

# A Study on Involuntary Resettlement Outcomes of Myitsone, Upper Paunglaung and Tha Htay Hydropower Projects in Myanmar



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## Abstract

Myitsone, Upper Paunglaung (UPL) and Tha Htay (TH) Hydropower projects have been significant drivers of involuntary resettlement in Myanmar. These projects resulted in the relocation and resettlement of affected communities: relocating five villages with 2146 people (out of sixty-three villages with 11807 people) in Myitsone project, twenty-three villages with 9755 people in UPL project and three villages with 1591 people in TH project. Despite differences in project characteristics such as type, size, location, and policy implications, the focus of this study is to assess collective outcomes of resettlement efforts initiated by the project proponents. The research findings indicate that providing monetary compensation alone did not adequately meet the livelihood needs and long-term sustainability of resettled populations. The deficiency in long-term livelihood planning, the absence of income restoration strategies, and a lack of funding for local development initiatives have placed considerable stress on the resettled families. Furthermore, the TH hydropower project has failed to provide replacement agricultural land for resettled communities so far while UPL had provided agricultural land on hilly area without formal land titling process. In contrast, the Myitsone project did offer agricultural replacement land, but it was of poor quality and not suitable for agriculture. On a positive note, the study reveals improvements in physical infrastructure, public basic services, and educational access among resettled communities. As a result, the living standards of resettled households have generally improved, marked by better housing conditions, increased ownership of personal assets, and access to reliable and affordable electricity from the grid. However, the research also highlights that the number of employed family individuals and their average income levels have decreased after resettlement. This has led to greater reliance on nearby forests and casual employment opportunities. Hence, it underscores the significance of giving priority to a blend of strategies involving land substitution and non-land-based solutions in future planning and execution of resettlement programs.

**Keywords:** Hydropower project; Involuntary resettlement; Collective outcomes; Sustainability; Land substitution

## Introduction

Since December 2019, around half of the households in Myanmar have gained access to grid electricity, leaving the other half with unreliable or no access to power. Hydropower served as the primary source of electricity generation in 2018, constituting 56% of the nation's total power generation due to its relatively reliable nature [1]. However, the historical context of large-scale hydropower dam projects in Myanmar has sparked conflict and garnered strong opposition from civil society [2]. These projects involve flooding vast land areas, resulting in significant environmental, social, and cultural repercussions. Consequently, constructing hydropower dams such as Myitsone, UPL and TH posed intricate challenges, particularly in relocating and

resettling affected communities, a process mired in controversy and unsatisfactory resolutions for all affected persons involved.

The poor execution of resettlement initiatives has haunted the credibility of hydropower development and its proponents. Resettled Villages experienced a substantial reduction in land holdings per household compared to their prior situations, primarily due to limited hilly areas available for resettlement. Due to the projects, landless resettled people faced the most significant impact, lacking the technical and financial resources to adapt their livelihoods. Consequently, the number of households engaged in agricultural practices, forest and non-forest product exploitation, and cultivation drastically declined. In the case of the Myitsone

dam project, in 2010 resettlement caused severe distress among displaced people due to the loss of cultural heritage, disruption of local ethnic community cohesion, and relinquishment of their historical customs. This resulted in an inability to resume their original way of life. Conversely, the UPL resettlement initiative, conducting it in 2013, was praised as a success story in Myanmar, labeled as the best-compensated project by its developer [3]. For the TH resettlement project, land acquisition for agricultural purposes had been under processing so far although Maewa Village was relocated in 2009 and, Payit and Yegauk Villages were relocated in 2021.

Previous studies examining the three resettlement projects indicated notable improvements, particularly in housing, public infrastructure, education access, electricity, healthcare, road development, and overall living standards in all resettlement Villages. However, there were significant negative repercussions on the personal income of affected households, their efforts for livelihood restoration, and their long-term sustainability. Both the government and project proponents were needed to systematically address the provision of agricultural land replacement and generate employment opportunities for effective income restoration. Despite receiving cash compensation for physical and economic losses, relying on cash-based compensation overlooked the intricate process of livelihood restoration, exposing individuals to increased risks of impoverishment. Managing changed social structures without adequate resources posed challenges in rebuilding the necessary physical and economic assets for survival, with the entire family relying on the household head for livelihood restoration and improved living standards post-resettlement. Women, in particular, faced unique challenges and unemployment [4-7]. This paper highlights the lack of clear objectives, consistent procedures, and sufficient resources in addressing resettlement issues, leading to serious adverse effects on the displaced people and their environment. In fact, project proponents bear the responsibility to enhance or, at the very least, restore the livelihoods of those impacted by the projects for successful resettlement programs as per the statement of international resettlement standards [4]. Therefore, findings offer valuable insights into resettlement challenges and propose ways to navigate these issues, considering that Myanmar's resettlement practices are still an ongoing and evolving process.

### Materials and Methods

The Myitsone Joint-Venture Hydropower project, with a capacity of 6000MW, is situated along the Ayeyarwady river, approximately 7 km downstream from the meeting point of the N'Mai and Mali Rivers, and about 40 km upstream from Myitkyina city in the Kachin State of Myanmar's northernmost region [8]. As a result of this project, an estimated 11,807 individuals from 2,556 households across 63 Villages were expected to be relocated. Initially, 2,146 people from 410 households in five Villages were resettled in Aung Min Thar and Maliyang resettlement Villages, approximately 13.6 km downstream of the

Myitsone dam site, between May 2010 and June 2011. However, the main construction was halted on 30 September 2011, due to issues related to resettlement, environmental impacts, social concerns, political ramifications, downstream economic effects, ethnic considerations, and historical significance, alongside public opposition to the development of the Myitsone dam.

