number of dislocated people over time

Items	1992 data*	1994 data**	1998 data***	2001 data****
Number of individuals	3213	5384	6782	8475
Number of households	637	1149	1327	1658
Increase of nr of individuals (%)	100%	168%	211%	263%
Increase of nr of households (%)	100%	180%	208%	260%

Note: * Survey by Electrowatt, 1992
** Survey by NIAPP cited in Dung, 1995; Chien, 1999
*** Data of YPMB, 1998
**** Data of YPMB, 2001
Data in 1992 = 100% in comparison.

In many villages, there were still illegal activities in future reservoir after the formal survey and formal announcement by local authorities. For example, moving, more planting, or more fishponds were there due to lack of information and unclear boundary and weak management after the survey.

Compensation was flexible in Yali as in cash or agro production inputs. The cash reported was more interesting because of its stability, flexibility to invest and reducing corruption**.**

Compensated price was established based on administrative unit of province but not on the natural, socio-economic conditions. Different prices for the same item in neighbors has caused complains among the people (table 4.12). For example, in nearly the same situations of natural and socio-economics, 1 hectare of upland rice-field was defined with price of 1.5 million VND in Yamnong commune, Gia Lai but had double price in Yali commune, Kon Tum province (Dung, 1995).

Table 4.12: Comparison of compensated prices in Gia Lai and Kon Tum

Item	Unit	Compensated prices (VND)		Comparison (times)
		Gia Lai	Kon Tum	
1. Moving new ancestor's tomb	piece	1200000	850000	0.7
2. Young pineapple	piece	600	1200	2
3. Upland rice with fruit	ha	2500000	4200000	1.7
4. Upland rice still young	ha	1500000	3000000	2

Source: Compensation price in Gia Lai and Kon Tum, 1993, 1994

One of the successes in resettlement of Yali hydropower project might be the preparation of basic **infrastructure** for new villages. The identification of this work as an important task in resettlement from the very beginning gave positive results. A considerable investment had been approved and implemented for roads, electricity, irrigation system, and service facilities as clinic station, schools, with its equipments. Limited results of services systems currently

should be related to the lack of human force and poverty. Local people in some villages still use only traditional medicine probably due to shortage of money.

Accommodation was a controversial issue. Some researchers believed the same design of houses in the same garden would damage typical things of traditional villages that need be preserved. Some others wanted to change the villages completely towards modern life. According to them, the new pattern of houses together with modern services and good infrastructure could help local people overcome their poor condition. In the Yali resettlement, two types of houses were designed for people in displaced villages. The pattern of house was designed and approved by both the professions and representatives of displaced villages. There is not the same ancient life of many households with shared space and assets in the long house before resettlement. Each household received own new house that can be chosen among ground or stilts one. Common house could be built by modern material or traditional one. Last year, there is a national conference on Nha Rong in Kon Tum aiming to preserve existing Nha Rong, rebuild new ones based on recovering identity of traditional Nha Rong and cultural activities in Central Highland.

Figure 10: Educational facilities at Yali (*Left: Class in old village; Right: School in new village*)

Figure 11: Accommodations at Yali (*Left: Stilts house in old village; Right: Stilts house in new village*)

As many other resettlement plans in hydropower projects**, land and land related issues** were and are the most complicated issues since a greater area of fertilized land available was flooded due to the projects. Of the flooded cultivated land in Yali reservoir, high valued land is about 80% (NIAPP, 1992). Alternative that makes use of draw down land was considered. If it is possible to use effectively all these land area, the damage by loss of agricultural land could be reduced to a half from eight millions to four millions VND for each household (Electrowatt, 1992). However, in fact, changes of production habit are not easy, they require detailed studies, and need to be carefully prepared in advance. In Yali commune, the draw down land has just been used piecemeal. Accordingly, terrace field was more interested to the ethnic groups since it is closer with traditional shifting in cultivation procedure. Dry rice cultivation could be regarded as a transitional method for ethnic minority people (Dao, 1993).

Another rather complicated issue is the boundary of "village land" that was defined by agreement traditionally by consent with the natural entities as an old tree, a stream, a mountain, etc. This could cause many misunderstanding and conflicts. Land use certificate was provided. There are clear agreements between host villagers and new comers. Lack of cultivated land in resettlement area was addressed in many ways in Yali. Reallocations among villagers was encouraged in the village, especially where there was no more land like in Sa Binh, Kroong. Reclamation of new dry-crop fields and irrigation provision were carried out in other new villages (in area I, V, VI, VIII, IX in figure 4).

All the above measures need time to reach previous productivity or to change cultivation habits. A big amount of money was approved to support affected people in transitional period. It aims to prevent people from reduction of their quality of life, especially in terms of food. Changing occupation at construction site and collective farms has been regarded as specific measures to increase their income. However, in fact, it is still limited because of their very low education level was said could not meet the requirement of many jobs in that places. Credit and supports in the long term are very important means after resettlement.

