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Compensation for displacement caused by dam building: representation, recognition, and outcomes in Thailand

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ABSTRACT

Compensation of people affected by dam building can be unfair, leading to protests and delays. Several international guidelines exist for compensation procedures that aim at equitable and reasonable compensation. Different criteria and procedures have been proposed for valuation of lost assets and income. We investigated five dam-building projects in Thailand, and evaluated the compensation process and outcomes with a conceptual framework focused on recognition of values, representation of affected people, actual compensation and acceptance of the project and compensation by the affected people. We studied the representation and recognition of languages of valuation in the compensation negotiation processes, and outcomes of the compensation in terms of cash-for-land payments and acceptance of the projects by the affected people. We propose and applied a 'Comparative Index' to compare paid cash compensations in the five projects with average family income in the respective regions. The results show deficient representation, insufficient attention to multiple languages of valuation, low compensations for lost land and trees and low degrees of acceptance by the affected people.

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Dam projects; affected people; negotiation; equitable compensation; representation; recognition

1. Introduction

All around the world dams are being constructed for hydropower generation, water storage and flood control. In many cases families have to be resettled because of the dam building. Often those families do not have a voice in the project design and are in distress over their resettlement and uncertain, and too low, compensation for their lost assets (Scudder 2019). Determining the amount of compensation for people affected by dam building poses huge challenges. The official rules for compensation often result in low compensation that does not compensate for lost property nor lost livelihoods of the affected people, resulting in increased poverty and sustained protests by the affected people (Hess and Fenrich 2017; Vanclay 2017; Thorkildsen 2018; Shah et al. 2019). Inadequate resettlement projects and insufficient compensation for people affected by dams have been widely reported, and continues to be a problem (see e.g. Sneddon and Fox 2008; Blake 2013; Kura et al. 2017; Rousseau et al. 2017; Hoogendam and Boelens 2019; Scudder 2020).

Resettlement can be arranged if the land is compatible and the affected people agree. This land-for-land compensation often fails because of low-productive land and inadequate service levels at the site of resettlement. Compensation at replacement costs for lost land also poses many problems: affected people might

have informal or no land title deeds; too low valuation due to too low registered prices; no land available to buy; land prices elsewhere are much higher; or later in time land prices increase (Vanclay 2017; Hoogendam and Boelens 2019).

To prevent impoverishment of displaced people, resettlement and cash compensation should more than cover the lost property and livelihood opportunities of affected households, for example, through benefit-sharing as a way of compensating affected people (Cernea 2008; Hay et al. 2019). Another alternative for cash compensation could for instance be payment to affected families for improvement of ecosystem services provided by reforestation and soil conservation measures upstream of a reservoir to diminish sedimentation of the reservoir (Singer et al. 2014).

Several important guidelines and frameworks have been developed to guide proper compensation for dam-induced displacement. The World Bank issued an Environmental and Social Framework (ESF) (World Bank 2017) with guidelines on participation in project design, land acquisition, and involuntary resettlement. Hay et al. (2019) conducted a literature review covering various other frameworks to design and assess compensation schemes. They identified as main shortcoming of the existing frameworks: *'there is little analysis in the published literature of legal frameworks or institutions and their efficiency in delivering good resettlement'*

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outcomes, nor in-depth discussion of the costs and benefits of livelihood restoration' (p.2) and 'Less attention has been paid to understanding the legal, social and political frameworks around land tenure, which affect who has rights to the land, the nature of those rights, and the implications for livelihoods' (p.4). This resonates with Tagliarino (2017) who argues that international frameworks on compensation assessment, negotiation, timely payment, and appeal are not appropriately transformed into national laws and regulations in most of 50 countries they studied around the world.

This article addresses these shortcomings in an exploratory study of five recent dam projects in Thailand. Thailand is one of the countries in the world where many (101 large and 983 medium-scale) dams have been built (RID 2020). The key issue in Thailand is that compensations for displacement are low and affected people do not accept the dam-building projects. The Constitution 2550 of 2007 required an Environmental Impact Assessment (EIA) to be conducted for new dams, including consultation of affected people. However, the compensations for displaced people stayed low and the protests of affected people continue (see e.g. Kirchherr et al. 2018; Mack 2018). This results in halting of many dam projects. Examples are the Wang Hip and Klong Klai dam projects described in this article. The Thai government had planned to install 144,000 ha/year of newly irrigated area in the period from 2017 to 2036 (MOAC 2017), but could only implement 35,000 ha/year in the years 2017 to 2020 (Singto et al. 2018).

The research question for the study on the five dam construction projects in Thailand is the following: how is compensation for land resettlement organized in Thailand, and what have been the outcomes for the affected families? A conceptual framework of representation and recognition of values will be presented and used to evaluate the compensation processes in the selected dam projects. The presented research aims at better understanding the criteria of the valuation of land and livelihoods of affected people and the practices and outcomes of compensation for restoration. This better understanding will help to assess and improve the planning of restoration of livelihood in cases of involuntary resettlement. The research looks into the compensation practices of the dam-building projects to scrutinize the representation of the affected people, the recognition of their languages of valuation, and the requested, offered and actually granted compensations.

In the next sections, we will first present the conceptual framework of the study. Then the process and outcomes of compensation in the five dam projects will be described and analysed. After that, we will discuss the outcomes and finally draw conclusions and provide recommendations regarding the compensation processes.