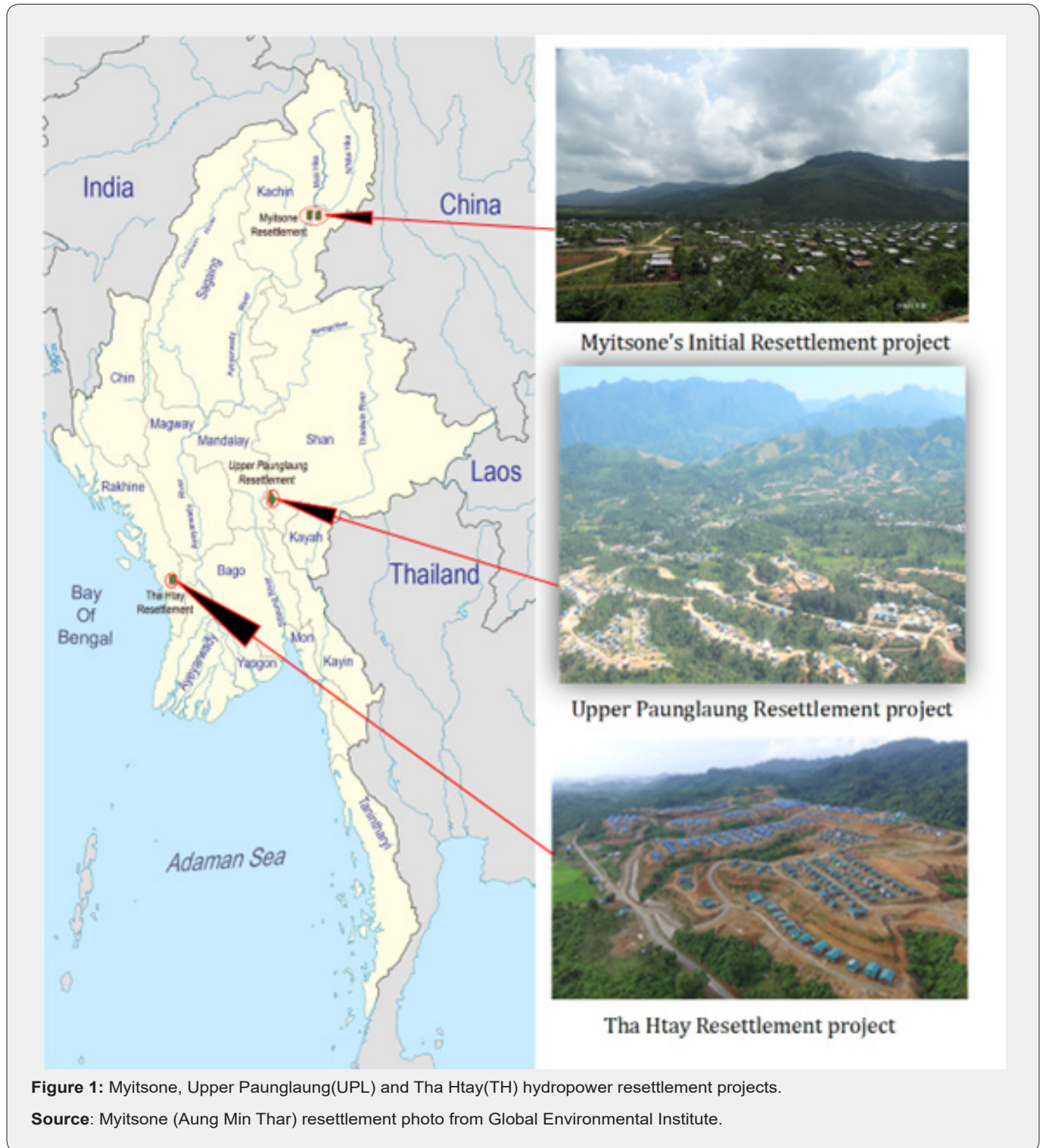
On the one hand, the Upper Paunglaung state-owned hydropower dam, generating 140MW, is situated at the southern end of the Paunglaung river in Pinlaung Township, Taungyi district, Southern Shan state of eastern Myanmar [9,10]. The construction began in 2006 and concluded in 2015 [10]. The displacement and resettlement process were completed in 2013. The project involved relocating and resettling 2,524 households comprising 9,755 people from 23 Villages, moving them from lowland to hilly areas within the same district [4,10-13].

Their previous assets, including agricultural land, perennial crops, communal facilities (school, religious buildings, and other public infrastructure), and natural resources like the forests in Paunglaung Valley, animal habitats, and grazing land, were affected by the reservoir's flooding. Residents who once lived along fertile riverbanks were moved to higher ground to protect them from the reservoir's inundation, with the elevation difference between old and new locations ranging from 14.26m to 266.26m. The Villages were relocated a distance of at least 0.76km to a maximum of 12.18km from their original sites [10]. On 24 November 2014, the hydropower plant commenced supplying electricity to the national grid, subsequently providing power to resettled Villages on 25 December 2014. By 23 June 2015, the formation of the new Paunglaung town (under Pinlaung Township) was completed, comprising six quarters made up of 15 resettled Villages and two non-resettled Villages. Contrastingly, the 111MW Tha Htay hydropower project, situated in Thandwe District, Rakhine State, Myanmar's western region, began in 2008 as a state-owned initiative similar to UPL. This project was specifically designed for electricity generation purpose. The initial phase involved the resettlement of Maewa Village near the dam's construction site in March 2009. The subsequent phase resettled Payit and Yegauk Villages between March and April of 2021. Overall, the project relocated 1,591 individuals from 500 households in three Villages to locations near the Thandwe-Taungup Road, ranging from 19.31km to a maximum of 25.75km away from the original Payit and Yegauk Villages. The primary project is anticipated to be completed in 2026, with 79.7% of the project completed by August 2023 [14]. However, tasks such as land acquisition for agricultural land replacement, changes in land use, rehabilitation, and income restoration remain to be carried out before the main project's commissioning. As a result, three resettled villages are permitted to continue cultivating their original land and forests until 2025.