Before resettlement, Kinh people very often got fever because they were still newcomers in Central Highland. Ethnic minority people had remained their traditional life with the unhealthy customs as keeping husbandry cattle in ground floor of their living places, drinking untreated water, putting the dead people for a long time in their house, giving birth to children in forest etc. Pollution and weak healthcare caused high percentage of children less than 5 years old that died, the number in Ba Na group was 56.7%, and in Gia rai group was 35.5%. It was about 80% of Gia Lai women had experienced at least one time of “bearing but could not feeding”(Vong, 1989).

All villagers used to move to another place only when a serious thing happened. The things here may be a dead relative, epidemic or crop loss. In his study, the numbers of villager that moved due to health related issue make up one third (Dao, 1993). If there is a un- planned move, this will result in the waste of planned houses, basic infrastructure and services. Even though there are clinic stations with equipments, there is not sufficiency of qualified nurses and doctors who would take responsibility for treatment and launching sanitation programs aiming at gradually changing awareness in sanitation in all villages. Strengthening healthcare system in the resettlement area is needed.

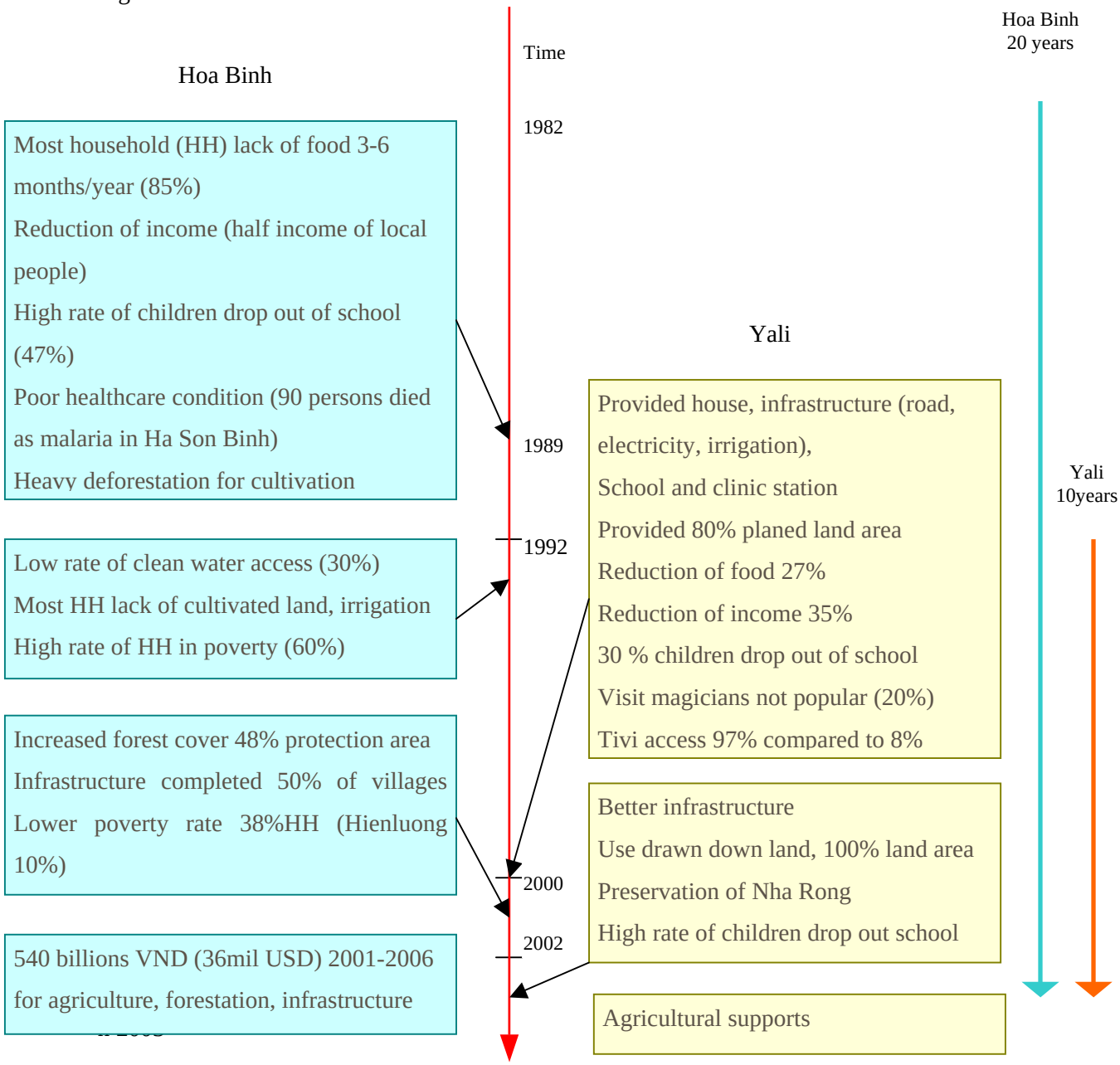
Poverty situation of affected people relates to many aspects that could not be overcome immediately. Having very low education and self-sufficiency living style belonging much to nature, many adults did not pay so much attention to the education of the young generation. With big effort to earn a living, life of many ethnic people is in danger of a closed cycle with poverty, low educated and diseases. In the new conditions of life, they seem not having internal human resources strong enough to serve their communes therefore a greater support

from outside is needed. Strengthening education system should be done immediately parallel with affected people poverty and diseases reduction to make a precondition for sustainable development.

