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Impacts of Song Tranh 2 Hydropower Plant Resettlement on Ca Dong Ethnic Group in Bac Tra My District, Quang Nam Province, Vietnam[1]

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Abstract

The objectives of this article are twofold. The first is to analyze the impacts of Song Tranh 2 Hydropower Plant on the lives of people of Ca Dong ethnicity residing in two resettlement villages. The second is to identify the post-resettlement problems that should be promptly solved in order for the people to lead a more stable life. The study adopted the Participatory Rural Appraisal (PRA) method and a questionnaire survey conducted field research in two selected hamlets in Tra Doc commune, Bac Tra My district, Quang Nam province in Central Vietnam. The research found that this hydropower project has had multi-faceted impacts on the lives of the Ca Dong people in the research areas. Despite its positive impacts, there have been unexpected impacts on people's livelihoods, domestic water sources, social development, traditional culture, and living environment. Shortages of arable land and water are the two most important negative impacts of special concern. This research thus suggests that hydropower projects should include post-resettlement plans and projects that provide those who must resettle with housing and livelihoods of standards similar to those they had previously.

Keywords: Ca Dong ethnic group, resettlement, forced migration, hydropower plant, development impact, Song Tranh 2

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Introduction

Small-scale hydropower plants began to be built in Vietnam in the early 1940s by the colonial government; and in the 1970s several large hydropower plants were constructed with the help of the former Soviet Union. Since Vietnam's open-door economic reform policy in 1986, hundreds of hydropower projects have been built or planned as part of the energy development plan for the country's industrialization and modernization process (Tran Van Ha, 2017: 16).

The largest number of hydropower plants can be found in Central Vietnam's mountainous provinces, with about 50 plants already built or under construction in the three provinces of Quang Nam, Thua Thien Hue, and Quang Tri. Many of these plants are located in the basins of the Vu Gia river and the Thu Bon river in Quang Nam province. As of 2018, Quang Nam province has had 25 projects built and operating, including five large-scale projects of 100MW (A Vuong, Song Tranh 2, Dac My 4, Song Bung 4 and Song Bung 2) and another 20 small- and medium-size projects of less than 100MW (such as Song Bung 5, Song Bung 6, Song Tranh 3 and Song Tranh 4). The Song Tranh 2 Hydropower Plant was constructed in 2006 on the Tranh river, which is one of the branches of the Thu Bon river in Bac Tra My district. One thousand households or 5,000 persons primarily of Ca Dong ethnicity, residing in eleven villages,[2] were evacuated to resettlement areas. Hamlets 1 and 2 of Tra Doc commune, Bac Tra My district were selected for the case study since the two villages are located close to the dam, suffer from stronger impacts of the resettlement, and are inhabited entirely by Ca Dong people.

Hydropower dams in Vietnam are constructed in the upstream areas of rivers which are mostly inhabited by Vietnam's ethnic minority groups. Hydropower plants, apart from their benefits of electricity generation, economic development and downstream flow regulation, have had strong impacts on the lives of people, especially

[2] Nine villages of Tra Bui commune, Bac Tra My district, including Hamlets 1 through 9 and two hamlets of Tra Doc commune, Bac Tra My district, consisting of Hamlet 1 and 3.

ethnic minorities who are vulnerable groups in society. Dam construction requires resettlement under which people are not entitled to decide whether to stay or leave (ADB, 1995). This type of migration contains only "push factors," meaning that a community is forced to evacuate, but no "pull factors," where the community is encouraged to leave voluntarily (Cernea and Guggenheim, 1993: 3). Governments and international organizations have attached much importance to population evacuation and resettlement for development projects in general and for hydropower plants in particular in the interests of their nations and local communities. However, since 1970 this position has been strongly criticized by scientists and scholars (Grillo and Stirrat, 1997). Many argue that resettlement for development has caused more negative than positive economic and social impacts on those communities that are directly affected (Courtland, 2003: 5).

Over the past two decades, governments and international organizations have gradually come to a shared perspective on hydropower resettlement, according to which it is assessed not either totally positively or negatively. Powerful international organizations, such as the World Bank, Asian Development Bank (ADB), and OECD, view resettlement as having had basically mixed impacts. Resettlement is possibly beneficial and necessary for development; however, it should be undertaken with caution and sensitivity to those being affected, and the relationship between the benefits and hazards of population evacuation should be balanced (World Bank, 2009). Studies on hydropower resettlement by both the World Bank and anthropologists have focused on four main types of impacts: economic (incomes, livelihoods, economic customs, compensation and support for a post-resettlement process); environmental; social (community relations and social security); and cultural (traditions, customs, religious life, and beliefs) (World Bank, 2009; Cernea and Guggenheim, 1993).

This article aims to contribute to completing the picture of hydropower plant resettlement in Vietnam, in general, and the resettlement of Ca Dong people for the construction of Song Tranh 2 Hydropower Plant, in particular. Despite the existence of various impact

assessment studies of Vietnam's numerous hydropower projects (Pham Quang Hoan, 2012 and Tran Van Ha, 2017), no research has yet been done on the resettlement caused by Song Tranh 2 Hydropower Plant. The specific objectives of this article are twofold. The first is to analyze the impacts of Song Tranh 2 Hydropower Plant resettlement on the livelihoods and social and environmental life of Ca Dong people residing in the two hamlets of Tra Doc commune. The second is to identify the post-resettlement problems that should be solved promptly so that these people can pursue stable lives and livelihoods.

Research Areas and Methodology

The research was carried out in two Ca Dong communities directly affected by the Song Tranh 2 Hydropower Plant - Hamlet 1 and Hamlet 3 of Tra Doc commune, Bac Tra My district, Quang Nam province.