Three projects vary in size, location, investment models, and resettlement approaches, as depicted in Figure 1. Previous studies primarily focused on assessing their impacts on resettled

communities, encompassing aspects such as gender-specific livelihood assets [4,11-13], livelihood changes [10,15], livelihood adaptation strategies [10], land use change [15], resettled people's opinion on the resettlement process [7,16], disparities among local resettled communities [17], social implications [5,6], social

resistance and movement [5], resettlement and compensation practices [7]. This study underscores the challenges inherent in involuntary resettlement processes, emphasizing the need to prioritize a blend of strategies involving both land-related and non-land-related approaches to address collective outcomes.



## Results

### Resettled people's participation and their rights in Resettlement

Public involvement and engagement of stakeholders represent a novel process in Myanmar. It is a common tendency among local project-affected residents to be reluctant to speak up during public gatherings. Consequently, many Villagers entrusted their leaders to represent them and engage with the project proponents. The proponents educated the communities about resettlement, tasking Village leaders with disseminating crucial information and encouraging participation in resolving the complexities of planning and executing resettlement. Additionally, the Village leaders received regular updates about the project. They then organized meetings at the Village level, engaging with household heads, typically assumed to be the eldest male in each household. Moreover, the project proponents and local authorities also interacted directly with affected populations, conducting meetings and collaborating with Village leaders, representatives, and religious figures regarding the social and economic aspects of potential resettlement alternatives. However, the dissemination of information regarding the resettlement plan and its execution was hierarchical and predominantly male-dominated. Most women, with a few exceptions, primarily acquired information about the project through their husbands or neighbors [4]. Women in these areas usually had lower education levels and confidence compared to men, which hindered them from expressing their concerns. Some women trusted their husbands to voice their perspectives [18]. Nevertheless, certain women-led communities disrupted consultations regarding their relocation in the Myitsone dam project. Gender inequalities persisted in laws and access to economic opportunities, as the hydropower sector historically leaned towards male dominance. Despite multiple consultation rounds, public meetings, document disclosures, and specific engagements, there remained a significant lack of understanding and engagement among the affected communities regarding displacement and resettlement. This exclusion led to an information gap, causing unease and discontent among households and individuals unaware of the process. Furthermore, there was an absence of an effective grievance mechanism for affected communities in the UPL and TH projects, which could have partially mitigated the information gap [3,7,11]. Additionally, village leaders and respected community figures often refrained from expressing community grievances to authorities due to fear. In the Tha Htay project, the relocation plan encompassed public participation and consultations, addressing the conditions of submerged Villages, commitments to environmental and social impact assessments, resettlement action plan, compensation negotiations, housing designs, and more. Common issues identified from negotiations and agreements with affected communities in UPL and Tha Htay projects included the need for improved public infrastructure, self-reconstruction of housing

with housing compensation by Villagers, cash compensation for various agricultural losses and perennial plants, arrangements for relocation transportation, construction of roads and culverts in resettled Villages water supply, constructing distribution lines and installing electricity meters, and the acquisition of fallow land from reserved forest areas for resettlement and agricultural purposes.

Apart from the resettled individuals themselves, another key player in resettlement procedures was the host population residing in the receiving areas. In the Tha Htay resettlement project, negotiations with the host population to share the Jin Chaung weir for water supply were initially overlooked during the pre-project planning of resettlement. Consequently, significant issues emerged during implementation regarding the sharing of water supply for the Payit and Yegauk resettlement areas. Therefore, the project proponents had to seek alternatives to supply water, resorting to springs, which led to challenges in water utilization in resettled Villages, particularly during April and May. In the case of Maewa resettlement, there was a contentious matter between the hosts and the resettled Villagers concerning cultivated land. Beyond these issues, the acceptance of the host community was imperative. Their approval was necessary to prevent conflicts between the resettled people and those already residing in the area, ensuring respect for the host community's social and cultural institutions. Thus, any hydropower project needed to thoroughly consider human rights issues affecting affected people, hosts, vulnerable groups, and gender-specific livelihoods assets, especially concerning compensation, displacement, resettlement, and rehabilitation processes.

### Land acquisition and compensation

Land loss emerged as the most substantial impact across these three projects, significantly affecting all aspects of livelihood assets and activities. Losing their land shattered the foundation of families' productive systems. The government was expected to take responsibility for replacing the compensation for lost land. However, acquiring agricultural replacement land posed a complex challenge in Myanmar due to limitations in available land, its quality, and the government's forest conservation policies. The resettlement efforts in the UPL and Tha Htay projects failed to reinstate land ownership as promised, resulting in considerable conflict and a lack of trust. In the Myitsone JV project, compensation funds for land acquisition were provided by the foreign developer purchasing the land. Contrastingly, in the UPL and TH state-owned projects, compensation funds were allocated from the respective government developer's budget, responsible for distributing compensation and carrying out land acquisition. The equity in land access worsened in the UPL project due to mishandling of agricultural land allocation processes, allowing farmers to extract land at their own discretion rather than through an organized distribution system. About 8297 acres of land, lacking proper identification certification and belonging to

other host farmers based on customary tradition, were allocated for the agriculture and cultivation of resettled households. This land, situated in hilly areas and removed from reserved forests, posed challenges for exploration and excavation. Initially, affected households losing their land were promised equivalent space, and each landless household was also promised to allocate them 2 acres of upland farming space, but formal land titling processes were not executed [17]. As a result, it was as if that the more a household was able to quickly extract land, the more land they practically owned it for their agricultural practices, particularly for turmeric plantations [17]. Displaced landless farmers lacked the technical and financial capacities for these new agricultural practices introduced to them. While the compensation provided in the UPL project was considered the most significant in Myanmar's history [3], the complete compensation packages did not meet the needs of resettled people, and legal land ownership was not granted to them [11]. In the Myitsone project, the government replaced 440 acres of farmland for the affected households, regardless of garden or forest land-based resources occupied. Similarly, in Tha Htay project, commitment to provide agricultural land along with cash compensation was unfulfilled due to the unavailability of replacement agricultural land. Despite nearly 12 years for Maewa and 2 years for Payit and Yegauk Villages, the acquisition of 150 acres of agricultural land for Maewa and 450 acres for Payit and Yegauk Villages remained pending.

