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Social Differentiation as Consequence of Intensive Rice Production in the Peasant Community in the Mekong Delta

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ABSTRACT: *To respond to the need for national agricultural development in recent years, a series of embankments and high dyke systems has been installed around many floodplain areas of the Vietnamese Mekong Delta to regulate floodwater for intensive agricultural production. This paper analyzes recent trends of human intervention in flood management and explores the process of social differentiation in a peasant community caused by the high dyke construction for intensive rice production. The study reveals that although agricultural intensification has been widespread since the dyke program was implemented, its benefits, however, have been unequally distributed. While innovation has been relatively neutral in terms of scale, its impacts have not: the changes in agricultural technologies being used, the access to social networks and financial credits, and the investment opportunities created in intensive agricultural production, have favoured those farm operators better endowed with land and other means of production. Small farmers and landless poor have found themselves on the losing side of the trade-off process and have thereby been excluded from the benefits of such agricultural development project. Results suggest that long-term social impacts of such high dyke program need to be reassessed from multi-sectoral perspectives before duplicating this human-made intervention throughout the Vietnamese Mekong Delta.*

KEYWORDS: *Dyke construction, intensive rice production, social differentiation, Vietnamese Mekong Delta*

I. Introduction

Over the last few decades, the theoretical and ideological diversity of peasant studies has reflected the diverse interests and different ways of approaching peasantry. The critical trends in peasant studies have explored the relationships between the peasantry and ethnic identity [1], ecological systems and production systems [2,3], production technology [4], peasant struggles [5,6,7], and changes in peasant society [8,9]. The concept of 'agrarian differentiation' was firstly deployed by Hart et al. [10] to describe a dynamic process involving the emergence of sharpening of differences within the rural population. These scholars suggest that, in the context of intensification and commercialization of agricultural production, the social differentiation within rice communities has become more apparent. While 'commercial farmers' have more opportunities to accumulate wealth and power through the changes in agricultural production, the small producers and 'landless agricultural laborers' have been marginalized and have even become poorer [10].

There have been various studies on the impacts of agricultural intensification upon social differentiation in specific peasant communities in Southeast Asia. A study conducted by Husk and White [11] examines patterns of social-economic differentiation caused by the agricultural intensification in Java of Indonesia. The study reveals that the transformation of the rural structure as well as the emergence of commercialized peasant agriculture, mark the beginning of social differentiation. Large-scale farmers tend to adopt new technologies more quickly as they have greater access to subsidized credit and other inputs. The combination of agrarian surplus and power allows these large-scale farmers to dominate the non-agricultural production sector. The accumulation strategies of the landed elites in this context then, involve not only the further concentration of landed property, but also a combination of agricultural intensification and a diversification into non-agricultural enterprises. Therefore, the commercial and technological innovations in Javanese rice production have provoked new forms of social differentiation, which have resulted in schisms in the relations between farmers, landless laborers and very small owner-cultivators [11].

Another study in Northern Thailand examines the process of social differentiation when the government introduced the commercial farming systems in late 1990s. The promotion of 'high-value' cash-crops such as vegetables and mix-fruit tree systems, caused the transforming land use from being subsistence-based to more commercialized. However, the 'New Theory' farming system, as a solution to achieve food security, income stability and environmental integrity, significantly affected land use practices in the highlands. The concerns over the highland environment were the disturbance of soil and forest lands by pollutants and the heavy use of chemicals. In addition, the local farmers yielded very little profit from cash crops grown due to an increase in

production cost and a decline in productivity as a result of the decreasing soil fertility. Furthermore, farmers had to borrow money from both government banks and local traders, and subsequently, serious indebtedness was found among Thai farmers in the study areas, where many farmers had to seek off-farm employment in nearby cities, mainly moving to Bangkok to work as wage laborers [12].

In Vietnam, agricultural production, in particular rice intensification, has played a vital role in strong growth and poverty reduction in many peasant communities since Vietnam government adopted a comprehensive reform program known as *Doi Moi* policy in 1986, which moved Vietnam from a centrally planned to a market-oriented economy [13]. In which, the Mekong Delta, one of the largest deltas in Southeast Asia, has an important role in Vietnam's socio-economic development [14] as the delta produces approximately 50% of staple food and 60% of fish production of the entire nation [15]. The Mekong Delta is often regarded as the 'rice basket' of the nation since its crops feed and sustain the inhabitants and make Vietnam the second largest rice exporting country in the world. Given nearly four million hectares of agricultural land and the population of nearly 18 million living primarily on agriculture production, this region has been faced with growing pressure to ensure the national and global food security [16].

Table 1. The Increase of Rice Productivity of Vietnam and the Mekong Delta by Years (Units: 1,000 tons)

Year	Vietnam	The Mekong Delta	
		Productivity	*Percent (%)*
2000	34,538.9	16,754.7	48,50
2002	36,960.7	17,821.6	48.21
2004	39,322.9	18,691.0	47.53
2006	39,621.6	19,488.2	49.18
2008	38,729.8	20,669.5	53.37
2010	40,005.6	21,596.6	53.98
2012	43,737.8	24,320.8	55.61
2014	44,974.6	25,245.6	56.13
2016	43,165.1	23,831.0	55.21
2018	44,046.0	24,506.9	55.64

Sources: GSO, 2018.

The landscape of the Vietnamese Mekong Delta is powerfully shaped by natural cycles of flood due to the overflow of the Mekong River. The annual flooding season begins in July or August and can last until November or December. Flood has always had two-sided effects on local people's lives. On one hand, this area has been exposed to permanent threat of water disasters in the form of floods in the wet season. On the other side, the Mekong alluvium-rich waters bring many benefits such as soil fertility and productivity to the region. It is also a time of plentiful fish and of renewal for the paddy fields. Hence, a discourse of *'living with floods'* is part of such cultures [17].

In recent years, to establish the ground for national development, Vietnam government has endorsed many crucial development strategies, in which the export-oriented rice production has been the avowed goal of government policy to strengthen the economy, to alleviate poverty and to ensure national food security [18]. In contrast to the previous ideas of modifying the water regime to adapt to nature, recent developments have been based on a strong belief in the ability of humans to control both nature and waters of the Mekong Delta. A common denominator among government planners has been their attitude towards natural resources, which has been guided by control and abuse, rather than by adaptation. As a result, high dyke systems have been constructed in many floodplains to support intensive rice production that have led to great ecological and social impacts on people's lives. The waters of the Mekong River have been brought increasingly under human control, therefore, damages from floods have decreased in the most flood-prone areas and rice cultivation has intensified, bringing double- and triple-cropping to areas that previously produced only a single crop [19].

Total rice productivity in Vietnam (Table 1) increased dramatically, from 34.5 million tons in 2000 to nearly 44.1 million tons in 2018 [20]. Majority of this increasing amount of rice productivity was produced by the additional third rice crops during flooding seasons inside the high dyke systems of the Mekong Delta. Such a rapid expansion of rice productivity made it possible for Vietnam to become the second rice exporter after 2000, exporting nearly 6.12 million tons of milled rice in 2018, of which more than 90 percent of rice export was produced in the Mekong Delta [20].