These two hamlets are located on the banks of the Tranh river, four kilometers away from the resettlement villages, and far from the commune and district centers. The villagers of Hamlet 1 and Hamlet 3 were evacuated to the resettlement areas in 2009 and 2010, respectively. Upon resettlement, Hamlet 1 and Hamlet 3 had 66 households or 421 persons, and 75 households or 585 persons, respectively, with an average of seven persons per household because of the Ca Dong custom of three generations living under the same roof. Household divisions and births have resulted in a sharp increase in the number of households and residents. In 2009, the number of households and persons in Hamlet 1 (104 households or 625 persons) and Hamlet 3 (156 households or 758 persons) almost doubled.

The research was conducted in March, 2019 by a group of researchers from the Institute of Anthropology, Vietnam Academy of Social Sciences (VASS), using the Participatory Rural Appraisal (PRA) method. Ten in-depth interviews took place with state employees and another 10 with middle-aged and elderly villagers of Hamlets 1 and 3 (five interviews for each hamlet). Two one-day, mixed-group discussions were also included, one for each hamlet, attended by ten

representatives from each hamlet, including a hamlet head, a leader of a communist party cell, village elders, a front member, representatives of women's associations, farmers, youth, veterans, and two villagers. Regarding gender, discussions in Hamlet 1 and Hamlet 3 were attended by seven men and three women, and six men and four women, respectively. In addition to PRA, a questionnaire survey was conducted with 100 randomly-selected households, and distributed to Hamlet 1 and Hamlet 3, 50 for each hamlet. The interviews, group discussions, and questionnaires are related to impacts of the hydropower plant's resettlement on people's lives in terms of infrastructure, livelihoods, society, culture and environment.

Research Results

Overview of Ca Dong Ethnic People in the Research Area before the Resettlement Process

The Ca Dong ethnic minority group is one of five local sub-groups belonging to the Xo Dang ethnic group (including Xo Teng, Mnam, Xodra, Ha Lang and Ca Dong). It has a population of more than 32,000 people (Ban Dan toc tinh Quang Nam, 2019) who reside in the mountainous province of Quang Nam, mostly in the two districts of Nam Tra My and Bac Tra My. While numerous works about the Xo Dang ethnic group have been found (Tran Dinh Hang, 2015), information about the Ca Dong people is limited to only the following studies: Ngo Vinh Binh (1977) (on Ca Dong people's cinnamon cultivation) and Dang Nghiem Van and Ninh Van Hiep (1978) (on Ca Dong society, marriage and families). In addition, the cultural transformation of Ca Dong people caused by the impact of Song Tranh 2 Hydropower Plant is mentioned in the ministerial-level scientific work of Tran Dinh Hang (2015).

Hamlet 1- and Hamlet 3-based Ca Dong people have been living in Tra Doc commune for countless generations. Hamlet 3, according to village elders, was initially named Doc Bau Hamlet but has been called

Hamlet 3 since 1975. The original name of Hamlet 1 is unknown. The confusing change of village names from place names to ordinal numbers has been common in the mountainous regions of Truong Son and Central Highlands since Vietnam's reunification in 1975. Place names have a cultural value and reflect cultural factors; therefore, numbering hamlets instead of maintaining the original place names contributes to loss of the villages' identity (Bui Van Dao, 2010). The culture of Ca Dong people is that of Northern Highland-based Mon-Khmer with some typical features. Livelihood sources include five activities: cultivation, animal husbandry, handicrafts, goods exchange, and utilization of natural resources. Cultivation serves as a key livelihood, while natural resource utilization ranks second. During the anti-US struggle, Ca Dong people learned from Vietnamese revolutionaries and soldiers how to create rice paddies with an irrigation system that helped bring water into the fields. As far as cultivation is concerned, growing commercial cinnamon plants has been a long-standing and well-known traditional way of earning a living. Since the beginning of the 21st century, however, cinnamon cultivation has gradually fallen into decline. Instead, Hamlet 3-based Ca Dong people, like other ethnic minority groups residing in the mountainous areas of Truong Son and the highlands, have changed to upland cultivation while maintaining their rice paddies. They grow food crops such as rice, corn, and cassava and other agricultural plants such as gourds, pumpkins, melons, coffee, chilies, vegetables, bananas, and sugarcane in their upland fields. Agricultural products from rice paddies and upland fields are sufficient for their daily food needs and annual cultural rituals and festivals unless the crops fail. Buffalos, like pigs and chickens, are a typical livestock raised mainly for sacrificial offerings. Goods exchange is still basic barter with a folk value-evaluating unit consisting of items with the same value. Many remnants of traditional society can be found. For instance, the village is the only social unit; marriages are mostly made between people who are not of similar lineages; marriages and families are organized in the system of double unilineal descent; village community spirits and mutual assistance are important; concrete perceptions are

clear, and abstract thinking is ambiguous. Ca Dong's culture is a part of the well-known culture of the mountainous regions of Truong Son and Central Highlands in which a set of cultural factors exist, including village elders, folk songs, folk music, folk dances, musical instruments, festivals, and polytheism with the rice goddess principally being worshipped (Dang Nghiem Van and Ninh Van Hiep, 1978).

The above-mentioned economic and cultural traditions were seen in the daily life of Ca Dong people residing in Hamlets 1 and 3 between 1975 and the 2009-2010 period, when resettlement evacuation was made due to construction of the Song Tranh 2 Hydropower Plant.