Compensation was provided at market value, factoring in adjustments. In the internal compensation framework for the UPL and TH hydropower projects, displaced people received monetary compensation for their physical and economic losses along with replacement plots for housing. Additionally, those with legal titles or recognized claims to affected land or assets received compensation for the cost of the land, encompassing payment for three times (or three-year payment) of market value of paddy crops and perennial trees. Landless households without legal rights or recognized claims also received compensation, excluding the land cost, due to the disruption of their livelihood structures. In the Myitsone resettlement project, Villagers who lost agricultural land were compensated with agricultural land to address their land loss. However, they encountered challenges with infertile replacement agricultural land. Additionally, the project provided a subsidy of 100,000 kyats (approximately S\$ 140) per affected household, among other forms of assistance [19]. One of survey data collections in UPL resettlement indicated significant dissatisfaction with the new farming and cultivation lands, with households feeling they did not receive adequate compensation to sustain their farming activities satisfactorily [11].

### **Fundamental infrastructure and common property services**

Physical infrastructure has seen notable improvements, including improved roads, upgraded schools and healthcare

facilities. Consequently, households resettled in these three projects perceived improvements in children's educational status, and access to modernized religious buildings after resettlement. Comparatively, the education and health conditions in the Myitsone and UPL resettlement projects surpassed those in the Tha Htay resettlement project. Overall, educational status displayed improvement across all three projects post-resettlement. Primary schools in the original Villages were upgraded to post-primary or sub-middle schools in UPL [10] and Tha Htay [7] by the project proponent, while in the Myitsone resettlement, primary schools were advanced to high school [5]. Since resettlement, there has been an increase in the enrollment rate of school-aged children, possibly due to improved access to education, such as reduced travel distances, updated facilities, or the presence of new teachers. Similarly, healthcare witnessed advancements, especially in UPL, and Myitsone resettlements, with shorter distances to healthcare facilities and modernized equipment [3,5], except for the TH resettlement [7]. Moreover, improvements were observed across the three projects, particularly in the ownership of private assets like housing, residential land, mobile phones, televisions, motorbikes, boats or cars. Additionally, accessibility to services like interconnected roads, nearby markets, and electricity from the grid showcased noticeable enhancements. In the Myitsone JV hydropower project, resettled households encountered less pressure in building houses, given that they received houses constructed by foreign developer. However, in state-owned projects like UPL and TH, a self-built housing approach was implemented, accompanied by housing monetary compensation. Consequently, project proponent provided them with the choice to select a house model among three different blueprints created by the proponent's technical design experts. Subsequently, they were assisted with subsidized prices (monetary compensation) to dismantle their old houses and construct the chosen models. While some relocated people constructed larger houses, high material costs hindered their ability to complete these houses [7,16]. Overall, there was an enhancement in housing standards in the newly resettled Villages. The living standards of resettled households generally improved due to better housing quality, increased ownership of private assets, and access to affordable and reliable grid electricity. However, the new house standard in the resettled Villages led to the loss of traditional space due to limited land availability and topographic conditions. Household compounds were generally insufficient for small livestock huts or crop plants for household consumption, a departure from the traditional lifestyle in the original Village. The resettlement design-imposed constraints on resettled households' customary activities, such as farming in household compounds or extending their houses, despite the proponents' careful arrangement of traditional house designs. Moreover, project proponents aided the relocated people by organizing transportation for their households' belongings and families. While reporting that

the new houses and public buildings met high standards and offering general development assistance like fish seeds in dams, livestock, ferry boats, medical services, and playgrounds in UPL project [11], resettled Villagers acknowledged infrastructure and public service improvements. However, during interviews, none mentioned the development assistance of fish seeds or livestock for them after the resettlement of UPL project [3,11].

There were negative feedbacks regarding summer water supply, vocational training, support facilities, and market opportunities [16]. Additionally, the project proponent failed to deliver on their commitments regarding agricultural land, and resettled people lacked land titles or certificates. In the Tha Htay resettlement, a few resettled people from Yegauk Village resorted to swidden cultivation in the nearby forest, which belonged to the forest department, to deal with their daily food needs. However, attempts by some poor resettled people from the UPL project to cultivate even a single agricultural plot were met with warnings from the forest department and village administrators, citing the area's status as a protected forest zone [17]. The resettled Villagers expressed a longing to return to their former locations to cultivate paddy rice. This breach of trust resulting from unfulfilled promises continues to linger, contributing to ongoing distrust. Moreover, the lack of organizational or knowledge capacity to challenge government decisions and actions remains an enduring issue, restricting local awareness both in the past and at present [17].