Even though natural water-related hazards have been reduced, these development efforts have resulted in other new man-made risks, particularly to small-scale rice farmers and the landless poor, which this paper attempts to highlight. As the ecosystems have been modified from flood-prone to non-flood systems, the habitats have become very unstable, and aquatic resources have declined. The new cultivation practices require

high inputs of agrochemicals, and water and soil quality has therefore degraded. The social aspects of these shifts are linked to conflicts of interest between the livelihoods of the various social groups. The rice priority policy was harmful, even to the rice farmers, but the recent diversification policies are a potential threat to the poor farmers as intensive rice production is not a good option for small-scale farmers due to the significant levels of capital required. The poorest groups in the peasant community have also suffered from the new water regime since they have limited access to aquatic common-pool resources.

Recent studies have demonstrated increasing interest in the adverse impacts of agricultural intensification, especial intensive rice production, caused by the high dyke buildings in the Mekong Delta. Most studies tend to focus on aspects of environmental degradation [21,22] and ecological impacts [23] in water-protected areas; the decline of rice yields and impacts on rice farmers' income [24,25], and economic costs and benefits of the dyke program [26]. Yet, studies on social impacts, especially social differentiation, associated with the high dyke constructions for agricultural intensification have been rare and hardly understood. This paper explores the process of social differentiation with an analysis of the social impacts of the high dyke construction in promoting agricultural innovations. Although the recent adoption of productive agricultural technology has been widespread in peasant community inside the high dyke systems, the distribution of its benefits has been highly unequal. This paper suggests that changes in agricultural technology, access to financial credit, new technology services and investment opportunities in rice intensification, have favoured those better-off and medium households who have greater potentials in terms of landholdings, financial capital, access to labor and machinery, social networks, and even educational background. The land poor farmers and landless poor households find themselves at the losing end in the trade-off and are thereby excluded from the development process.

II. Methodology of the Study

Data Collection

Mixed-methods approach [27] was applied in this research. Qualitative information was gathered from focus group discussions (FGDs), in-depth interviews with key informants, and field observations, while quantitative data was collected from household interviews to investigate the recent changes of human-made intervention in flood management for agricultural intensification in the Mekong Delta and to examine the process of social differentiation in the peasant community after the appearance of the high dyke systems. The primary data was collected in 2009 and the secondary data was updated in 2018. The details of data collecting methods were used as below:

- *Focus group discussions:* There were two FGDs being applied in each social group. The first was a general discussion open to address questions concerning dyke construction, environmental degradation, land and water management, and wealth ranking in the selected peasant community. The second discussion illustrated on specific issues such as income sources, effects of dyke system to income-earning activities, livelihood opportunities, poverty, perceptions on land degradation and agricultural production return.
- *Wealth ranking:* Participants in the general focus group discussions structured the households of one section of their community into four wealth groups, namely the better-off, medium, landed poor, and landless poor household groups using their perceptions of wealth which included variables such as cultivated land, livestock, cash income, employment type, number of children and laborers, types of house, among other several unidentified criteria.
- *In-depth interviews:* Key informants from four household groups were collected for in-depth interviews in order to understand their choices of production systems and their management strategies. Besides farming households, informants in landless household group were also selected for in-depth interview to analyze more recent changes in their livelihoods and their economic performances.
- *Household surveys:* Ninety households were classified into four social groups for household survey. Household heads and spouses were the focus of an open-ended questionnaire designed to measure most of the variables elicited during the focus group discussions.

Data Analysis

Covering all data collected from various sources such as household surveys, in-depth interviews, focus group discussions and participatory observations, the quality and quantity of secondary data also helped to identify the research questions as well as issues that emerged throughout the fieldwork. The information was then used to analyze changes in the farming systems and practices, livelihood changes, social relations, and the impacts of the government agricultural program on rice farmers. Moreover, the collected data further helped to understand the process of social differentiation stemmed from rice intensification at the community level of the Mekong Delta.

III. Analysis and Discussion of Results

3.1 Flood and High Dyke Construction in the Peasant Community

My An, a peasant community of An Giang province, was collected to be a case study in this research. The village is located along the Mekong River (Fig. 1). Similar to other peasant communities in the Vietnamese Mekong Delta, the landscape of My An village is characterized by a condensed network of rivers and canals which plays a vital role in agricultural production in terms of irrigations and transportations. The total natural area of the village is 1,241 hectares; in which, farming land comprises 1,038 hectares, accounting for 84 percent of the total land of the village. The population of the village is 13,466 people within 2,819 households; 61 percent are in the working age. More than 75 percent of the population engage in agricultural activities; small percentage engaged in non-farm activities practiced alongside agriculture [28].

This peasant community is affected by overbank flooding from early August to late October, inundated from 1-2.5 metres of water during the peak of flooding seasons. Since 2000, the high dyke system has been built in My An village, being one of the first peasant communities that local government implemented the high dyke program in the Mekong Delta. My An was considered as an indicative area of An Giang province since it has been characterized with a fully flood-controlled area with commercially-oriented agriculture at some levels of intensification.

Before constructing the high dyke systems, the lives of local people were determined by two major seasons: flooding and dry seasons. The flooding season was the busiest period in the lives of the small-scale farmers and landless poor people since they could do fishing and engage in various off-farm activities such as making boats, fishing nets and other fishing gears. For about four months, they must make the best to save money before the flood season ended. Flooding season was perceived a resting time for farmers as they just spent time for preparing agricultural tools, seeds, and fertilizers for the next farming season. In the dry season, local farmers cultivated both traditional and high yielding rice varieties in addition to other introduced crops. The main crops grown were rice, corn, beans, sugarcane, etc. Meanwhile, the landless poor can make their living by selling labor for other farmers all year around.