Brief Description of the Resettlement Plan and Resettlement Process

The resettlement plan for the Song Tranh 2 Hydropower Plant Project was made by the Central Vietnam Hydropower Corporation, which is the main contractor of the resettlement project and was approved by the People's Committee of Quang Nam province on the basis of various governmental decrees, including Decree number 22/1998/NĐ-CP, dated April 24, 1998 and Decree number 197/2004/NĐ-CP, dated December 3, 2004. Under the approved plan, houses, assets, and crops are compensated in cash according to the price bracket promulgated by the state. Production land, including the households' rice paddies and upland fields, is compensated in the same way. Land for housing and gardens is provided by the Project Management Board; each household is allocated between 500 and 1,000 square meters, varying according to the number of household members. Ready-built houses are also allocated to the households by the Project Management Board, with a 50 square-meter wide home for a household with one to four people, and a 70 square-meter wide home for a household with four or more people. The Management Board has committed to build infrastructure, including electrical wires, roads, schools, domestic-water supply systems and health care clinics, all of which are supposed to be of the same quality as, or better than, those in the old residential areas. Population evacuation was carried out upon completion of compensation and

construction of resettlement areas and included two phases: Phase 1 began in early 2009 and Phase 2 started in late 2009. The evacuation process came to an end in early 2010 (Tran Dinh Hang, 2015).

Resettlement Impacts on Livelihoods

Affected livelihoods include cultivation, animal husbandry, exchange services, handicraft occupation, and hired labor. Of these, cultivation, especially cultivation patterns, areas, techniques, and crop productivity are most heavily impacted. Cultivation, which is the traditional livelihood, and hired labor, which is a newly emerging means of employment, are the two most important of these livelihoods.

Impacts on Cultivation

In terms of cultivation patterns, Ca Dong people in Hamlets 1 and 3 used to plant upland field and rice paddy farming and gardening for their self-sufficiency. During the resettlement process in 2009 and 2010, all of their assets, crops, and arable land were compensated for in cash; the largest sum of compensation was over 100 million VND or 5,000 USD for one household and the smallest sum was 60-70 million VND or 300 USD. This means that the households themselves had to reclaim land or spend their compensation funds on buying arable land from local people at the new resettlement site. However, the villagers found it difficult to earn a living in these new places because they were unable to persuade the local people to sell arable land to them, and their new garden areas were smaller than their old ones (1,000 square meters per household) and too barren to grow plants and vegetables. They were only able to own upland fields sold by the local people as arable land for cultivating acacia trees. Acacia is a material used for paper making and exported to other countries from Da Nang port. Acacia trees are widely-grown perennial trees in the mountainous western provinces of Central Vietnam, such as Quang Tri, Thua Thien Hue, and Quang Nam. An acacia tree reaches harvest age in five to seven years and its care consists of clearing weeds during the first two years and removing vines

from the trees in the third year until the trees reach harvest time. Grass should be burned and cleared from the land where new acacia trees are planted, but old acacia trees' roots should not be dug out. Holes are dug into which pot-cultivated acacia seedlings provided by the Ministry of Agriculture and Rural Development are planted. The average market price of acacia sold in Bac Tra My district in 2018 was about 60 million VND per hectare for standing living trees. The price could be higher if the purchase place is close to roads, and it is likely to be lower if the acacia-planting area is far from the roads. If acacia trees are cut down and have their bark peeled to be sold by weight, prices will be higher and reach an average of 75 million VND per hectare after all possible costs have been covered. An income of approximately 12 million VND per year was earned from one hectare of properly planted acacia trees in 2018, which is higher than that from upland food plant cultivation, but lower than that from cultivation of other perennial trees. Acacia planting, according to an agriculture officer in Quang Nam province, is only a temporary and unsustainable solution because acacia trees are prone to damage the soil, and after they reach the age of one or two decades, the soil will be barren, difficult to recover, and abandoned for a long period of time.

Acacia cultivation was initiated in the resettlement villages of Hamlet 1 and Hamlet 3 in 2011 and took the place of upland crop cultivation as it was expected to yield higher incomes. If a household owns three separate pieces of land for acacia cultivation, these areas will be covered with acacia trees at different harvest ages to ensure that cultivation and incomes will come throughout the entire year.

In terms of production areas, some households had to rely on land reclamation in remote places to seek production land and were able to own only a narrow piece of land when they moved to the resettlement village. A majority of the households spent their compensation on buying the local people's acacia planting land, with the largest piece of land covering 2.5 hectares and the smallest one 0.5 hectare, and many households that have recently moved to the village find it difficult to obtain a plot of arable land. The result from questionnaires indicates

that each Ca Dong household in the two hamlets, exclusive of their rice paddies and gardens in their old villages, owned an average of 1.52 hectares of acacia land in their new village in 2018, compared to 3 hectares of upland fields per household in their old villages and 3 hectares of acacia per household in other local Ca Dong villages. Table 1 demonstrates how the ways in which Ca Dong people have used production land in the new resettlement villages differ from those in their old ones and how they have spent their compensation to buy production land with the case study of eight Ca Dong households in Hamlet 3.