### Livelihood and economic situation

A significant challenge faced by resettled people was the notable disparity in natural resources, such as soil and water, compared to their familiar environment. This discrepancy led to altered livelihood activities, especially in agricultural practices. Particularly vulnerable segments of the community encountered difficulty adapting to these changes, primarily due to low literacy and technical skills. During the implementation phase of the Payit and Yegauk Villages in the TH project, some host residents initially viewed the resettled population as a market opportunity right after resettlement. Consequently, they first set up shops and vendors near the resettled Villages, as the resettled households quickly spent their compensation money. Subsequently, resettled households struggled to generate sufficient income, experiencing a sharp decline in annual income, savings, and livestock breeding. Similarly, even six years after the UPL resettlement, household income and savings had not rebounded to their previous levels [10]. The landholding capacity for households within the resettled Village, agriculture, and cultivation adjacent to the resettlement areas had diminished. This decline, coupled with soil quality deterioration, adversely affected crop yields. Additionally, the reduced access to open water bodies, forest products, fertile agricultural plots, and grazinglands led to a significant decrease in livestock quantity. Restoring local access to natural resources

proved challenging, remaining relatively constant even six years after UPL resettlement [10]. These losses incurred were irreplaceable, given the inability to find the same quality of land for all resettlement projects.

Conversely, there was a decline in the number of working members following resettlement. This decline primarily resulted from a lack of employment opportunities [5,7,10]. As if resettled households were permitted to access their original areas during the Myitsone dam construction, the Tha Htay project has also allowed resettled Villagers to utilize their former locations until the reservoir impounding in 2025. Even after the impounding in the UPL project, most farming households returned to the vicinity of their former locations in search of cultivable agricultural land. However, the nature of their work underwent significant logistical changes. Post-resettlement, affected people adopted diverse livelihood strategies. The project proponents allocated 440 acres of infertile farmland to those affected in Myitsone dam construction. However, not all resettled households in the UPL project received replacement farmland, despite the approval of 8297 acres of forest land for cultivation. Similarly, the Tha Htay project has not yet provided agricultural replacements to its resettled communities. The loss of farmland significantly impacted rice self-consumption, leading to increased reliance on the rice market and related products [15]. Consequently, the primary concern post-resettlement was the economic downturn among farmers. The economic growth after the UPL resettlement, during Antonia's 2018 survey period, was worse than before due to locals losing farmland and being unable to engage in farming as previously [3]. This was exacerbated by their transition to casual labor and migrant work [10]. On the other hand, resettled people from the Myitsone project coped with insufficient livelihood activities by abandoning previous livelihoods such as small-scale gold mining, bamboo cultivation, selling non-timber forest resources, vegetable farming on the river-bank, local fishing, and even engaging in local tourism activities at two rivers' confluence such as selling local food and traditional crafts to both domestic and international tourists [5]. Consequently, some households increasingly turned to casual labor for collecting non-timber forest products.

Facing a loss of jobs and land without a stable income, all of them encountered economic stress. The increased expenses due to socio-economic conditions strained household relations as they adapted to their new location, prompting significant lifestyle changes. So even if there was no starvation, they grappled with maintaining a stable family life [3], causing worry and distress among affected groups, particularly women [11]. In the UPL project, women were notably affected by shifts in household dynamics post-resettlement. They experienced stress due to economic uncertainty and struggled to afford necessities, even if their husbands sent remittances to cover expenses [11]. Consequently, their reduced capacity to engage in agricultural production led

to decreased activity, and they felt a sense of hopelessness in accessing opportunities for income, particularly in expanding vegetable production [4]. Men frequently migrated, either abroad or to larger cities, in search of employment, resulting in a sharp increase in women-headed households post-UPL resettlement [3,4]. These women assumed responsibility for managing the home and caring for their children [17]. Following resettlement, approximately 120 young people from Htein Pin Village, where migrant workers were absent, migrated to neighboring countries like Thailand, Laos, and China [16]. Across all three resettlement projects, women encountered more obstacles than men projects [3-7]. In the Myitsone project, they became dependent and jobless post-resettlement. Some women who were between 20 and 40 old-aged from the Myitsone resettlement area migrated to other regional areas within Kachin State and China seeking employment opportunities [5].

As their livelihoods underwent significant changes, some resettled individuals expressed concerns about future food insecurity [3,7]. In some cases of UPL, some resettled people managed to cultivate turmeric in mountainous areas filled with stones, but these lands were unsuitable for rice cultivation, compelling them to purchase rice from local markets, increasing their reliance on these markets for daily consumption post-resettlement. Efforts to restore rice self-sufficiency through highland rice cultivation in the new resettled areas were ineffective [10]. Most of their agricultural plots were located far from their homes, which are situated in all three resettlement projects, leading to longer travel times and increased commuting costs. Some farmers only visited their plots occasionally due to these expenses. While Villagers from Htein Pin Village of UPL project utilized temporary bamboo huts on shifting land [16], some farmers from Aung Min Thar Resettlement Village of the Myitsone project were allowed to use their original agricultural plots during the day but were not permitted to stay overnight [5]. In the UPL resettlement project, some farmers introduced rubber, beetle nut, coffee, and tea plantations based on the market demand according to land use change map of 2018 (five years post-resettlement) [15]. However, displaced and landless farmers lacked the technical and financial capacity for these new agricultural practices. Instead, they earned more from non-farm activities like collecting orchids, bamboo, elephants-yams, cane, and broom grass, selling them to local merchants. This also led to increased dependence on forests for collecting non-timber forest products and engaging in illegal timber extraction [15]. Very few households in all resettlement projects could engage in government services due to the requirement of higher educational backgrounds. Additionally, most households faced challenges in running trades or small home-based businesses due to the need for increased investment or financial assets. Some farmers from the UPL resettlement who lived far from the main road engaged in seasonal tourism by renting motorboats to transport tourists to

the Nant Mon Gyi waterfall, which is located in the northern part of the UPL dam and eastward in Pinlaung township [15]. Some Villagers from medium and high-income group mainly engaged in running restaurants, motels, and home shops as alternative income sources in Pinlaung Township [15]. Some resettled Villagers, receiving substantial compensation, managed to build larger homes, open grocery stores, or sell petrol, significantly increasing their annual household income [17]. Therefore, wealthier Villagers in new Villages were content with relocation, utilizing improved transport options to expand their businesses. However, poorer Villagers sought casual jobs or moved closer to their new agricultural lands, constructing temporary huts but lacking official land title documentation [17]. On the other hand, despite challenges of environmental, social, cultural, historical religious and political issues regarding main dam construction, the resettlement areas of Myitsone project became desirable locations, downstream of the dam construction, in the Myitkyina City and Banmaw Township areas.