4.3 Over viewing the situation in cases

In order to get overall view of resettlement processes in two case studies, a table (table 4.13) and a figure (figure 12) are established to describe the findings of resettlement issue in hydropower projects.

Figure 12: Resettlement situation



The main landmarks in the table as follows: Feasibility Study (FS); Technical Design (Tec); Moving time when people moved in new places (Mov); ten years after the time when Hoa Binh and Yali projects initiated (10yr); and 20 years later in Hoa Binh project (20yr).

In the table each aspect is defined according to three levels. Weak level (w) means weak consideration or under qualified of that aspects except for EIA consideration in Yali after 10 years means it do not need much consideration. Normal level (N) means progress in consideration in planning phase or rather good in result in reality or it is need a remarkable consideration. Strong one (S) means careful consideration or very good result. Hyphen (-) means no consideration in Planning phases or nothing to do in later phases.

Table 4.13: Main aspects of resettlement over time in Hoa Binh and Yali projects

		HOA BINH project					YALI project			
No	Items	FS	Tec	Mov	10 yr	20 yr	FS	Tec	Mov	10 yr
1	Legal framework	w	w	w	w	N	w	N	N	N
2	EIA consideration (physical and biological environment)	-	-	w	N	N	S	S	N	w
3	Resettlement consideration	w	w	w	N	S	S	S	N	N
4	PAP participation in process	-	-	w	w	N	N	N	N	N
5	Moving									
	Moving support and safety	S	N	N	-	-	S	S	S	-
	Preparation of resettlement areas	-	-	w	-	-	S	S	N	-
6	Compensation									
	Compensation price	w	w	w	-	-	N	N	-	-
	Compensation in kind	w	w	w	-	-	S	S	N	-
7	New village planning:									
	Initial social assessment	w	w	-	N	-	S	S	N	-
	Selection of new sites	w	w	w	N	N	S	S	S	S
8	Housing									
	Provision of house (quantity)	-	w	w	-	-	S	S	S	S
	Model, quality of houses	-	-	-	-	-	S	N	N	N
	Common house	-	-	w	w	N	S	N	N	N
9	Infrastructure and services									
	Drinking water	-	-	w	w	N	S	S	N	N
	Road	-	-	w	w	N	S	S	S	S
	Electricity access	-	-	w	w	N	S	S	N	N
	Irrigation system	-	-	w	w	N	S	S	N	N
	Health care and education	w	w	w	N	N	S	S	N	N
10	Production									
	Cultivated land	-	w	w	N	S	S	S	N	N
	Drawn down land using	-	-	-	N	N	S	-	w	N
	Food sufficiency	-	-	w	w	N	S	N	N	N
	Income restoration	-	-	-	w	N	N	N	N	N
11	Poverty reduction	-	-	-	w	N	S	S	N	N

5. DISCUSSION AND CONCLUSIONS

5.1 Discussion

Discussion here refers to some aspects from 1 to 4 of the table 4.13, which compares the two dam cases. The other aspects are discussed in detail in each case in part 4.1.5 and 4.2.5

5.1.1. The common points

Based on the analysis of each case in part 4, it may be realized that Hoa Binh and Yali hydropower project share several common features wither respect to in their Resettlement Plan.

Firstly, both projects have a large number of people that are forced to move out of the project's reservoirs area. The number in Hoa Binh is 56 297 people and in Yali it is 8675 people. Thousands of other people were also affected by each project.

The second common feature is that the majority of affected people are ethnic minorities. Many of them live in groups and each individual has closed relationship to others. The groups such as Gia rai or Ba na shared all activities as cultivation and cultural activities and many households lived in the same houses. In Hoa Binh the ethnic people is 79% mainly Thai, Dao, Muong and for Yali the number is 65% mainly Gia rai, Ba na, Ro ngao. Many of them have low education and are in a state of poverty so the restoration of their lives in new place meets much more difficulties(part 2.1.2& 4.2.4)

The third one is limitation of cultivated land due to the fact that the creation of reservoirs led to shortage of food in first stage. The poor people with not much food storage and savings cannot live without production for a long time. Meanwhile, a big area of fertilized land was flooded, so the lack of cultivated land becomes a frequent problem in resettlement areas.