Table 1 Production land area in old and new resettlement villages and spending of compensation on land purchase by some Ca Dong households in Hamlet 3

Name of household head (pseudonym)	**Production land area in old village (ha)**		**Production land area in new resettlement village (ha)**		**Sum of compensation received and sum spent on land purchase (million VND)**		**Percentage of Compensation spent on land purchase (%)**
	Upland rice field	Rice paddies	Upland acacia planting land	Rice paddies	Compensation received	Compensation spent on land purchase	
HVL	4.0	0.3	1.5	0	85	30	35.3
DT	3.5	0.25	2.0	0	65	40	61.5
NT	4.0	0.3	1.5	0	80	25	31.3
DM	3.5	0.2	2.0	0	90	30	33.3
HVG	4.0	0.25	1.5	0	103	25	24.3
HVL	3.2	0.2	1.0	0	75	20	26.7
HVT	4.0	0.4	2.0	0	95	40	42.1
HVS	4.5	0.25	1.5	0	104	35	33.7
Average	**3.8**	**0.26**	**1.6**	**0**	**87.1**	**30.6**	**36.0**

Source: Author

Table 1 shows that the average land area per household for upland rice and rice paddies in the old village was 3.8 and 0.26 hectares,

respectively. Following resettlement, none of the households had any land for rice paddies. In addition, there was a sharp decrease in upland fields with an average of 1.6 hectares per household (a decrease of 58 percent). Moreover, only 36 percent of the land compensation was spent on buying production land. Most of the compensation was spent on non-production assests. Results of questionaire analysis show that the average land area of acacia planting in Hamlet 1 is higher than that of Hamlet 3 because Hamlet 1 villagers moved to the resettlement village a year earlier than the Hamlet 3 villagers. This discrepancy shows that production land compensation in money is not a sustainable solution for such socially and culturally distinct communities like the Ca Dong.

It is estimated that if livelihoods rely only on acacia planting, about three hectares of production land will be needed for each Ca Dong household in Hamlet 1 and Hamlet 3. Results of the questionaires indicate that the number of households which have little or no acacia land in Hamlet 3 and Hamlet 1 is 123 out of 155 households (or 78 percent) and 71 out of 104 (or 72 percent), respectively. Some of the households in the two villages attempted to illegally destroy wood located in Tra Bui commune, 10 kilometres from their village, to reclaim land for upland rice fields. In 2014, Bac Tra My district provided production land for fewer than 40 Ca Dong households in Hamlet 1 and Hamlet 3 with 1,000 to 1,500 square metres for each, which can only partly meet their needs. Forests have been destroyed, no production land is left, and an increasing number of new households have appeared. In 2011, on resettlement, Hamlet 3 and Hamlet 1 had 42 and 17 households, respectively, whose members left their new resettlement villages for their old ones to set up temporary houses and to do farming on their old upland fields because of a serious lack of production land. However, they were forced to return to their resettlement villages in 2012 because of earthquakes. At present (2019), 17 households have returned to their old villages to set up temporary houses and plant acacia. The shortage and the low quality of production land have been the issues of greatest concern in the resettlement villages.

The acacia planting process and techniques of Ca Dong people in these two hamlets are noticeably different from those of Kinh people.[3] Some households saved labor and money without buying acacia seedlings provided by the Ministry of Agriculture and Rural Development and, instead, re-used acacia plants which had been grown in the previous crop despite their low quality and productivity. Because of the difficulty in earning a living, some households sold their acacia gardens which had not yet reached the harvest age to Kinh people for two-thirds or four-fifths of the market price.[4] Kinh people grow acacia plants in the proper way, but Ca Dong people fail to do it. While Kinh people usually remove young ailing or dead acacia plants, Ca Dong people do not do so. Kinh people often hire farmers to cut acacia plants and have the bark peeled to sell acacia by weight at higher prices, but Ca Dong people usually sell standing living acacia plants. Food crops such as rice, corn, beans, and peanuts are usually grown, interspersed with acacia plants in Ca Dong people's acacia gardens within the first year or two of acacia planting, which is rarely seen in the gardens of Kinh people. While Kinh people harvest acacia at the correct harvest age of five to seven years, Ca Dong people sell acacia plants at the premature harvest age of four years, making productivity lower. The differences in acacia planting between the two ethnic groups are likely to result from upland field cultivation customs, habits, and knowledge of planting techniques, as well as the need to plant short-life food crops to sustain their lives.

The lack of production land and techniques has led to low acacia productivity and turnover. The research results found that Ca Dong people in the two villages had an average turnover of acacia wood per hectare equal to two-thirds that of Kinh people. Similarly,

[3] The Kinh people are an ethnic group originating from present-day northern Vietnam. They are the majority ethnic group of Vietnam, comprising 86 percent of the population in the 1999 census, and are officially known as Kinh to distinguish them from other ethnic groups in Vietnam.

[4] For instance, in 2017 Mr. Ho Viet Thanh's family in Hamlet 1 sold one hectare of standing living acacia plants at the premature age of four years to a trader at a price of 50 million VND, compared to the 15 million VND that Mr. Nguyen Van Tuan's household in Hamlet 3 earned from 0.4 hectare of four-year-old standing living plants in 2018 despite the market price of 20 million VND.

Kinh people in the resettlement place earned an income of 13-15 million VND per hectare of acacia planting per year, compared to 8-10 million VND earned by Ca Dong people in Hamlet 1 and Hamlet 3.

Gardening is another resettlement-impacted livelihood for Ca Dong people in these two hamlets. In their new village, every household was provided with housing and gardening land of 1,000 square meters, much smaller than that in their old village (about 2,000-3,000 square meters per household). In the resettlement villages, exhausted and poorly drained garden soil, mixed with gravel because of ground leveling and dry weather, is able to nurture only natural grass and a few barren garden plants like lemon, banana, and loofah plants without fruits. By contrast, the garden soil in old villages was moist and fertile enough to grow a variety of trees and plants, including fruit trees such as banana, avocado, jackfruit, pomelo, mango; food plants such as gourd, pumpkin, tomato, chili, onion, citronella, green vegetables; and medicinal plants such as ginseng. In general, because of the limited and low quality garden land, gardening as one of Ca Dong people's livelihoods in their resettlement villages is far less productive than it was in their old villages.