### Social, traditional and cultural consequences

Leaving behind ancestral homes, cultural lands, and traditional practices deeply impacted both individuals and communities, as seen in the Myitsone dam project. The involuntary resettlement profoundly disrupted affected communities, dismantling their production systems, disrupting entire human settlements, and fracturing long-established social connections, such as the breakdown in community cohesion observed in Yegauk Village of the TH project. Following resettlement, social dynamics and behaviors within communities across all three projects notably underwent shifts. The emergence of new social roles sparked tensions among resettled individuals. While they previously respected Village leaders and engaged in Village matters, after resettlement, there was a reluctance to accept their suggestions. For instance, in Htein Pin Village of the UPL project, disparities in livelihood outcomes between the wealthy and the poor diminished Village unity and eroded respect for Village leaders. Organizing Village affairs became increasingly challenging [17]. Similarly, many displaced Villagers from the projects perceived their village leaders as being overly friendly with project proponents, displaying favoritism towards them [5,7]. The failure of project proponents to restore pre-resettlement livelihoods caused stress and a sense of hopelessness. Inadequate monthly income heightened challenges for women in adjusting the new environment while managing household responsibilities and caring for the elderly and children. These pressure on women contributed to elevated stress and anxiety levels.

The Improvement of private physical assets like houses and material possessions was not an accurate outcome of the resettlement projects. Monetary compensation provided for the economic losses of households affected by the UPL and TH projects was largely spent on constructing higher-standard houses in the

new resettled areas and acquiring some mobility assets. Little consideration was given to investing in new income-generating activities during the transition period. The hydropower projects facilitated increased social capital by improving household access to information through the internet or television and fostering connections with civil society organizations. However, the relocation caused by these projects completely altered the traditional practices of resettled communities, despite their relocation within the same township, district, and state (region). Inadequate housing compounds were provided, limiting residents' ability to raise livestock and cultivate vegetables due to severely restricted landholding capacity. A survey of the TH resettlement revealed issues such as unpleasant odors from neighbors' livestock kept in housing compounds and water scarcity during summer months, particularly in April and May, posing challenges for raising chickens and ducks within these compounds [6,7]. Although homelessness was not reported in the three resettlement projects, there were constraints regarding space for newly married couples and household extensions. The Tha Htay resettlement faced significant landholding problems where there was no available space for constructing new housing or purchasing new house locations as everything was nearly fixed.

The households resettled due to the UPL project were accustomed to lowland cultivation, but they were compelled to shift to upland cultivation, altering their traditional practices. Similarly, in the Myitsone resettlement, Villagers had to abandon various livelihoods such as small-scale gold mining, fishing, traditional medicine, riverbank vegetation, and even small tourism businesses. For instance, in Maliyang resettlement Village, resettled Villagers were not permitted to raise animals in their old pastures [5]. In fact, the grazing or pasture lands were not included in the resettlement planning or implementation. Consequently, the displaced Villagers from the three projects had to sell their cows and buffaloes, losing their ability to use these animals for farming purposes [5,7,17]. The changes in local lifestyles resulting from displacement significantly impacted community health and well-being. Some resettled people experienced a loss of social status due to accidents, especially motorcycle and car accidents that occurred around the resettlement areas, posing direct dangers and causing pressure on the resettled community. Because of improved healthcare in UPL and Myitsone resettlements, it had to be the social safety net for resettled families in case of their illness. However, in the TH resettlement, which each resettlement location had a rural healthcare center, the absence of appointed rural health practitioners meant that the community's health improvement relied more on their adaptability and their visits to nearby clinics or hospitals targeting sick people as burdens. Relocating Buddhist pagodas and churches was a cultural adjustment seen in the UPL and Myitsone projects, while in the TH resettlement, new pagodas were constructed as the original Villages lacked pagodas but had monasteries.

The UPL resettlement led to a rise in suicides and cases of depression among affected people [3,17] due to the disruption of social patterns and a resulting instability in their sense of belonging. For instance, Htein Pin Village saw seven suicides and eight attempted suicides in the initial years following relocation – an unusually high number for a small community [17]. Approximately 81% of resettled people exhibited signs of depression due to the loss of land and livelihoods, limited job opportunities, and a decline in self-esteem [9].

### Rehabilitation assistance and benefit sharing

In three hydropower resettlement projects, comprehensive rehabilitation measures for the resettled communities were lacking. Initially, households focused on immediate strategies to cope with the stress induced by these projects, rather than considering long-term adaptation plans. As a response to changes in their livelihoods, they adopted adjustment strategies like selling farm animals, reducing meal frequency, and borrowing money from others [10]. Even when a farming family had acquired new farmland, it would have taken considerable time for their productivity to gradually return to a normal level. Similarly, if a landless laborer had received training in a new trade or if jobless women were trained in sewing and knitting, it would have taken time for them to reach their previous standard of living. Hence, rehabilitation packages focusing on economic recovery were crucial for resettled families or individuals. These packages should have included provisions for agricultural replacement land, enhancements to these lands and resettlement areas, seed distribution, tool supply, draft animals, guidance for adapting livelihoods, training facilities, research and extension services, investment funding, subsidies, and more. Merely providing vocational training without offering actual employment opportunities does not restore lost income. Therefore, efforts to rebuild productive systems and compensate for lost income-generating assets should go beyond simple cash payments. It's essential to provide alternative income sources to the affected households by exploring opportunities related to land and employment.