However, different procedures of resettlement from case to case led to different results as analyzed in part 4. In case of Hoa Binh, due to many problems, the project has had a severe heavy consequence the local people for a long period. In the Yali, a better planning procedure was conducted so that the transitional period became much shorter. The progress could not be obtained easily. It has required a lot of efforts and long time. There has been a big change in all respects from awareness, legal framework to flexibility of implementation.

5.1.2. Legislation changing over time

The open door policy together with market-oriented mechanism since 1986 has made significant changes in the Vietnamese society. A range of new concepts and new practices entered the country that need time to be studied and tested in practice. Among them are EIA and involuntary resettlement. Even though resettlement is not a new concept in the world and in Vietnam, the dimensions of this issue have changed so fast in the last decade, especially the dimension of involuntary resettlement following upon development projects.

At the beginning of the 1980's, when Hoa Binh project was launched, there was only few policies and guidelines related to resettlement in Vietnam. Some existing guidelines were still applied but not detailed and comprehensive. Before 1993 there was no pronounced change in Vietnam law. The lack of detailed guidelines has created gaps and overlaps during planning and implementation of the complicated issues such as involuntary resettlement (part

4.1.2). As a result heavy consequences have remained for many years after completion of development projects such as the Hoa Binh project.

In 1993, the Law on Land was issued which has made a great change in the country, reaching to very high percentage of farmers. Legal confirmation on land use right and land related issues mean the recognition of farmer's right on land. This is regarded as the key reason to stimulate production as well as investment. There are financial and knowledge resources from all levels, sectors and individuals but not only of Central Government as before. Law on Environment was passed in the same year and has defined environmental protection and responsibility to use rationally natural resources. In term of Resettlement, Decree 22/CP is the most important document that defined compensation strategies aiming at ensure rights of involuntary resettlers due to development projects. In addition, Decree 87/CP has specified a price on land according to types of land. This is the legal basis for transferring, renting and compensating land as well as taxing on land. The combination between the revised policies and advance knowledge at international level made a clear strategy and guideline on the issue in the Yali hydropower project (part 4.2).

In theory, newer projects could be better in quality since they can learn from the lessons of the previous ones. Mainly investors, consultants and localities in fact have developed present strategies for development projects. The final result of the process in practice is only reviewed after the completion of projects or some years later. Meanwhile, forced resettlement requires a lot of consideration about the people and their life. Experiences in Vietnam and in the world have also shown that resettlement processes are very complicated and takes long time, especially for large number of people. In Hoa Binh the process has lasted for 20 years and for Yali 10 years. Resettlement plans were designed and implemented by different bodies that might have different knowledge and varied awareness on the issue.

Today some projects in the country, which are financed by loan from international organizations, environmental consideration is carried out following both national and international standards. Besides, there are some other projects that are financed by the Government of Vietnam, and they follow the national law. The level of the considerations is different if the projects financed by local resouces. The situation creates inequality in both cost and benefit of affected people and environment. It may also mean considerable risks for overlaps, gaps and corruptions.

In order to achieve sustainability, a comprehensive and systematic guideline system covering all aspects from physical, cultural to temporal ones, as well as more detailed plans for the resettlement process is needed.

5.1.3. Implementation resettlement in hydropower projects

a. *Significance of early consideration of environment and affected people*

The resettlement plan needs to be considered as soon as possible and not later than the Feasibility Study. In Hoa Binh, it is difficult to calculate exactly all environmental impacts caused by the project in practice because EIA partly done after completion of the project. The study on impacts by Hoa Binh project in 1992 by Hung, N.T.& Hai, P.H described the heavy damages of fauna and flora in the area (Dung, 1995).

The same situation exists for social impacts due to insufficient consideration of the resettlement plan from the beginning. There was little preparation for resettling affected people in new places (part 5.1). The people were in such a hard situation and Son La province's People Committee in that time had to make a call for support from the whole

country including research bodies (Social Science Institute of Vietnam, 1991). The detailed solutions of population rearrangement, infrastructure and cultivation land were offered later. As a result, positive results have been gained for the next 10 years in Hoa Binh and Son La provinces (part 5.1).

On the contrary, most main impacts due to Yali project were studied and predicted. Researchers have provided mitigation measures in the early stage in Yali for all impacts including resettlement. Therefore, awareness of the significance of resettlement was defined both by high-level authorities and researchers. Careful preparation from the selection of sites to basic infrastructure has been conducted (part 5.2). Starting early together with dam construction, it provided enough time to carry out detailed studies, consideration of replacement alternatives, as well as regulations aiming at better results.

b. *Significance of comprehensive and detailed Resettlement Plan*

All processes should be implemented carefully, in detail and on time. Even if all mitigation measures were known early in Yali, some important problems remained due to lack of detailed planning or time consideration for some aspects (part 5.2). For example, rather late planning agricultural land was the main cause of a decrease in agricultural production and earning of households after resettlement. The management after a general survey also greatly affects resettlement process. An unexpected increase of the number of affected people in the Yali project means under-estimated budget and land capacity for compensation. This situation leads to many other social and economic problems for both the Government and the affected people. The investment cost in resettlement now in Yali is double compared with the estimated cost in 1995 while many households were still lacking land until the year of 2000.

c. *Significance of public participation*

Public participation is an important part in the resettlement process. In Hoa Binh, decision-making on the whole process of compensation and moving was made from top down (part 5.1). Providing information – the minimum level of public participation- was not fully carried out in Hoa Binh. As results, association with other reasons, many households moved several times. This made the situation in resettlement areas more difficult and complicated.