Impacts on Husbandry

Husbandry has fallen into decline. Before resettlement, husbandry in the two villages was relatively developed. Every household had a large herd, consisting of several buffaloes and oxen, as well as pigs, goats and tens of chickens because of an abundance of fresh green vegetation as a source of food for the animals. However, cattle and poultry raised in the resettlement villages, which are located in the dry, hot and narrow upland areas, grew slowly and died of diseases during epidemics. Results of questionnaires found that households in Hamlet 1 had an average of fourteen chickens and four head of cattle on average before resettlement, compared with only five chickens and 1.7 head of cattle after resettlement. Before resettlement, Hamlet 3 had an average of nine chickens and four head of cattle per household. In 2019, it had a total of 22 buffalos and oxen for the entire hamlet, with more than half of the

households no longer raising pigs and chicken and an average of three or more head per household for those who raised pigs and chicken. Like cultivation, commercial animal husbandry in the resettlement villages has sharply fallen and brought barely any income to the local people.

Impacts on Exchange Services

Because of more convenient roads, proximity to district and commune centers, and the effects of market economics, the exchange services of Hamlets 1 and 3 are more diverse than they were in the old villages. For instance, before resettlement, purchases were limited to basic necessities such as embroidery thread, salt, clothes, washing powder, fish sauce, soft drinks, white wine, and items made of iron. In the resettlement villages, these items are still purchased along with modern and expensive products, such as televisions, bicycles, and motorbikes. It is interesting that rice has become an indispensable item in grocery stores because of the lack of rice paddies for Ca Dong people. Before resettlement, various products such as cattle, agricultural products, special forest products like animals, birds, and medicinal plants were sold in small numbers. Nowadays, however, cattle and poultry are hardly ever sold; food and agricultural products are no longer available; and the key commercial product that can be seen in the resettlement villages is acacia wood as a construction material. No village markets or communal markets are found. There are three or four grocery stores selling mostly cigarettes, soft drinks, biscuits, candies, dried fish, washing powder, and alcohol which are run by Ca Dong households in Hamlets 1 and 3. Food, vegetables, meat and fish are sold by Kinh traders.

Impacts on Handicraft Occupations

Traditional handicrafts, which apparently were declining before the resettlement, are likely to disappear in the near future. Because of a current lack of bamboo in the forests, bamboo weaving, which used to be a common activity of elderly people, is no longer practiced in the resettlement villages. Similarly, occupations like blacksmithing and cloth weaving are likely to disappear since items made of iron, such as

knives, axes, hoes and shovels, as well as a wide variety of clothing, are available at extremely low prices. The impact of market economics has caused the rapid demise of traditional crafts of the Ca Dong people residing in the two resettlement villages.

Impacts on Hired Labor

In response to the serious shortage of land for cultivation and husbandry along with sharply decreasing dependence on natural resources, Ca Dong people have sought hired labor jobs in their villages and in the region. Hired labor jobs have become a new kind of livelihood and have played an important role in earning a living. Hired laborers can work as construction workers, carpenters, and farmers, but the villagers usually get hired by Kinh or Ca Dong owners of acacia gardens (for work such as removing grass in the acacia gardens and harvesting acacia plants). Acacia harvesting is divided into such phases as cutting, peeling bark, and transporting acacia products from upland gardens to roads. Wages are paid daily, varying from 150,000 VND to 180,000 VND (or 7 - 8 USD) for a normal hired labor job. Transporting commercial acacia timber from upland gardens to roads is usually done in the form of a job order, and wages are paid by weight (a laborer can be paid 250,000 VND-300,000 VND per day or 12-14 USD per day). Hired labor is the main livelihood of many newlyweds who have just split from their parents' households and have no production land. Results of group discussions found that 82 percent of the two hamlets' households are involved in hired labor at various levels, and 23 percent of these households are hired laborers because they are unable to own production land. Incomes from hired labor vary from 40 percent to 100 percent of the entire annual income per household. The result of discussions with officers and public representatives indicates that hired labor currently makes up half of the overall incomes of Hamlet 3-based Ca Dong people.

Noticeably, the resettlement impacts have caused a shortage of job opportunities for Ca Dong people in Hamlet 3 for several reasons. First, acacia cultivation is unpromising because of its small production

area, and the little care that these trees require during the first two years after they are planted. Second, hired labor jobs are not numerous or stable. Finally, non-agriculture jobs are hard to find, or if any, the local people are not qualified enough for the jobs because they lack adequate training. Results of questionnaires found that only 34 percent of the laborers surveyed could find jobs, while 64 percent could not (2 percent of surveyed people did not give answers). Local people said that jobs could be found for only eight months of the year, which means that jobs cannot be found for 30 percent of a year's duration.

In short, the resettlement process has had a heavy impact on the livelihoods of Ca Dong people residing in the two hamlets. Income-earning activities such as cultivation, husbandry, handicrafts, and usage of natural resources have decreased. One of the most concerning problems facing Ca Dong people is a serious shortage of production and garden land, leading to low crop productivity, low living standards, and a high proportion of poor households.

Resettlement Impacts on Domestic Water Sources, Housing and Public Infrastructure

Before resettlement, Ca Dong people in Hamlets 1 and 3 used a natural water source flowing downwards from the mountains to the ends of the villages for their drinking and domestic water needs. Local people used containers such as gourds, plastic cans, and buckets to collect water from the natural water sources and take it home. They said that the water sources were clean and adequate for their year-round needs. In their new resettlement areas, 12 automated water storage tanks for the whole village have been installed in Hamlet 3 by the resettlement project. At first, the tanks could supply enough water for the households; however, the tanks have been in a water-short condition since 2012 and have been abandoned due to the lack of water supply sources. Therefore, the local people themselves tried to dig wells, but found it difficult and time consuming to seek natural water sources, leading to a frequent serious shortage of domestic water during several months of the dry

season. Hamlet 1 is in the same situation. During the 2016 dry season, the Division of Agriculture and Rural Development in Bac Tra My district provided financial support for the digging of six wells for Hamlet 3 and four for Hamlet 1. However, while the wells were filled with water at the early stage, they are currently dry. Because of production land and domestic water shortages, many households in the two resettlement villages have abandoned their new houses and returned to their old villages to do upland farming for their livelihood.