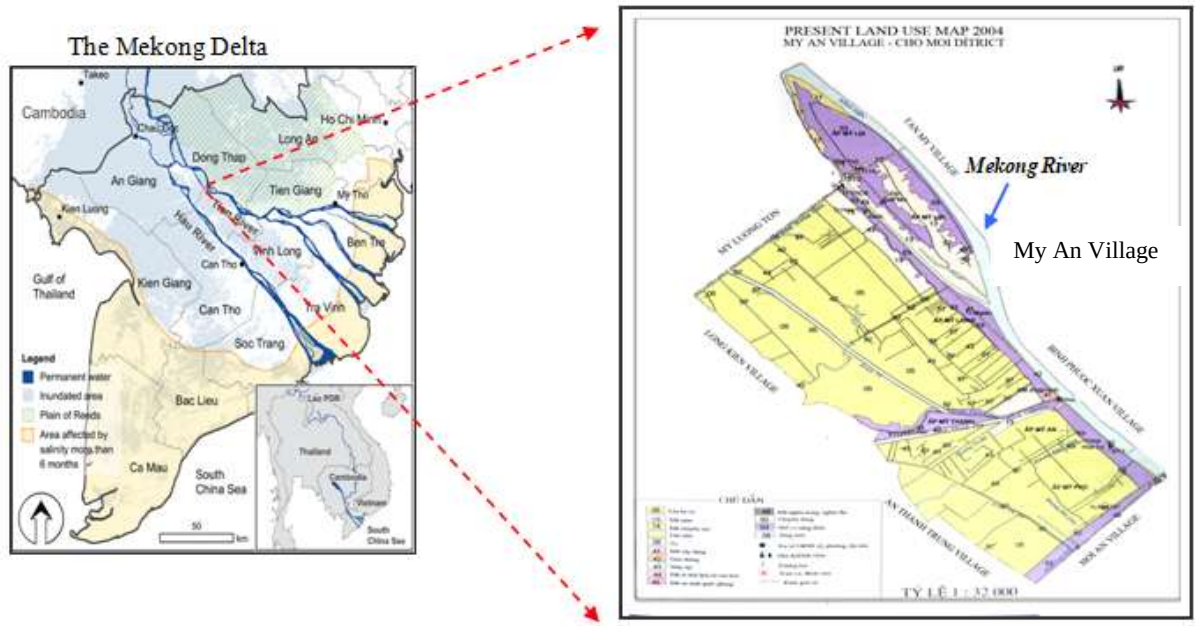

Figure 1. The Vietnamese Mekong Delta and the Selected Study Area

After the high dyke system was completed in late 2000, agriculture began to intensify, and new resources became available within the flood protected area. The emergence of high-yielding rice varieties and cash-crops including baby corn, hybrid maize and young cucumbers which benefited from increased demand on domestic and global markets, provided an opportunity for large-scale farmers and private entrepreneurs to enter the field and to form new strategic groups so-called 'commercial' farmers and 'small-scale' farmers who are struggling to both further expand their business activities and survive.

The expansion of agricultural intensification and commoditization has resulted in the process of the re-division of rural labours in My An village. Unemployment is still a big problem since agricultural sector cannot absorb all the labor force available in the village where the farm size per capita is small. Moreover, agricultural

intensification has not created more agricultural wage labor for the poorest groups, especially the landless poor, since farming households usually utilizes their own family labor force available on the farms. There is therefore more work available, but the family tends to get the benefits, rather than hiring-in laborers. Moreover, agricultural intensification has been accompanied by mechanization, and this has benefited the better-off or large-scale farmers, as they have had better financial capacity to invest in machines, which themselves have replaced the poor laborers whose livelihoods rely mainly on agricultural wages.

The yield of crops, especially rice, has recently dropped, so the need for chemical fertilizer use to maintain the yield has increased, pushing up production costs. Increasing investment costs are therefore led to the decline of farmers' income. Most small cultivators now face insecure livelihood situations due to the impacts of fluctuations in agricultural productivity. The margin between the cost of inputs and the returns from selling produce has narrowed, and so farmers need to work even harder and for longer to maintain their income.

Although road transportation has been much better since the dyke construction, and farmers now have better access to local markets and a greater choice of middlemen to whom they can sell agricultural products, poor and landless people, however, are worse off. Because of the high dyke system, the poor are no longer able to gain their livelihood from fishing or on other opportunities created by flood-based farming systems. Previously, during the flooding season, they could go into the rice fields and catch fish to eat and sell, but this is no longer an option. The income from a day's labor is less than from a day's fishing, and the income from fishing was the one opportunity that poor people could save money in flooding seasons.

The decline in livelihood opportunities has pushed the poor to become even more marginalized. They must change their livelihoods, usually by moving out of the village to seek other opportunities in urban areas. Furthermore, the benefits from this development project are spread unevenly, which causes greater social differentiation within the village. More resources have been concentrated in fewer hands. Some people have bigger landholdings or better financial capital and can use their capitals intensively in agricultural production and agricultural services; hence, the better-off and large-scale farmers are able to gain much benefits while the small-scale farmers and landless poor are struggling for survival.

3.2 The Process of Social Differentiation in the Peasant Community

In many developing countries, the political strategy of the state has been to maintain a tight control over the countryside, in order to circumvent the agrarian mobilization that could be used to challenge the highly centralized structure of state power. In so doing, the nation state has played a crucial role in the process of rural differentiation. The patronage of dominant rural groups has been an important means by which those who control the state have pursued their complex and often conflicting agrarian interests, both within and beyond the rural sector. Consequently, rural elites have become political and economic agents of the state and have been co-opted into the larger power structure [29]. Their privileged access to natural resources, subsidized credit, inputs and guaranteed prices has stemmed, not so much from their ability to sway agricultural policy in their favor through direct influence, but rather from the services that they render to the larger centers of accumulation; helping to police the countryside.

Blur inequalities were an integral feature of economic life in My An village before the dyke was constructed. However, this inequality has become more pronounced at present, as can be seen through the most casual visual evidence, such as housing, furniture, number of livestock, farm equipment used, as well as ownership of televisions, telephones, and in many cases now, motorcycles. There is now a glaring differentiation in access to livelihood resources such as on-farm and non-farm opportunities, farmer's networks, new farming technologies, formal and informal credit sources, for income generation.

3.2.1 Four Social Groups in the Peasant Village

The Participatory Rural Appraisal (PRA) method was applied in order to classify the households in My An village. The four social groups arrived at during the focus group discussion with participated villagers. There are more poor households (landed poor and landless poor) than those that are better-off, with the medium households being the single largest group. The poverty situation in the study area means that cash income, landholdings and the type of house are very important indicators of wealth.

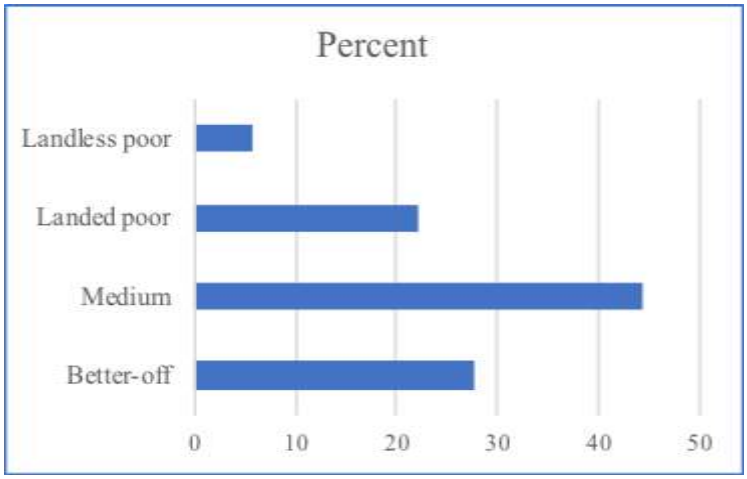

Figure 2. Four Social Groups in the Peasant Community

Source: Focus group discussions and household surveys, 2009

The better-off household group occupies about 28 percent of total households in the village. Most of these households carry out farming on a large landholding (over 1.5 hectares), operating rice intensification and cash-crop cultivation, and engaging in agricultural input services. The medium household group is the largest single group, accounting for about 44 percent of the households. Most of these households keep land for growing rice, since they believe that it will act as a safety net for the household in the future. The land area upon which this group of people grows rice varies from 0.5 to 1.0 hectare. The poor households, who in general have less than 0.5 hectares of land, rely mostly much on agricultural wage labour and remittance from migration. This group occupies about 22 percent of the total households in the village. The last social group, which accounting for nearly 6 percent of the interviewed households, is that containing the landless poor households, who have been strongly affected by the dyke construction, since they lost their traditional livelihoods from fishing during the wet and flooding seasons.

3.2.2 Investment Opportunities in On-farm and Non-Farm Activities

Change in Income Generation of Four Social Groups

Household incomes are generated from different and varying sources, depending on the income-earning opportunities open to each individual or household. Most income of farmers is derived from agricultural production including cash-crops, intensive rice production and livestock sold on the market, combined with other non-farm activities.