In Yali, according to VNESDC, this aspect is rather good, especially in selection of new villages in early phase and control building quality. It stated that " *affected people at grassroots' level and their representatives at village, commune, district and provincial levels has been informed, consulted and organized for contributing ideas and proposals to decision–making and implementation during all steps of resettlement plan's development*." There were some constraints due to high illiteracy rate, language and custom barriers. No printed information delivered in the meetings in the villages may limit the results. An essential issue of agricultural production and household's earning after resettlement has not been discussed in detail from the beginning. Association with rather late implementation of the use of drawn down land, it may be the important reason leads to short of food and income of resettled people in transitional period (part 5.2).

Participation has several levels from lowest as information provision to higher as two ways information in which the people can have some express their wishes and have opinions about the forms of their new life. In the highest-level participation also means that people should also be able to influence the planning process. However, the promotion of public participation depends on both related authorities and affected people. There is a need for a legal framework on public participation and enhancement of implementation for developer

and localities. Local and affected people should have awareness of their rights and enhance the capacity to influence project decision-making.

5.2 Conclusions and recommendations

Large-scale projects for energy and infrastructure are among the few attractive options for financing agencies and developing nations because of their ability to spread positive effects to other parts of the national economy. The results depend most on legislations and actors that are responsible for implementation of the projects.

An optimal strategy for resettlement should be in favor of sustainable development and, therefore, strive to internalize the social and environmental costs implied in the process of economic development. It is essential to plan for effective distribution of resources and benefits among groups of society.

In order to guarantee that development takes more account of environmental impacts and is performed on sustainable basis, the state and organizations as well as affected people have to do many things. In the field as complicated as resettlement, if not carefully studied and insufficiently prepared, the negative consequence will be quite heavy and long lasting. Therefore, high-level policies on this issue should be revised towards sustainability and the implementation should follow a strict procedure with full participation of both the affected people and the host people.

From the illustration of above cases and the findings of the research, the following conclusions and suggestions can be made. It is hoped that they will contribute to improve Resettlement Plans in hydropower development.

It is important that EIA including SIA is considered in hydropower planning. The alternatives that can cause negative impacts on the people and environment should be avoided. The appropriate process should be to make hydropower development a suitable development in which social, environmental and economic factors are all taken into account. This will provide the country with opportunity to develop an institutional framework that combines national, international and local knowledge about specific local conditions. This is important since theories on sustainable development, including resettlement, originates from industrialized countries and should be applied in consideration of specific local contexts a requirement.

The EIA procedure should be initiated in the Pre Feasibility phase since this increases the possibility to avoid sites and layouts that may cause environmental disturbance at unacceptable level. EIA findings at Feasibility Study level provide information that make it possible to be initiated in early resettlement planning and public participation.

Resettlement planning should be launched together with initial social assessment. It is very important since a small mistake may result in unexpected and long-term consequences. Resettlement plan teams should be composed so as to represent all relevant professionals including sociologist and provide an impartial assessment and responsible planning solutions. The resettlement plan documents need to be independently reviewed before the final decision is taken. This can improve the environmental impacts statements and the resettlement document and consequently provide a better basis for decision-making.

The planning should be open since such an approach could reduce rejection of the project that otherwise could occur during the construction phase and cause delays. The procedure can also influence the selection of alternatives. The participation of the people is one of the key factors that lead to success of the process. It makes alternatives become reality based on

a combination between advance knowledge and actual skills. Local people should be involved as early as possible in the EIA procedure in order to provide important information that otherwise may not be available, but also in order to be informed about the project and active of the coming changes. The arrangement of moving should be done together with the provision of information to ensure that affected people will move to planned sites.

Term of compensation should be based on the results of survey and prices of items. A general survey should be done carefully and in details to identify the number of affected people and land and goods, productive forms and life styles, commune relationships and cultural customs. The results of the process should be open. The unit prices of all kinds of lands and goods, and crops should be established based on actual price and regulated in case of inflation. The compensation should be flexible in kind and in time.

The stability of the people in the commune depends firstly on the stability of means for living and production. Therefore, housing issues should be considered firstly. House planning should be suited to both physical conditions and traditional customs of living, cultivation, and culture. Models of houses should be selected by people (or rather designed with the participation of the people) to protect identity of ethnologies in term of material culture. Infrastructure should be provided to enable people to have access to commerce, irrigation and communication in their new living life place.