As for housing, from experience drawn from the A Vuong Hydropower Plant, the management board of Song Tranh 2 Hydropower Project has decided to build solid ground-floor houses instead of stilt houses in the two resettlement villages of Hamlet 1 and Hamlet 3 for Ca Dong people. The housing area varies from 45 to 65 square meters, depending on the number of household members. The housing layout is arranged in the same form as that of the Kinh people, including three rooms with the central room serving as a living room with an altar, the left-hand room as a dining room and the right-hand room as a bedroom. While the houses were assessed by Hamlet 3 villagers to be in better condition than the old ones when they just moved to them, they were evaluated by the group of researchers to be mostly in poor condition with peeled walls and cracked floors due to low-quality construction materials. Some houses are located close to the edge of the village road with the ground floor one meter higher than the road surface, making a rough, uneven path from the road surface to the floor of the house. Furthermore, the roads are not cemented, making it difficult, especially in the rain, for elderly people and children to travel. The bathroom of each house, which is located inside the kitchen and covers about five square meters, is no longer in use because of a lack of domestic water and disuse while meals are being made. Instead, the local people usually go to the toilet in the garden, even in the field and in temporary toilets set up behind the kitchen. Results of questionnaires found that 79 percent of the people surveyed felt that the resettlement houses were in better condition than their old ones, while 21 percent thought that the houses were worse than the old ones.

There has been a dramatic change in public infrastructure works. In the old villages, hamlet and inter-hamlet roads were earth-filled roads, and schools consisted of two classrooms built of bamboo but no hamlet headquarters or kindergarten. The resettlement villages, however, are closer to district and commune centers, and the asphalt-paved main roads in Hamlet 1 and Hamlet 3 are 1 kilometer and 1.5 kilometers in length and 5 meters in width, respectively. Driveways leading to the commune and the district and inter-hamlet roads are also paved with asphalt or concrete. Public buildings include a village headquarters, a one-room kindergarten, and three primary classrooms, all of which have been solidly built.

In general, roads, schools and medical clinics of the two resettlement villages are better than those in the old villages. However, public space has not yet been set up in resettlement village planning. At present, people in the two hamlets have to ask neighboring villages for shared use of their cemeteries for burials. Moreover, the local people wish to have a cultural house, a football field, and a basketball court for young people, but there is no space left.

Resettlement Impacts on Social Development

There has been a positive change in Ca Dong people's social life in the resettlement villages because of their location close to district and commune centers and their stronger engagement in market economics and exchange services.

Through discussions between the research team and public representatives it was found that the rate of marriage between people in similar family lines as well as early marriages, which used to be very high among Ca Dong people, has sharply decreased. The proportion of early marriages over the last few years has fallen to seven percent, compared to 30 percent in the pre-resettlement period. Inter-ethnic marriages, which previously could not be found in the Ca Dong community, have occurred, and subsequently increased, making up 16 percent of the total marriages, according to the questionnaires. People's

economic and social awareness, which used to be very low among Ca Dong people, is presently much improved, and their political system, which used to be somewhat dysfunctional is now more effective. The traditional conception of average distribution has been gradually replaced by the new market economy perspective. However, the role of village elders is currently maintained and promoted, but many traditional social institutions are not. For example, in the past, those who had committed adultery or incest were supposed to hand over to the village a buffalo, a pig, and a large bottle of wine which served as offerings to the gods to ask them to forgive their sins. This custom is no longer practiced, but solidarity among the local people remains unchanged. Noticeably, the tradition of mutual support has been maintained and promoted by the local people so far. For instance, wealthier households will give rice to the poorer ones who even do not have enough money to buy food for their meals, and other local households help one another with money for buying plants and fertilizers for doing farming and instruct one another on how to do farming based on their own experiences.

Ca Dong people now have access to better healthcare services because their residential area is close to medical clinics. In the past, illness used to be treated with superstitious rituals at home, and half of the women used to give birth at home. At present, 98 percent of people who are sick have health check-ups and treatment at public healthcare centers, 95 percent of women have given birth in the commune's medical clinics or the district's hospital, and 98 percent of children have been vaccinated against tetanus, tuberculosis, measles, smallpox, and diphtheria, according to the questionnaires.

Schools are in better condition, better furnished, and closer to their villages, and teachers are qualified at various educational levels to facilitate educational development. Children can have access to schooling beginning at nursery school age, and a kindergarten has been built in the village. The result of questionnaires found that 100 percent of the children in the two villages had access to schooling and did not drop out of school at the primary education level, 89 percent attended

middle schools, and 75 percent attended high schools. In Hamlet 3, before resettlement, there were only several children attending middle school, but as of 2018 the number was 35.

Because of a serious shortage of land and jobs, Ca Dong people in the two hamlets are poorer than those in other villages. In 2017, 84 percent and 90 percent of all the households in Hamlet 1 and Hamlet 2, respectively, were poor households, compared to 43 percent of all the households in Tra Doc commune, 45 percent for the whole district (Phong Thong ke huyen Bac Tra My, 2018), 7.5 percent for the whole province and 48 percent for the whole ethnic minority population of the province (So Lao dong Thuong binh va Xa hoi tinh Quang Nam, 2019). According to a report by the Bac Tra My District Social Policy Bank, 702 Ca Dong households in Tra Doc commune are in debt of approximately 18 billion VND or an average of 25 million VND per household (Ngan hang Chinh sach xa hoi huyen Bac Tra My, 2019).