The concept of benefit sharing is a sustainable approach endeavored by project proponents to ensure sustainable benefits for local affected communities and ongoing creation of benefits. It is aimed at distributing hydropower benefits equitably, particularly to resettled communities, for broader economic upliftment. All three hydropower projects have assisted non-monetary compensation forms with affected local communities, such as improved infrastructure and support for health and education programs. However, improvements in access to fisheries and forests, obtaining legal land titles, and devising adaptable strategies for sustainable livelihoods have not been adequately addressed. Myanmar's current policy is to allocate 2% of profits from a hydropower project to communities in non-



monetary forms as part of corporate social responsibility (CSR) during its operational phase, according to the Ministry of Electric Power (MOEP) (previously Ministry of Electricity and Energy-MOEE)[2]. It could appear as an option for joint venture (JV) or privately funded projects. Until now, there are no specific policies or frameworks pertaining to benefit sharing for Myanmar's hydropower development projects [2]. For the benefit sharing mechanism to effectively restore the livelihoods of affected communities, there is a need for further development in various areas. This includes the formulation of government policies, the establishment of a legal and regulatory framework, strategies for corporate social responsibility by project developers, and enhancing the capacity of local communities, all of which are critical enabling factors which still need to be formulated.

### Supervision and monitoring mechanism

Monitoring progress in preparing resettled Village areas, reclaiming agricultural lands, constructing essential facilities like schools, housing, roads, water systems, grazing spaces, and fuelwood lots should happen before displaced individuals arrive in order to prevent discrepancies between plans and actual implementation. This aims to address the intricate social, agricultural, health, and cultural challenges of resettlement and rehabilitation. This system serves as an alert for project implementers and allows resettled people to communicate their needs and reactions to the resettlement process, thereby enhancing the project's performance. The monitoring should concentrate on various aspects, including the delivery of project services, land acquisition and allotment, issuing of titles, rebuilding dwellings, preparing fields, assessing the economic adaptation of people, and the relationships between resettled and host communities. To ensure the well-being of resettled individuals, it is essential to track their owned productive assets and their health status. Instances where resettled people had to sell their livestock and personal belongings to meet consumption needs indicated significant survival challenges in three projects. In projects like UPL and TH, cash-only compensation implicitly transferred the burden of solving these challenges to the displaced individuals without offering additional institutional support alongside it. Hence, to mitigate negative impacts on resettled communities and achieve more sustainable outcomes, it is crucial to identify potential socio-economic project impacts and develop appropriate, monitoring, and adaptation strategies [2].

Addressing and alleviating the social impacts of hydropower resettlement in Myanmar still requires specific provisions for supervision and monitoring mechanism. Despite the focus of national and ministerial policies on planning and implementation stages in UPL resettlement projects, there's a lack of consideration for post-project consequences. Notably, in state-owned projects like UPL, once the resettlement area was handed over to local government, there was no budget allocation for monitoring

or ongoing support programs for resettled communities [10]. Although monitoring the timely progress and completion of resettlement activities, as well as the overall social and economic conditions of resettled individuals, was imperative, for state-owned projects, the project proponents had responsibilities themselves for project supervision, management and on-site monitoring. The grievance mechanism management was inadequate, with a majority of households voicing concerns that were insufficiently addressed. Therefore, past experiences from mainly UPL and TH projects underscored insufficient monitoring arrangements in the project's initial planning, implementation, administrative and funding conditions in order to promote positive outcomes by independent judgement.

### Discussion and Conclusion

In both the UPL and TH state-owned projects, the simultaneous relocation and fostering of new development posed financial challenges. Consequently, a step-by-step plan for rehabilitation and income restoration in resettlement implementation was devised, depend on union budget deficit. Despite earnest efforts in the resettlement and implementation of villages across the three hydropower projects, numerous risks persist for resettled households. In the case of Myitsone, resettled individuals received limited agricultural land compensation, but the quality of the land allocated was notably poor- infertile and rocky, to grow paddy rice farming. In UPL, allocated cultivation lands were situated in hilly areas, unsuitable for paddy growth, leading farmers to transition from lowland paddy and vegetable farming to highland cultivation activities. Meanwhile, the TH project has been facing delays in the land acquisition process for agricultural land replacement since resettlement. Additionally, agricultural land replacement in UPL without legal titles resulted from insufficient project planning, a failure to identify land reserves, and a lack of coordination between project proponent like the Ministry of Electric Power and other stakeholders responsible for approving land use changes, such as the Forest Department, Regional State Authorities, and Ministry at various levels. Furthermore, ongoing development assistance remains crucial for all communities affected by the projects, ensuring adequate opportunities and resources for their economic and social re-establishment.

In the Myitsone JV resettlement project, affected people had been relocated to the ready-made housing built by foreign project proponent. However, the main hydropower project has been facing ongoing social, cultural, environmental, and political sensitivity in the project's continuation. Conversely, those relocated by UPL and TH state-owned projects had to construct their own houses using housing compensation, facing greater pressure compared to those resettled from the Myitsone project. Their new housing plots lacked the space needed for farming or household gardening compared to their previous situation. The quality of houses provided or built with compensation was better than what they lost, marking