Land and land related issues should be carefully studied and solved before resettlement. Government and local authorities and ethnic minority groups should solve sensitive issues such as land boundary and land use right before resettlement. Extension of land, diversification of sub crop and supports in transitional time are measures to limit food shortage. Encourage wet or dry cultivation in fixed land to prevent deforestation. Especially, improvement of the soil and provision of information on cultivation practice within the draw down land is important since it helps to prevent people from a decrease of food availability. This is particularly important in case of ethnic minority people. Tax and fee reduction, credit, training courses and samples in reality are effective measures to increase food security and income.

Government should support health care and education in order to gain healthy life styles in resettlement villages. The vocational school for young generation and the special classes to reduce the illiteracy percentage for others in minority ethnic villages will improve the socio-economic conditions in the long term.

Finally, a single management body from high to local level is an important factor to gain the success. That is a good way to manage effectively investment sources and bear full responsibility of a project's quality. This body could also receive quickly the feedback from local people and solve flexibly and sensibly problems originating from practice.

The model of table 4.13, including essential aspects of resettlement process, could be used to comprehensively review the consideration of resettlement over time in various hydropower projects. For other kind of projects, some specific aspects may be included or excluded, for example the aspect of drawn down land using. The table combines many aspects in different professions from physical to social, but each aspect in the model closely relates and effect to others. All of them should to be considered carefully from the beginning. Then various aspects will be decided to invest at the level of the phase of the projects and the weighting factors. Distance between the review landmarks depends on the scale of the project and the time to implement the resettlement. Similar table are designed for construction project in terms of physical workload over time quantitatively. However, this model is applied to evaluate and record qualitatively for all aspects over time according to 3 main levels (weak,

Normal and Strong). Both successes and problems in the whole process of resettlement are presented in the table.

Such a model may enable decision makers and non-technical people to get general knowledge and experiences before they make the decisions or evaluate the issue. The utility of the model depends on available documents from the general and professional reviews. It is ideal when general reviews are carried out periodcally together with professional reviews that are done systematically.

From experiences and lessons learnt from successes and problems of the construction of large dams in the past in Vietnam and in the world, it is necessary to ensure that the resettlement process should be considered carefully, detailed and timely in all its phases of Moving, Compensation and Restoration including Transitional time. The construction of dams should not only meet the energy demand, mitigate water related disasters, serve socio economic development of the nation but also minimize the possible negative impacts for resettled communities and environment.

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(Titles in Vietnamese were translated into English by the present author)

APPENDIX

Appendix 1: **QUESTIONNAIRE FOR STUDY OF RESETLEMENT**

General Information

Commune/ Village

1. Name of respondent:

2. Sex of respondent: 1.Male 2. Female

3. Age of respondent:

4. Ethnicity: 1.Gia Lai 2.Ba na 3. Kinh 4. Other

5. Education: 1. Illiterate 2. Primary school 3. Higher

6. Position in household: 1. Head of household 2. Wife /Husband of the head of household 3. Member of household

7. Number of household's members: Number of women:

Income and livelihood:

1. What was main income of your family from before moving? 1.Paddy 2.Wage- earner 3. Others (Fetch for wood; Cash crops (coffee, cashew, sugar canes, rubber, pepper and fruit trees); Livestock; Fishing; Services; Hunting; Employ).

2. Income of your household was: 1.Insufficient (Lack of money for basic food, clothing, education and fuel, energy) more than 1 months) 2. OK 3. Good (surplus money more than 3 months)

3. What is main income of your household from 1.Paddy 2.Wage- earner 3. Others

4. Comparison income now and before: 1.Better 2. The same 3. Lower

Accommodation:

1. Types of your house before resettlement: 1. Permanent (Concrete, brick) 2.Non permanent (Grass- roof, earth- walls) 3. If have,…….m^2 of house 4. Homeless

2. Current situation: 1. Permanent (Concrete, brick.) 2.Temporary (Grass- roof, earth- walls) 3. If have,…….m^2 of house 4. Homeless

3. Comparison housing now and before: 1.Better 2. The same 3. Worse

Land:

1. Land area before resettlement: 1. Fixed rice land…. m^2 2.Shifting land…. m^2 3. Forest…. m^2 4. Garden…m^2.

2. Current land area: 1. Fixed rice land…. m^2 2.Shifting land…. m^2 3. Forest…. m^2

4. Garden…..m^2. 5. Have you had land- use certificate or in the process of doing that paper?

3. Have you received land as planned? If no, how many square meters do you receive?

4. Do you receive any technical supports or helps in agricultural production?

5 How is about food amount comparing with before resettlement?

Infrastructure

I Road:

1. Was Road to 1. Commune 2. Village 3. If were, …m^2 width?

2. Is road to 1.Commune 2. Village 3.If yes, …m^2 width?

II. Water:

1. Where did you take water for drinking? 1.String 2. Standpipe fed from capped springs 3. River 4.Well.
2. How far from your house to water resource?
3. Was drinking water treated before using?
4. And is now situation? How are water quality, quantity and fee being charged?