Resettlement Impacts on Maintaining Traditional Culture

The market economy, cultural integration, and awareness changes, especially from upland crop production to cultivation of commercial plants, have driven the traditional culture of Ca Dong people in the two resettlement villages to a fast demise.

Results of mixed-group discussions with representatives from the local authorities and the villagers found that before resettlement, the local people were able to maintain eight upland field cultivation rituals in their families and in their community, including rituals of reclaiming upland fields, burning upland fields, sowing, making upland field fences, weeding, eating new rice, delivering rice to the rice warehouse, and praying for the rain. These ceremonies have reflected Ca Dong people's polytheistic religion in which the worship of the rice goddess is central. However, at present the rituals are no longer practiced and have been replaced by new community festivals like the Vietnamese traditional Lunar New Year and inauguration ceremonies of new public works.

In terms of the material culture, traditional stilt houses are disappearing and being replaced by ground-floor houses in the same architectural style and space arrangement as that of the Kinh people. Densely populated villages or the traditional style of villages with houses overlooking rivers or streams have been replaced by villages with houses arranged in rows like pieces on a great chess board. The traditional costumes of Ca Dong people, such as traditional blouses and skirts for women and loincloths for men, are no longer in use and have been replaced by popular, modern clothes. The "*ruou can*" tube wine that used to be popular in the past is seldom seen and has been replaced by rice wine produced and sold by Kinh people. Gongs, which used to be found in dozens of households, can only be seen in two or three households. The previously popular custom of pipe-smoking has gradually disappeared and is replaced by smoking industrial cigarettes. Traditional material culture is found mainly in the form of memories preserved by some elderly people.

In terms of the non-material culture, 87 percent of all the young people cannot play their traditional musical instruments, 82 percent of all the girls do not know how to dance their traditional dances, 84 percent of all the youngsters have not memorized their folk songs, four-fifths of their traditional festivals are no longer observed, funerals and weddings are simplified to suit their new life, the previously widely-known buffalo sacrifice festival is no longer held, polytheism is hardly practiced, and most aspects of non-material culture are found only in the form of recall preserved by some elderly people.

Resettlement Impacts on Living Environment

Before resettlement, Hamlet 3 and Hamlet 1 were located close to the river and streams, with moist and fertile soil, a cool climate, an abundance of green vegetation and animals, and gardens filled with various kinds of vegetables that could supply the local people with food not found in the forest. The resettlement villages have been built on the upland ground of the mountain slope which has been leveled by

mechanical equipment, and the soil is barren. In comparison with their old villages, the environment in the resettlement area is more severe, the weather is hotter and drier, there is less vegetation, the natural ecological system is poorer, and the living space is smaller. The local group discussion participants said that Ca Dong people residing in the resettlement villages felt more tired, got sick more easily, and were frequently in bad health. The three earthquakes that occurred in 2016 are believed to have been caused by construction of Song Tranh 2 Hydropower Plant and led to cracks in the walls and floors of 23 houses in Hamlet 3. Generally, while environment and people in the old villages have created a selective, sustainable human-building ecosystem, the environment of the resettlement area, which is located on the upland mountain slope and distant from rivers and streams, is not a good choice for living or a sustainable human ecological system. The major impact of Song Tranh 2 Hydropower Plant resettlement on the local people is a serious decline in and loss of forest resources. Before the resettlement, the villages were surrounded by or close to forests. Now, however, there are no forests surrounding or close to the resettlement areas, and the villagers have to travel nearly 20 kilometers to reach the forests to get vegetables and to hunt. The loss of forests can be interpreted as the local people's loss of traditional living conditions, including resources and living environment.

Assessment and Suggested Policy Solutions

The Song Tranh 2 Hydropower Plant resettlement process has had multi-faceted impacts on the life of people residing in the two hamlets, both positive and unexpected. The assessment of the research team and the local villagers of the hydropower plant's positive and negative impacts on every aspect of life, which was gathered from in-depth interviews, group discussions and questionnaires, is found in Table 2.

Table 2 Assessment of the hydropower plant's impacts on the life of Ca Dong people in the resettlement villages of Hamlet 1 and Hamlet 3 in Tra Doc commune

Aspect of life	Assessment of impacts compared to the pre-resettlement period		
	Better	Similar	Worse
Infrastructure	x		
Amount of production land			x
Quality of production land			x
Domestic water			x
Poverty			x
Housing	x		
Healthcare services	x		
Education	x		
Preservation of traditional culture			x
Environment			x

Source: Author

Table 2 indicates that there are positive impacts in four areas: infrastructure, housing, healthcare services, and compulsory education. At the same time, there are six unexpected, negative impacts consisting of the following problems: production land shortages, barren production land, lack of domestic water, a high proportion of poor households, disappearance of traditional culture, deteriorating living environment. Of these six negative impacts, shortages of production land and domestic water sources are the most worrisome.

There are many causes of the problems, but three main ones identified by the researcher and the local people include the following. First, insurance of a sustainable ecological system has not yet been included in the resettlement plan. Second, production land compensation has not yet been appropriate for the local people's well-being, behavior, culture, and awareness. Land production compensation should not be in cash, but in arable land that is similar or better in soil

quality and size. Third, the introduction and training of new occupations and non-agricultural jobs have not been given sufficient attention.