an improvement in housing standards across all three projects. There were advancements in new public infrastructure, electricity access, healthcare, communication, and education facilities. However, merely providing cash compensation and infrastructure was insufficient to fully restore the livelihoods of resettled people, in whether state-owned or foreign-financed projects. Moreover, the project proponents failed to fully reinstate the social and economic well-being of the resettled population. Efforts related to sufficient land replacement, access to forest land, and teaching modern farming techniques, supported by the project proponents, fell short. This lackluster outcome underscores the need for changes through better policy approaches to increase resource allocation, and enhance implementation standards. As a result, there is a pressing need for specific sector-oriented resettlement policies for Myanmar's hydropower development, drawing from lessons learned from past and ongoing resettlement processes. National as well as Local Authorities and developers/investors in hydropower projects need to safeguard the lives, welfare, culture, and human rights of the resettled people by minimizing their economic loss or regional impact. They also need to improve substantially project performance in the displacement and resettlement. Moreover, more systematic procedures, guidance for implementation staff, and a focus on the treatment of resettlement are required across joint venture and state-owned projects. Across all three projects, landless households faced severe livelihood pressure and encountered cultural and traditional consequences. Their primary struggle was the real hardship in maintaining their livelihoods. Additionally, there is neither a legal requirement nor informal recommendation to consider women, destitute elderly people, widows leading families, or specific social ethnic groups in relocation and resettlement programs. Furthermore, health risks added pressure to the resettled communities in Tha Htay because the population size was not sufficient to support healthcare personnel at their rural healthcare center. These gaps present crucial challenges for project proponents concerning scientific concerns related to affected communities.

In conclusion, the lack of focus on income generation and access to land for subsistence farming in resettlement areas emerged as a significant concern, highlighting the challenges and vulnerable aspects of restoring livelihoods that were not adequately addressed by project proponents. The experiences in these resettlement projects were not promising. Project proponents often hesitated to take the necessary steps to make land available to resettled households. The regional government should have the capacity to alter land use from forest territories to agricultural land if required, facilitate formal land titling processes including household and agricultural land, and support the creation of market opportunities for local resettled populations. Looking ahead, future large-scale hydropower-induced resettlement programs should consider a blend of land-based and non-land-based strategies to sustain the livelihoods of rural resettled communities. Solutions for resettled people should be

tailored towards agriculturally-oriented involuntary relocation. To ensure adherence to the requirements of resettlement planning, implementation, and post-project activities, and maintaining quality and monitoring progress, establishing an independent resettlement monitoring committee or commission is crucial and needs to be organized in order to accurately report the project's status, oversee corrective actions regarding land availability, compensation, and other performance issues, and reformulate guidelines for future resettlements.

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### References

1. Myint TZ (2021) Myanmar Country Report. In: Han P, Kimura S (Eds.), *Energy Outlook and Energy Saving Potential in East Asia 2020*, Jakarta, Indonesia: ERIA, pp. 192-212.
2. International Finance Corporation-IFC (2023) *Environmental and Social Impact Assessment Guidelines for Hydropower Projects in Myanmar*.
3. Wistbacka A (2018) *The gendered risks of resettlement: A case study from the Upper Paunglaung dam in Myanmar*. (Thesis). Linnéuniversitetet, Kalmar, Sweden.
4. Cornish G, Ramsay R (2018) *Gender and Livelihood in Myanmar after development-induced resettlement*.
5. Aung HJ (2014) *Social movement on Myitsone hydropower dam project in Kachin state, Burma/Myanmar*. MA thesis, Chulalongkorn University, Thailand.
6. Lin AT, Yao K (2023a) *Myanmar's Planned Resettlement and Social Impact: An Empirical Case Study*. *Environ Sci Proc* 25(1): 6.
7. Lin AT, Yao K (2023b) *Resettlement and Compensation Practice in the Context of the Tha Htay Hydropower Project in Rakhine, Myanmar*. *Water* 15(13): 2496.
8. *Upstream Ayeyawady Confluence Basin Hydropower Co., Ltd (2016) Sustainable Development Report 2013-2015. Social Related Content*.
9. *Physicians for Human Rights (2015) Forced Displacements and Destroyed Lives around Upper Paunglaung Dam in Shan State, Myanmar*.
10. Hlaing WW, Szabo S, Coper GS (2021) *Hydropower Impacts on Livelihood Capital: Evidence from the Resettlement of the Upper Paunglaung Hydropower Project, Myanmar*. *Asian International Studies Review* 22(2): 189-216.
11. Cornish G (2017) *Women & Resettlement: A case study on gender aspects at the Upper Paunglaung Hydropower Dam*. A brief of Spectrum Sustainable Development Knowledge Network.

12. Allan D (2018a) Women & Resettlement II: A case study on gender and socio-economic surveys at the Upper Paunglaung Hydropower Dam. A brief of Spectrum Sustainable Development Knowledge Network.
13. Allan D (2018b) Women & Resettlement III: A case study on analysis of gender and socio-economic survey data from the Upper Paunglaung Hydropower Dam. A brief of Spectrum Sustainable Development Knowledge Network.
14. Anonymous (2023) Still no replacement land for three resettled villages induced by Tha Htay Hydropower project (Translated from Burmese). Narinjara News.
15. Swe KN, Funakawa S, Okamoto Y, Chan N (2023) Assessment on Land use changes and Livelihood transition under the hydropower dam construction in Paunglaung Township, Southern Shan Highlands, Myanmar. *Land Degradation & Development* 34(17): 5647-5661.
16. Soe TT (2020) Perceptions on Resettlement of the Local Communities: A Case Study of Htein Pin Village in Paunglaung Region. *Research Journal*, Vol.11, University of Mandalay, Myanmar.
17. Soe TT, Khum Ja Ra N (2021) Dam Displacement and Local Power: Ruptured Villages and Widened Inequalities in the Localized Resettlement and Compensation Process of the Upper Paunglaung Dam. In: Elliot Lodge (Ed.), *The Regional Center for Social Science and Sustainable Development (RCSD)*. Faculty of Social Sciences, Chiang Mai University. Chiang Mai, Thailand.
18. Cornish G (2018) Women & EIA Processes: A case study on gender aspects of EIAs in four Myanmar projects. A brief of Spectrum Sustainable Development Knowledge Network.
19. Alistair DB Cook (2023) Post-Myitsone Relations Between China and Myanmar – More Continuity than Change? *East Asian Policy* 5(4): 99-106.



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