III. Electricity:

1. Do you access electricity? When?
2. Which activities do you use electricity?
3. How is about the fee being charged?
4. Do you receive any support of price? How many months?

IV. Education and Health care:

1. Did your village have any schools or classes for children? Which ones 1. Nursery school 2. Kindergarten 3. Primary school 4. Junior high school?

2. How about school today in your hamlet or commune?

3. How was about healthcare in your hamlet before resettlement? When you were sick, whom did you visit? (Magician, nurse of village, physician of commune, medical post in commune)

4. Which ones are available in your commune? 1. New born place 2. Healthcare-center 3. Medical posts. Where do you want to visit when you become sick now?

5. What diseases of the following malaria, respiratory infections and coughs, diarrhea, goiter, petechial fever, itchiness, have been increased?

5. Do your children get vaccination when they are under 5 year old?

6. Were services convenient for your family before? Which ones are available in your village or commune? 1.Market 2. Shops If no, how far from your village to where you could sell or buy goods?

Cultural activities:

1. Before resettlement, did you always take part in entertainment and cultural activities were conducted in or through 1. Public House 2. Temples 3. Pagodas 4. Traditional festivals 5. Television 6. Radio 7. Film 8. Books or newspapers.

2. At present, which ones are available in your commune? 1. Public- meeting House 2. Temples 3. Pagodas 4. Traditional festivals 5. Television 6. Radio 7. Film 8. Book or newspaper. Which of them do you always take part in? If no, why not?

Resettlement process:

1. Did you hear about the Yali dam before resettlement? 1. Yes 2. No. If yes, where have you heard from and when?

2. When did you move to new place? Where? From?

3. When were you informed about moving plan of your village and household? By whom?

4. Did you have any ideas about resettlement process? 1. Yes 2. No. If yes, what does it say about?

5. Have you received all compensation? 1. Yes 2. No

6. Which kind of compensation did you receive? 1. In cash 2. Other, specify.

7. Did you be helped or supported for moving to new house? Who supported?

8. How do you feel about the process: 1. Entirely satisfactory 2. Satisfactory 3. Not satisfactory. Why?

9. Are you informed about support programs or plans on 1. Agricultural production 2. Food security or poverty elimination 3. Livelihood changes.

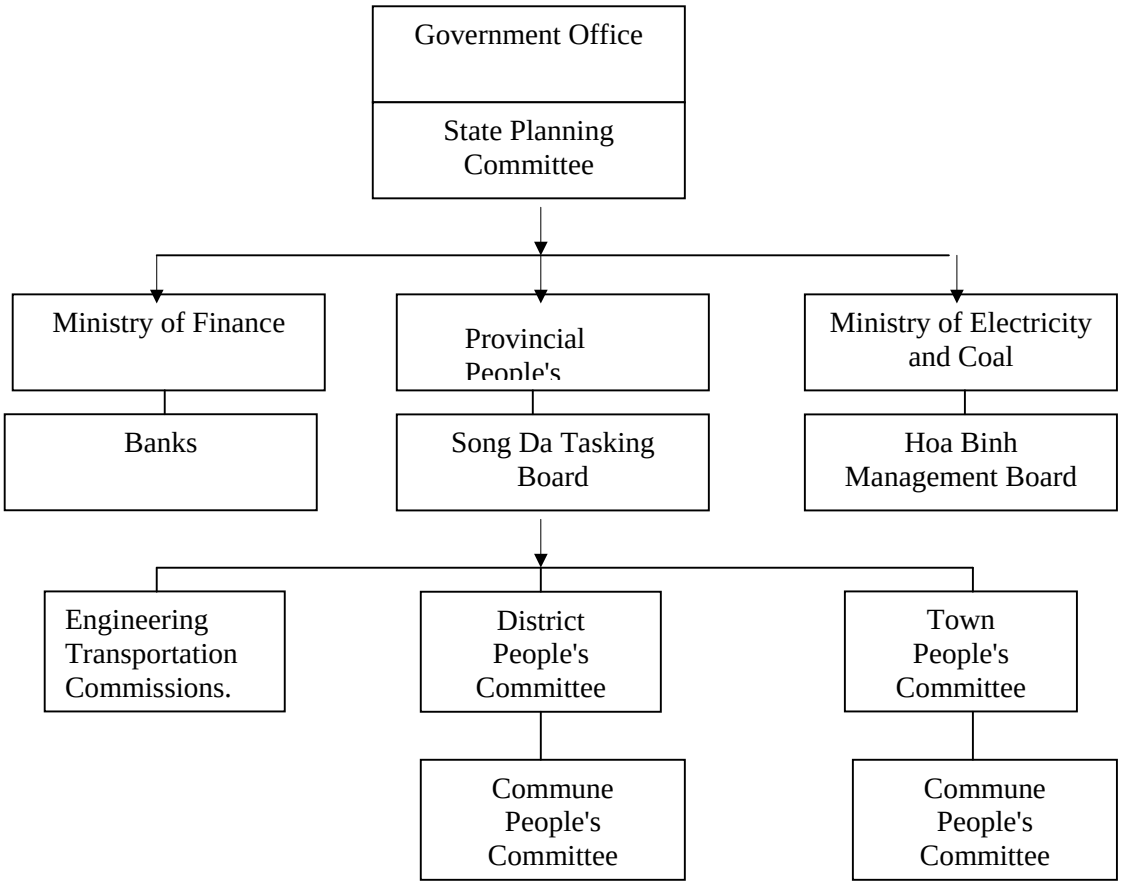
10. General comparison on living standard today and before: 1. Better 2. The same 3.Worse