These unexpected negative impacts demonstrate that the goal of the Vietnamese government and international organizations of ensuring a similar or better life for the resettlement villagers in Song Tranh 2 hydropower project compared to their pre-resettlement life has not yet been achieved. Post-resettlement policies should be carried out further to overcome unexpected impacts on Tra Doc commune's two resettlement villages and Central Vietnam's ethnic minority groups in the hydropower resettlement process. Stronger application of modern agriculture production technologies, training and expansion of non-agricultural occupations, as well as solving the domestic water problem should be promptly implemented.

Conclusion

The Song Tranh 2 Hydropower Project has had multi-faceted impacts on the resettlement life of Ca Dong people residing in Hamlet 1 and Hamlet 3 of Tra Doc commune, Bac Tra My district, Quang Nam province. Despite the positive impacts on infrastructure, housing, healthcare, and compulsory education, there exist unexpected negative impacts on livelihoods, domestic water, poverty, traditional culture and environment. In terms of livelihoods, one of the most concerning problems is the policy of land compensation in cash, which has led to a shortage of production land (or if the land is available, it is not fertile enough for production). With regard to water sources, the resettlement plan has not included exploration of potential water sources, resulting in a lack of water for living and domestic water sources. As far as poverty is concerned, the proportion of poor households in these communities is unusually high compared to that in non-resettlement communities. Culturally, the local people's agriculture-related cultural values have fallen into decline or disappeared more quickly than in the non-resettlement communities. Among the five above-mentioned impacts, production land and domestic water shortages are the two most

serious problems that need to be solved promptly. Post-resettlement policies should be further carried out for the people who have been forced to evacuate so as to ensure lives in the new residential area that are similar to or better than what they had before having to move. Moreover, promotion of agricultural production skills, job training, non-agricultural occupation expansion, and a solution to the domestic water problem should be given immediate, serious attention.

References

ADB (Asian Development Bank). (1995). **Involuntary resettlement**. Manila: ADB.

Ban Dan toc tinh Quang Nam. (2019). ***Thuc hien chinh sach dan toc o tinh Quang Nam, thuc trang va nhung van de dat ra.*** (In Vietnamese) [Implementation of ethnic polices in Quang Nam province, the real situation and problems]. Bao cao chuyen de nam.

Bui Van Dao. (2010). ***Gop ban ve cach gi va goi ten cac dia danh vung dan toc va mien nui duoi goc nhin ngon ngu hoc van hoa.*** (In Vietnamese) [Discussion of how to write and pronounce the place names in the ethnic and mountainous regions in the perspective of cultural linguistics]. Tap chi Khoa hoc xa hoi mien Trung, so 6.

Cernea, M. and Guggenheim, S. (1993). **Anthropological approaches to resettlement: Policy, practice and theory.** Boulder, CO: Westview Press.

Courtland, R. (2003). **Risks and rights: The causes, consequences and challenges of development-induced displacement.** Occasional paper of the Brookings Institution-SAIS, Project on Internal Displacement.

Dang Nghiem Van and Ninh Van Hiep. (1978). ***Nguoi Ca dong o Tra My (quan he xa hoi va hon nhan, gia dinh)***. (In Vietnamese) [Ca Dong ethnic people in Tra My (social relations, marriages and families)]. Tap chi Dan toc hoc, so 3.

Grillo, R.D. and Stirrat, R.L. (eds.). (1997). **Discourses of development: Anthropological perspectives**. Oxford: Berg.

Ngan hang Chinh sach xa hoi huyen Bac Tra My. (2019*). **Bao cao tinh hinh no dong ngan hang cac xa huyen Bac Tra My*** (In Vietnamese) [A report on remaining debts in banks in Bac Tra My districts].

Ngo Vinh Binh. (1977). ***Nghe trong que cua nguoi Ca dong, nguoi Co o Nghia Binh va Quang Nam - Da Nang***. (In Vietnamese) [Cinnamon cultivation-occupations of the ethnic minority groups of Ca and Ca dong residing in Nghia Binh and Quang Nam and Da Nang]. Tap chi Dan toc hoc, so 4.

Pham Quang Hoan. (2012). ***Van hoa toc nguoi vung long ho va tai dinh cu thuy dien Son La***. (In Vietnamese) [*Ethnic culture in the lake basin and resettlement areas of Son La hydropower project].* Hanoi: Nxb. Khoa hoc xa hoi.

Phong Thong ke huyen Bac Tra My. (2018). ***Bao cao ket qua giam ngheo va dao tao viec lam huyen Bac Tra My nam 2018***. (In Vietnamese) [A report on the results of poverty reduction and job training in Bac Tra My district in 2018].

So Lao dong Thuong binh va Xa hoi tinh Quang Nam. (2019). ***Thuc trang gian ngheo, dao ta o nguon nhan luc o cac dan toc thieu so tai cho mien nui tinh Quang Nam va mot so van de dat ra***. (In Vietnamese) [The real situation of poverty reduction and training of human resources for the local ethnic minority groups in the mountainous areas of Quang Nam province and some problems]. Bao cao chuyen đe nam 2019.

Tran Dinh Hang. (2015). ***Bao ton va phat trine van hoa cac dan toc thieu so vung did an tai dinh cu mien Trung do xay dung thuy dien.*** (In Vietnamese) [Preserving and developing the culture of Central Vietnam's ethnic minority groups in the resettlement areas due to hydropower construction]. Bao cao de tai cap bo. Vien Van hoa Nghe thuat Viet Nam.

Tran Van Ha. (2017). ***Mot so van de phat trine kinh te-xa hoi vung tai dinh cu thuy dien Son La*** (In Vietnamese) [Some issues on socio-economic development of Son La hydropower project's resettlement areas.]. Hanoi: Nxb. Khoa hoc xa hoi.

World Bank. (2009). **Directions in hydropower.** Washington, DC: World Bank.