Other income sources of considerable importance to households are agricultural input services, salaries from government employment, or working as middlemen, selling groceries and doing carpentry. Except for the landless poor, all social groups are represented in the important income-earning activities mentioned above. The study obtained information on the structure of household incomes before the dyke was constructed in 2000 based on focus group discussions (FGDs) with key informants of the four social groups. The information regarding household incomes after the dyke construction was gleaned through a household survey. The changes in household income profiles across the four social groups before and after the dyke construction are presented in below sections.

Better-off Households

Before the dyke construction, income from rice production was predominantly generated by better-off households; accounting for 58 percent of their total household income. Income from agricultural services and vegetable growing contributed 12 percent and 7 percent, respectively. Since the dyke construction, the average income of this social group has remarkably increased. Total household income is now more than 97 million Vietnam Dong (VND) per household per year, of which about 67 percent is from on-farm and 33 percent from non-farm activities. Fattened livestock rearing, cash-crop production and remittances from children in inner cities have all become new income sources of these households. The better-off households depend on cultivation for only 31 percent of their income, whilst livestock rearing contributes 36 percent, agricultural input services account for 17 percent, while the rest is made up of other activities, depending upon the prevailing economic situation.

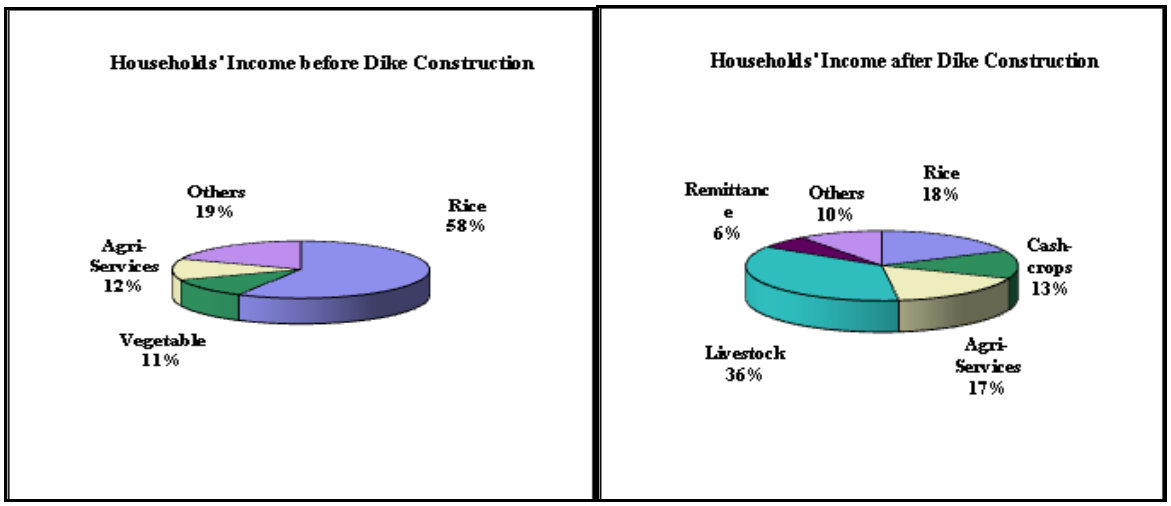

Figure 3. Income Distribution of Better-off Households before/after the Dyke Construction
Source: Focus group discussions and household surveys, 2009

The contribution of rice production to household income has significantly decreased, from 58 percent before the dyke was constructed to only 18 percent at present. Income from agribusinesses, livestock rearing, and cash-crops now plays a very important role in these household economies. This tendency is likely to continue since many of the better-off farmers are now focusing more investment on agricultural services, livestock rearing and cash-crop production. White-collar jobs also constitute a good source of income for the better-off households, as these also finance other activities and thereby have a multiplier effect.

Medium Households

Before the dyke construction, the main source of income for the medium households came from rice and vegetable production, accounting for 45 percent and 15 percent of their income, respectively. Other income sources came from fishing, agricultural wage labor and petty trade, together accounting for about 30 percent of household income. Medium households also carried out fishing, both for sale at the local market and for home consumption.

The total household income of the medium households is 46 million VND a figure that, according to respondents, has increased since the dyke was constructed. In these households, agriculture is slightly more important than for the better-off households, accounting for 69 percent of total household income, of which farming contributes 34 percent, livestock rearing accounts for 33 percent, agricultural wage labor represents eight percent, whilst other activities such as remittances and petty trade play a vital role, contributing a total of 25 percent. These household strategies show the unreliability of each of the income-earning activities and therefore the need to ensure survival by investing in all possible areas.

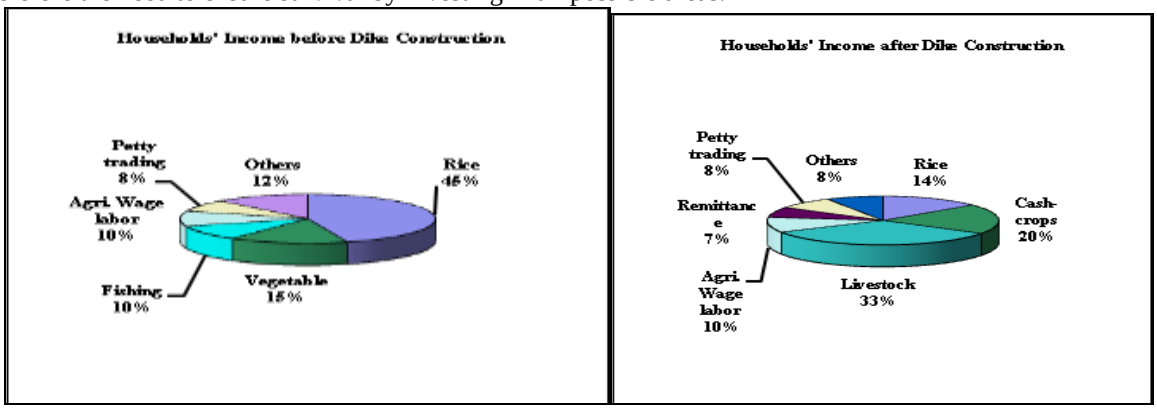

Figure 4. Income Distribution of the Medium Households before/after the Dyke Construction
Source: Focus group discussions and household surveys 2009

Landed Poor Households

When being asked about the household income before the dyke construction, the respondents in this category replied that seasonal agricultural wage labor and fishing were the most important sources of income,

accounting for over 50 percent of the total household income. Formerly, they were able to carry out fishing for about four months during the flooding season and engaged in seasonal agricultural wage during the peak of labor need. Besides catching fish for their own family's consumption, most of the fish capture was sold in local markets to generate income.