11. Which issues can change or restore to improve your life?

12. Who, in your opinion, can implement these issues effectively? 1. Government 2.Commune 3. Yourself

13. What do you wish and expect for the future?

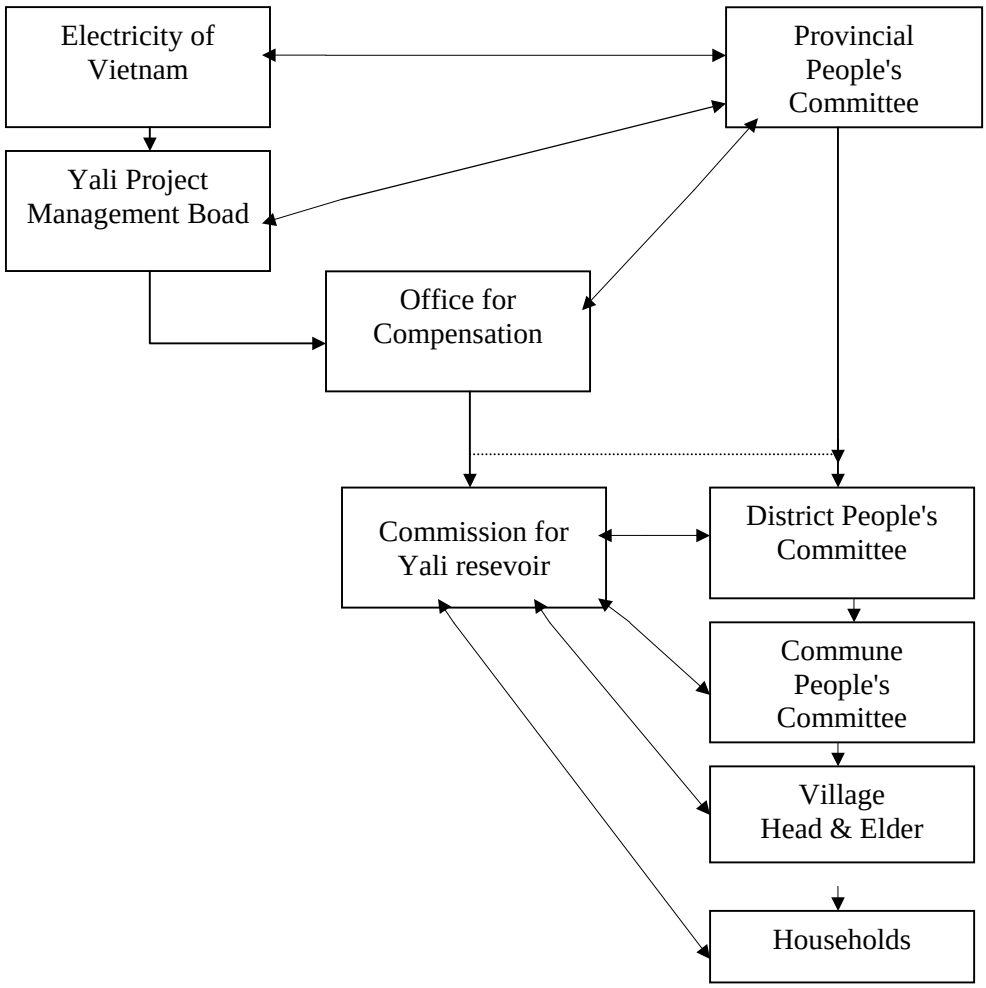
Annex 2: Chart of Adminitration Ognization of Resettlement in Hoa Binh



Source:NIAPP and Song Da Management Board,1998

Annex 3: Relationship between Project Managing Institution, Local Government Authority

Project Managing Institution **Local Government Authority**



Source: Dung, 1995

Annex 4: Flowchart of Resettlement (Source: Electrowatt)