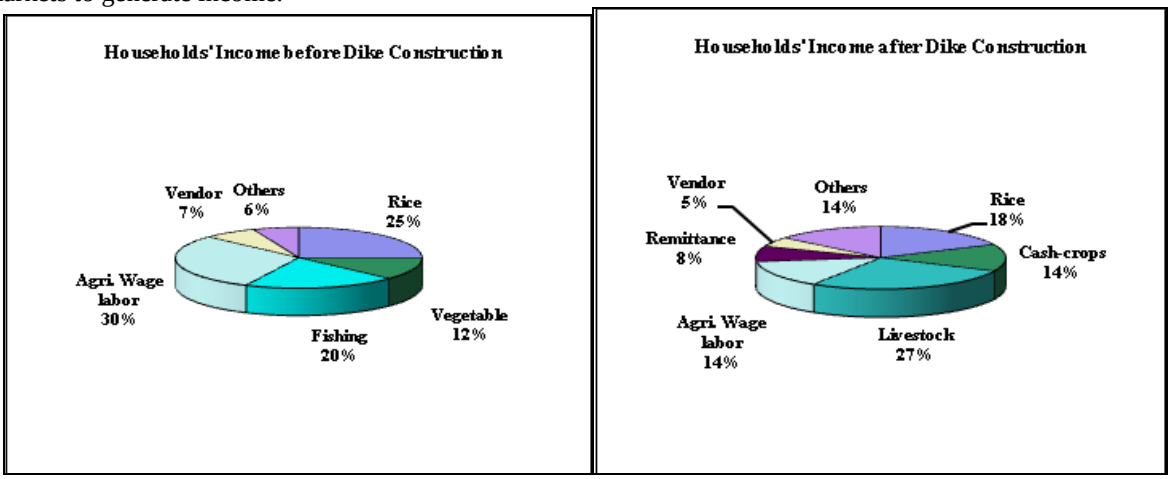

Figure 5. Distribution of Land Poor Households' Income before/after the Dyke Construction
Source: Focus group discussions and household surveys, 2009

Since the dyke construction, farming has continued to be the most important income generating activity for the poor households, bringing in 32 percent of the total income, whilst livestock rearing accounts for 27 percent and agricultural wage labor has decreased sharply to 14 percent of household income. The remaining 27 percent is accounted for through remittances and other activities. Livestock rearing has become a new livelihood option for the landed poor households as they can now utilize agricultural by-products such as stems of hybrid maize and baby corn as livestock fodder.

Landless Poor Households

Fishing and agricultural wage labor predominated in the landless poor households before the appearance of the high dyke system, accounting for 75 percent of the household income. The landless poor were able to carry out fishing and engage in agricultural wage labor the whole year around. The major income from fishing had mainly earned during flooding season, bringing 30 percent of household income.

After the dyke construction, different from better-off households whose remittances from their children working in private enterprises or state-owned companies in the city accounts for only six percent of their total income, for the landless poor households remittances are the most important source of income, accounting for 62 percent of the total, with livestock rearing at only 16 percent, while agricultural wage labor and other activities make up 22 percent of their total household income. The remittances from migration are used for children to school, daily expenses of parents in home village, or livestock purchases. Livestock rearing is usually responsible by the elders who remain in the village, while young couples travel to urban cities to work.

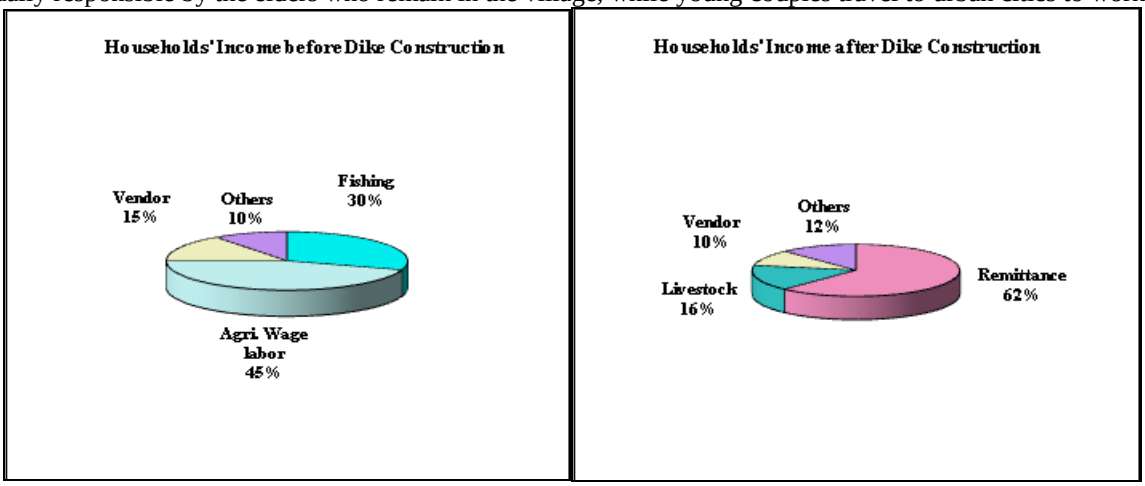

Figure 6. Distribution of Landless Poor Households' Income before/after the Dyke Construction
Source: Focus group discussions and household surveys, 2009

For the landed poor farmers and landless poor households, agricultural wage labor is paid daily, while the migrant workers receive a monthly salary from employers or are paid on an hourly basis or are paid according to the amount of work done based on a daily payment principle. Considering the small size of their landholding and their limited possibility for agricultural intensification and other activities, it is not difficult to imagine the small amount of income these poor households can generate in the village, and why the remittances they receive from migration are very important.

Livestock sales have formed an important source of income for all the social groups since the dyke construction. During flooding seasons, livestock feed becomes scarce as local farmers cannot produce enough fodder and they cannot find fodder in surrounding villages, which are inundated with floodwater. This means that farmers must buy additional feed for the herds of livestock at a higher price from those other households who do not rear livestock. This eventually leads to constraints for poor households who usually sell their livestock in flooding seasons, and this unfortunately coincides with low prices at the market, since they have less power to negotiate their price with the traders. In contrast, the better-off farmers can keep their herds of livestock until the market price increases. Then, funds from livestock rearing can be transferred into other productive activities.

Fishing opportunities disappeared in My An village within two years after the high dyke construction. A study by Nha [24] shows there has been a significant reduction in amount of natural fish capture of 1,072 kilograms per household per year inside the dyke systems, when compared to the other natural flood areas of An Giang Province. Before implementation of the dyke project, each household was able to catch 1,470 kilograms of fish per year; however, this amount became only 398 kilograms per year after the dyke was constructed. With an average price of VND 15,000 per kilogram of fish, the loss in income is estimated to be 16 million VND (equivalent $US 1,000 in 2006) per household per year [24].

Furthermore, due to the low return from agricultural activities, the monthly net income per capita of the landed poor households is lower than that of the medium and better-off households; averaging about VND 553,000 per capita per month, or one US dollar per day. The study reveals statistically differences of income per capita and farm size of those households in different poverty groups. The average income of the better-off households is now three times higher than that of those permanently in poverty (VND 1,617,000 when compared to VND 553,000 for the land poor households and VND 558,000 for the landless poor households). According to the survey data, the difference in income between the richest and the poorest households is more than fifteen-fold.

Household Expenditure

Households and individuals have varying expenditure patterns depending on the economic conditions. Wealth levels determine the type of expenditure to be made in the households - whether consumption or investment. Over 70 percent of the respondents indicated consumption expenditure associated with essential matters such as nutrition and health to be the most frequent type. The main expenditure items for households and a ranking across the four wealth groups are shown in Table 2.

Food items form a major proportion of expenditure for the landed and landless poor households, as their own agricultural production is not enough to feed them all year round. The costs of social services such as education and health are ranked second, because of the toll they take on the family's assets. In terms of education, many poor families are likely to withdraw the children when they just finished primary or secondary school levels due to inability to pay school fees and other relevant costs.

The better-off do not see food as constituting a major expenditure item as the amount of food purchased is only limited to ingredients and luxury items, which they cannot produce themselves. It is not surprising that input purchases make up a large part of the expenditure for the non-poor groups. To maintain their levels of output and their workload, they only purchase fertilizer, buy or repair implements and hire labor.

Irrigation and dyke construction fees are also a concern; however, most of the non-poor households are able to pay these since they also supply or dominate pump services in the village, thereby evading production costs. Most farmers must contribute to the dyke construction fee in accordance with the size of their landholding; however, the poor farmers seem to contribute relatively much more for this kind of fee, when compared to their very small agricultural return. Expenditure for all the wealth groups is rising, but the productive nature of the non-poor households means it is useful and profitable, whereas the consumptive nature of expenditure for the poor households simply makes them even poorer.

Table 2. Ranking of Household Expenditure Items in My An Village

Expenditure Type	**Rank**			
	Better-off	Medium	Landed Poor	Landless Poor
Foods: Rice and Ingredients	3	2	1	1
Farm Inputs	1	1	2	-
Education	4	5	3	4
Healthcare	4	4	5	4
Transportation	5	6	4	3
Debt Payments	5	3	3	2
Household Appliances	6	4	5	6
Dyke Construction, Irrigation Fees and other Contributions	7	5	4	7
Social Activities: Weddings, Children's Naming Ceremonies, Funerals, Festivals	2	5	6	5
Others (clothing, fuel etc.)	7	6	6	6

Source: Focus group discussions and household surveys, 2009 (Note - Number 1 denotes a top priority)

Concerning farm inputs, due to the declining soil fertility inside the dyke system, local farmers particularly apply more and more chemical fertilizer in the field. However, the total rice productivity per year decreased 1.4 tons per hectare and 1.48 tons per hectare within two years and six years respectively after the high dyke construction. The small-scale farmers, especially poor farmers, often do not have access to adequate inputs, especially pesticides and fertilizers, at the right time to obtain high yields. In addition, they are generally unable to buy enough quantities of fertilizer and must cover other operational expenses due to a lack of credit. Since farming still contributes over 30 percent of the total income of poor farmer households, the increase in the application of inputs since the dyke was constructed has benefited the agrochemical businesses dominated by better-off households. Therefore, the dyke system has had stronger negative impacts on the poor than better-off households.

The gap between the better-off and poor farmers in the village is reflected in the differences in farm size and per capita income. Also, the poor households (those returning to poverty or permanently in poverty) have larger families with higher rates of illiteracy. Because of this, the poor have tended to become more marginalized, due to their large household size, having fewer adult laborers and due to their lower levels of education, all of which has affected the relationship between their income levels and their family expenditure on food, healthcare and education for the children.

3.2.3 The Limitation of the Poor in Access to Farmers' Networks

Experience suggests that to fulfill projects' social objectives and bring financial services and new agricultural technology to the poor, social networks play a significant part in helping clients to adapt to their new circumstances. Access to social networks provides clients with a defense against having to sell physical and human assets, and so protects household assets [30]. In principle, the Farmers' Association is open to all villagers; however, it seems that the major activities of the Farmers' Association relate to cultivation, hence, those who do not have farmland are surely excluded. Hence, these projects may not be able to meet the needs of the poor people or achieve their key objectives.

Not only the landless households, but the small-scale farmers are also restricted from engaging in the Farmers' Association. Most of these households live mainly on agricultural wage labour and usually moving from place to place as seasonal laborers; therefore, they are unable to attend regular meetings of the Farmers' Association, which is one of the requirements for its members. The time available for them to attend the meetings is limited and each one has special circumstances and needs. Some form of community organization is especially important but the application of the Farmers' networks for the poor household is likely to be complicated.

Since the high dyke construction, cash-crops such as baby corn, hybrid maize and young cucumbers have been seen to transform land-use from focusing on mono-rice production to being based on more commercialized cash-crops. Farmers who have invested in cash-crops have normally signed construct farming with those agricultural processing factories or with local traders. They receive inputs such as seeds, new technology and chemicals on credit. The better-off and medium households are more responsive to cash-cropping and mixed vegetable cultivation, as well as livestock rearing, than the landed and landless poor, since they are usually members of the village Farmers' Association. They are the first actors to access credit, new technology and market information that are a basic need for intensive agriculture. The key members of the Farmers' Association are seen usually to be better-off farmers who are often chosen to conduct agricultural pilot schemes or to test new plant varieties before disseminating them to other members.

Farmers' Association is considered a space for the better-off farmers to share new technologies and market information. However, for the medium and landed poor households, the Farmers' Association acts as a safety net for them to access loans from the formal banks, mainly the Bank of Social and Policy Affairs. The village People's Committee will be responsible for the members of the Farmers' Association to obtain the credit needed for their farming activities. Its members have suggested submitting a cultivation plan to the Farmers' Association before being passed to the village People's Committee to decide for accessing loans. Due to holding a larger farm size with collaterals, the better-off are usually able to take advantage of the credit with low interest rates under the sponsorship of the Farmers' Association.

Regarding access to new technology for agricultural intensification, the ability to manage capital and the knowledge intensive commercialized farming systems varies among the social groups. The lack of new technology adoption by the landed poor farmers in support of cash-crop production, results in gaining very low profits from the new farming systems. The poor also find it difficult to access agricultural technology because they are so busy in struggling with the daily lives and so they are hardly to participate in agricultural training sessions offered by the local government and Farmers' Association. Also, due to low educational levels, some farmers do not understand new farming techniques to apply in their own farming systems, or how to deal which new crop diseases. Several land poor households have abandoned intensive cash cropping systems and returned to rice cultivation.

3.2.4 Access to Formal and Informal Credits

Although the access to financial credits for the poor farmers has improved in line with the village plan to promote cash-cropping and livestock rearing after the dyke program has been implemented, a considerable number of poor households, especially landless households, still have difficulty in obtaining credit because they have no collateral. Even if they can obtain loans, they usually only receive small and insufficient amounts to operate the farmland or to raise livestock. It is common to assume that when loans are provided to the very poor, the borrowers may not be able to use the loans effectively, because they lack the opportunity to undertake profitable self-employment, and because the risks involved in using the credit may be unacceptably high [31,32]. Many of the impacts on household income are positive for the non-poor and negative for the poorer clients, and this trend can be seen in the case of My An village, where the poor have less chance to access formal credit.

According to the bank officers, there are many risks faced by the credit agencies when loaning to poor households because most of these households do not have feasible plans for production and tend to use the loans for household consumption, rather than for the purposes agreed with the lenders; or because of their inability to repay the loans when they encounter crop failures. This makes it difficult for the poor to obtain future loans, since they cannot satisfy the requirements set by the formal banks. The amount of the loans for the better-off and medium households is much bigger than that for the poor households, as the non-poor households have collateral in the form of farmland, and even the houses. Therefore, the interest rates are much lower than for the loans given to the poor households. The landless poor households must pay high interest rates of, on average, five to ten percent per month, as they usually obtain informal loans from private moneylenders.

Table 3. Access to Formal and Informal Credits

Social Groups	Amount of Loan (Mill. VND)	Amount of Interest (Mill. VND)	Interest Rate/month (%)	Duration of Loans (Months)
Better-off	18.71	2.80	1.1	13.6
Medium	9.54	2.67	1.9	14.7
Landed Poor	8.14	2.83	2.2	15.8
Landless Poor	4.25	1.28	10.0	3.0

Source: Household surveys, 2009

The sources of cash credit follow a quite different pattern when looking at the village report, with the Bank of Social and Policy Affairs making up a much smaller proportion (10 percent) of the poor able to gain access to this source, when compared to 50 percent for the medium households. No funds reported borrowed from private moneylenders, agricultural inputs services or relatives and neighbours. Nonetheless, these informal credits are becoming the main sources of cash credit for the landed and landless poor households. Many small farmers could not get formal loans from the Agricultural Bank or Commercial Bank since their farmland is usually scattered and fragmented.

The dyke system, constructed to promote rice intensification and cash-crops combined with livestock rearing, seems to have impacted on local farmers; encouraging or forcing more of them to borrow than previously. Many better-off farmers suggested that the effect of receiving credit from the government banks has been improved on-farm income for their households. Those households who usually take out higher amounts of credit receive higher on-farm income, and hence increase total household income. For the landless poor, the large amount of money borrowed is used for other purposes, such as transportation in order to migrate to inner cities, paying the procedure fees when seeking jobs, paying off debts or coping with health problems. Most formal loans are given only to borrowers who have farmland or other kinds of collaterals.

An important development that has come with the introduction of intensifying agriculture, has been the increasing significance of credit and loans, which has led many My An's villagers into a vicious cycle of repayment and debt. The proportion of My An village farmers' indebtedness has increased from 40 percent before the dyke construction in 2000, to 70.36 percent at present; the highest ever incidence of debt in the village. Over half of the whole sample borrows more cash in 2009, than they did five years ago. A typical case is provided by Mr. Nam:

> "The application of chemical fertilizers may help to increase yields during the first few years. But soon after, the amount of fertilizers required increases substantially, resulting in rising investment in agricultural production. The increase of the land use rotation and repeated application of chemical fertilizers also has an adverse impact on soil quality, making it harder and more difficult to plough; the crops are limited to absorb nutrients from the soil. The use of chemical pesticides reduces pests only in the initial period. In the long run, we need to apply increasing amounts of pesticide to deter pests, either by increasing the volume or increasing the concentration. People's health is also seriously impacted by these toxic agrochemicals used."
>
> *(Interviewed with Mr. Nam, 50 years old, on 16th February 2009)*

Over 50 percent of farmers interviewed in My An village had taken out loans in order to undertake livestock rearing and cash-crop cultivation. Many of them have had to delay paying off debt or the interest on the loan. The subsequent failure of cash crop investments has led to the collapse of the household economy for many farmers, and to a high level of indebtedness. Above all, the expansion of agricultural intensification as well as cash-crop promotion has produced a sharp differentiation between those social groups which have benefited from the land conversion process, and those social groups which have suffered, both directly and indirectly.

With the continuing increases in the costs of production, many farmers, especially the land poor farmers have become trapped in debt. The capacity of these farmers to repay their debts has decreased, resulting partly from the steady decline in the prices for agricultural produce, and an increase in the interest rates. Borrowing has been required, not only for investment in production, but also to cover living expenses. Fluctuations in agricultural prices also increase the chance of indebtedness, especially when prices fall substantially. As Mr. Nam and other villagers have had to bear the costs and risks of investment and production, more time has been spent on intensifying production.

3.2.5 Access to Educational Investment

At present, the most concern of local authorities is to help the poor to escape from poverty by focusing exclusively upon providing and improving credits. However, various studies suggest that even credit programs cannot succeed without the support of human resource development. However, the main challenge now is the increasing number of students among the landed poor and landless poor households dropped out during and after primary school. The household survey reveals that approximately twelve percent of children drop out at the secondary school level and most drop-out students are from the landed poor and landless poor households. Based on the in-depth household interviews, there are several reasons why these children cannot complete their primary or secondary school, though opinions on the numbers differ among the households, as follows:

According to the better-off farmers, poor householders do not understand or clearly see the return on education. Poor families tend to think that it is enough to know only how to read, write and calculate, especially to do farm work or laboring. They do not see the advantages to be gained if their children attain a higher

education level, while investing in a child's higher education might be a burden on their constrained budget at the time.

However, for the poor households, they explain that the economic situation contributes mainly to the increasing drop-out rates. Though there are policies regarding school fee exemptions and other support for poor children, poor respondents state that the required spending on notebooks, clothing and pocket money are their main concerns. For households with many children of school age, the eldest children usually drop out and work to support their siblings with going to school. For the landed poor and landless poor households, many children must accompany their parents from place to place as agricultural wage labor, for instance during the rice harvesting period, and therefore they cannot attend school regularly. In many cases, children choose to drop out themselves after seeing the hardships faced by their family. Due to being busy going about their daily lives, the parents in poor households do not have enough time to support the children with their learning, and their children do not have time to study, which adversely affects their academic results.

Regarding the children's education, either the poor do not have enough money for the school expenses, or they need to keep the children at home in order to work, or sometimes both. Hence, their children have few opportunities to look for better and stable jobs, due to their low educational background. Furthermore, the parents' low level of education means that they do not show as much concern for their children's education either and as a result, their children tend to drop out of school early. This situation not only hurts the present generation, but also future generations.

For those households who remain in poverty, building human capital is the most important issue, but the poor seem to be unable to invest in their own human capital, which prevents them from escaping poverty. The poor households also have very little land, which influences their capacity to provide food security and prevents them from participating in agricultural intensification. Furthermore, most of the poor do not have access to production enhancing services, like agricultural extension services to access new cultivation technologies. These problems create higher costs of production and a reduced economic return per the unit of production, when compared to the non-poor groups.

As seen above, a big gap between the better-off and the poor households in My An village can be recognized by differences in income, farm size, access to Farmers' networks, financial credits and educational investment. Before 2000, the gap was not quite so big, since the major agricultural activities were rice production and vegetable cultivation. Most of the poor households were able to generate additional income from fishing during the flooding seasons; some households were even able to escape poverty. Since the dyke construction, agricultural intensification has been widespread in the village and a variety of new opportunities, such as agribusinesses, cash-crop cultivation and livestock rearing have arrived also. However, poor households have not been able to benefit from these changes and many have returned to poverty. Now, they suffer from losses in their harvests caused by soil depletion, low levels of education, unemployment, as well as limited access to the formal and informal credits, Farmers' networks and agricultural technology needed to pursue an intensive agricultural program. They also obtain less food and income from fishing and have to pay higher interest rates on the loans they take out from private moneylenders. All of these adverse impacts lead to greater poverty and landlessness, because they have to sell or rent their land out to cover their current position. The consequence of this social differentiation is that many poor villagers move out of the village to seek better livelihoods in urban areas.

IV. Conclusion

The agricultural sector, especially rice production in the Vietnamese Mekong Delta, achieves its production goals and could be considered a successful story. However, the trend towards intensifying agricultural production has increased farmers' expenditure, without a concomitant increase in their income, due to increasing land depletion in their fields, the low prices obtained for their products and their high levels of financial dependency. However, some people able to take advantage of the situation created by the high dyke system have accumulated wealth.

Recent socio-economic trend in My An village has been growing social differentiation. Despite the village's present great volume of agricultural production, a decreasing number of farmers have access to the profits produced. The agricultural development as the dyke construction has been paradoxical. This project is supposed to have alleviated poverty, but the actual result has been in contrary; increasing social differentiation since the poor have fewer resources to make the high and risky investments required starting the agricultural intensification process. Moreover, the landless poor have lost their long-standing livelihood from fishing, without any alternatives being provided or support given by the local government. There has not been enough attention paid to providing proper access to credit and other social services for the poor farmers, something which would allow them to take advantage of the process of agricultural intensification. One reason for this is that the local authority has been under pressure to meet production targets, rather than poverty alleviation

objectives. The loss in common pool resources since the high dyke construction has not made life easier for the poor as their lives have become harder.

Drawing on the case study of a peasant community like My An village, the study contributed to show the need for recognizing and studying rural areas as geographical places where the interaction between natural and social relations differs among social groups accordance to their wealth status. Agricultural development policies should be formulated and implemented to take into consideration the likely effects on different members of society. Importantly, the study suggested that the assumption that all people would benefit from a particularly positive impulse has been proven wrong. Rather, social differentiation exists in all human societies and tends to negate positive impulses for people having less power and wealth. Livelihood diversification of the poor is certainly problems if it occurs in a desperate situation; therefore, critical consideration must be given to the poor if agricultural development projects (e.g. high dyke construction) have as their primary objective on improving the lives of all inhabitants.

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References

[1] M Leach, R. Mearns and I. Scoones, Environmental Entitlements: Dynamics and Institutions in Community-Based Natural Resource Management, *World Development, 27(2),* 1999, 225-247.

[2] W.R. Geddes, *Land tenure of the Land Dayak* (Sarawak Mus. J. 6: 42-45, 1954).

[3] J.D. Freeman, Iban agriculture: a report on the shifting cultivation of hill rice by the Iban of Sarawak. Her Majesty's Stationery Office, London (1955).

[4] C Geertz, *Agricultural Involution: The process of ecological change in Indonesia* (University of California Press. Berkeley, Los Angeles, and London, 1963).

[5] E.R. Wolf, *Peasant Wars of The Twentieth Century* (Norman: University of Oklahoma Press, 1966).

[6] J.C Scott, *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia* (Yale University Press, 1976).

[7] J.C Scott, *Weapons of the Weak: Everyday Forms of Peasant Resistance* (New Haven: Yale University Press, 1985).

[8] P.H. Gulliver, *Tradition and Transition in East Africa: Studies of the Tribal Element in the Modern Era* (University of California Press, 1969). DOI: https://doi.org/10.1525/9780520326637.

[9] E.J Hobsbawn, Peasants and politics, *The Journal of Peasant Studies.* 1(1), 1973, 3-22.

[10] G Hart, A. Turton, and B. White (Eds.), *Agrarian Transformation: Local Processes and the State in Southeast Asia,* (Berkeley: University of California Press, 1989).

[11] F Husken and B. White, Java: Social Differentiation, Food Production, and Agrarian Control, in G Hart, A Turton and B White (Eds.), *Agrarian Transformations: Local Processes and the State in Southeast Asia,* (Berkeley: University of California Press, 1989) 235-265.

[12] P Gypmantasiri, Agrarian Transformation and Areal Differentiation in Northern Thailand, in H Umehara (Ed.), *Agrarian Transformation and Areal Differentiation in Globalizing Southeast Asia,* (Tokyo: Rikkyo University Center for Asian Area Studies, 2002) 134-159.

[13] D Van de Walle and D. Cratty, Is the emerging non-farm market economy the route out of poverty in Vietnam, *Economics of Transition, 12(2),* 2004, 237-274.

[14] N.H. Nhan, L. V. Hoa, S. Haruyama and T. T. Cong, The Historical Flood in 2000 in Mekong River Delta, Vietnam: A Quantitative Analysis and Simulation. *Chirigaku Hyoron/Geographical Review of Japan, 80(12),* 2007, 663-680. DOI: 10.4157/grj.80.663.

[15] D.Q. Tinh, and P.T. Hang, Living with Floods in the Mekong River Delta of Vietnam. Paper for 3 *World Water Forum*, Poverty and Flood Theme, 2003.

[16] IUCN Vietnam, Mekong Delta situation analysis. A roundtable discussion among Mekong Delta experts, published on IUCN Vietnam website, 2010.

[17] L Label and B. T. Sinh. 2007, Politics of Floods and disasters, in Label et al. (Eds.), *Democratizing Water Governance in the Mekong Region*, (User Mekong Press, 2007).

[18] J.F. Le Coq and G. Trebuil, Impact of Economic Liberalization on Rice Intensification, Agricultural Diversification, and Rural Livelihoods in the Mekong Delta, Vietnam, *Southeast Asian Studies, 42(4),* 2005.

[19] V.D. Thanh, *Dike construction, social differentiation and local adaptive strategies: a case study of a farming village in the Mekong Delta, Vietnam*, MA thesis, Chiang Mai University, 2009.

[20] GSO (General Statistics Office), *Statistical Yearbook*, (Statistical Publishing House, Hanoi, Vietnam, 2018).
[21] R Yamazaki, *Agriculture in the Mekong Delta of Vietnam*, (France: Louma Productions, 2004).
[22] T.R. Hashimoto, Environmental Issues and Recent Infrastructure Development in the Mekong Delta: Review, analysis and recommendations with particular reference to large-scale water control projects and the development of coastal areas. *Working Paper Series No. 4*, 2001, Australian Mekong Resource Centre University of Sydney, Australia.
[23] C Howie, High Dykes in the Mekong Delta in Vietnam Bring Social Gains and Environmental Pains, *Aquaculture News* 32, 2005, 15-17.
[24] D.V. Nha, Đánh giá tác động của đê bao đến điều kiện kinh tế-xã hội và môi trường trên địa bàn tỉnh An Giang (Dyke Impacts' Assessment to Socio-Economic and Environmental Conditions in An Giang Province), *Vietnamese and the Netherlands Research Program*, Ministry of Science-Technology-Environment, Hanoi, Vietnam, 2006.
[25] V.D. Thanh, The impacts of abnormal flood on rice farmers in Vinh Phuoc commune, Tri Ton district, An Giang province, A scientific report funded by An Giang University, 2012.
[26] N.V. Kien, *The Cost and Benefit of Dyke Systems in the Mekong Delta*, MA thesis, Australian National University, 2006.
[27] J Creswell and V. Clark, *Designing and conducting mixed methods research*, (California: Sage Publications, 2011).
[28] My An Village Peoples' Committee. 2008. Annual Report on Status of Implementation Socio-economic.
[29] G Hart, Agrarian Change in the Context of State Patronage, in Agrarian Transformation: Local Processes and the State in Southeast Asia, in G Hart, A Turton and B White (Eds.), *Agrarian Transformations: Local Processes and the State in Southeast Asia*, (Berkeley: University of California Press, 1989) 31-49.
[30] Chowdhury, P. Mosley, A. Simanowitz, Wider impacts of microfinance. *Journal of International Development, 13(2),* 2004.
[31] D Hulme and P. Mosley, *Finance against Poverty*, 1 and 2, (Routledge, London, 1996).
[32] V.V Tuan, *The Roles of Microfinance in Poverty Reduction in the Mekong Delta: Case Study at Hoa An Commune, Phung Hiep District, Hau Giang Province*, MA thesis, Swedish University, 2006.