2. Conceptual framework

To study compensation for involuntary displacement, we developed an analytical framework that looks how recognition of values and languages of valuation and representation in the decision-making process influence compensation of loss of livelihood of affected people and their acceptance and support of the project. Recognition, representation and (re)distribution can be regarded as strongly connected (Fraser 2000; Schlosberg 2004; Strzelecka et al. 2021). Recognition is related to the cultural dimension of social struggles. The struggle for recognition is about getting respect for, and acceptance of, one's meanings, imaginaries, identities, ideas, values, norms, beliefs, moral and knowledges by others. These 'others' primarily concern the decision makers, but also refer to society at large. The way people regard land, rivers, landscapes and ecosystems, and their relationship with society might be different for different groups in society. People express those worldviews in languages of valuation (Martínez-Alier 2012; Buchanan 2013). From these different worldviews, combined with different (geographical, economical and institutional) positions, different groups in society derive different interests. Official regulations for resettlement and compensation most often only recognise the dominant languages of valuation. This implies that specific forms of local livelihoods (like fishery or gathering of non-forest products from forests), and local religious and cultural valuation of places, are not taken into account in establishing compensations.

Figure 1 visualizes our developed analytical framework. It is based on the Recognition-Representation-Redistribution (RRR) framework of Fraser (2000) and Schlosberg (2004), complemented with specific elements from compensation assessment frameworks and guidelines, such as the World Bank ESF (World Bank 2017). It shows the relations between

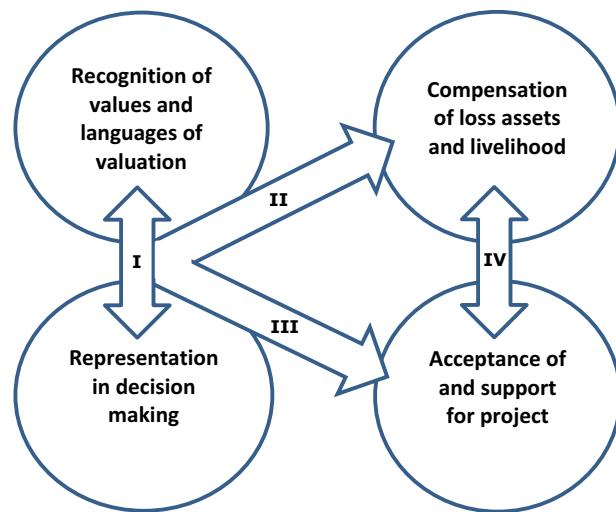


Figure 1. The relations between recognition, representation, compensation and acceptance (own elaboration, based on Fraser (2000), Schlosberg (2004) and Strzelecka et al. (2021)).

recognition of values and impact assessment, representation in decision-making, compensation and acceptance of dam projects. It is different from models proposed for designing compensation schemes for large projects such as the Impoverishment Risks and Reconstruction Model and Social Framework of Projects (Smyth and Vanclay 2017; Hay et al. 2019) in the sense that the RRR framework explicitly addresses the recognition of local forms of valuation, and links the outcomes of the compensation to acceptance of, or protests against, the proposed project. The four variables will be used for the evaluation of compensations offered in the five dam projects in Thailand.

2.1 The four variables of the conceptual framework

Recognition of values and impact assessment

To determine the impact of dam building for affected people a fair valuation of the lost assets and livelihoods has to be made. Assessment of socio-economic impacts and negotiations about compensation are usually done in monetary terms. Different values and perceptions of stakeholders are mostly not taken into account in project planning. People value land, rivers, trees, ecosystems, landscapes, houses and temples in different ways. Multiple languages of valuation are used to express those values (Martínez-Alier 2012; Buchanan 2013). In compensation processes, the valuing of land, buildings and trees is generally expressed in monetary terms. However, affected people might express the value in other terms. They might express the value in spiritual, religious, cultural, historic, or other languages of valuation. The World Commission on Dams recognises the importance of other languages of valuation in impact assessment and compensation: *'The methodologies and applications to value environmental and social impacts of dams can be used to ensure that impacts are internalised in the economic analysis where appropriate and possible. Where it is undesirable or not possible to express such impacts in economic terms, they should be considered separately as parameters in the multi-criteria analysis'* (WCD, World Commission on Dams 2000:289). Also, the World Bank Involuntary Resettlement Sourcebook establishes the inclusion of local languages of valuation explicitly: *'For losses that cannot easily be valued or compensated for in monetary terms (e.g. access to public services, customers, and suppliers; or to fishing, grazing, or forest areas), attempts are made to establish access to equivalent and culturally acceptable resources and earning opportunities'* (World Bank 2004:51). Ijabadeniyi and Vanclay (2020) argue that project developers need to take into account social values of affected people as expressed

in narratives about development and incorporate those in compensation practices that go beyond minimum compliance with international compensation standards.

It is essential to recognize all affected people (downstream and upstream of the dam, and those directly and indirectly affected by the dam and reservoir and other infrastructure), and their existing rights and uses of river water (including fishery) and the drowned land (including grazing, hunting and gathering of non-timber products from forests) (Hoogendam and Boelens 2019). Also, informal usufruct from water and land resources should be acknowledged.

The WB ESF distinguishes three routes to compensate people affected by the development (World Bank 2017:59). First, people with land-based livelihoods should be compensated with productive land, good location, and other equivalent benefits to the lost land. Second, people with resource-based livelihoods depending on rights to access affected resources, the rights to access or to use the resources must be continued or be compensated. Third, if land and natural resources are unavailable for the lost livelihood, the developers must compensate with other non-monetary compensation as money alone cannot sustain their livelihood after resettlement. Therefore, non-monetary support, such as credit, training for a new occupation, or employment is also required.

Indicators for assessment of recognition of values and languages of valuation of affected people are: availability of lost-assets valuation; the formal and customary rights to access resources; and availability of impact assessment procedures that take into account non-monetary values.

Representation of Affected People in Decision-Making

All stakeholders should be identified and should be able to participate in all cycles of the dam project. Constraints should be identified and resolved to establish a level playing field for stakeholder involvement, especially of minorities and deprived groups. Special attention should be paid to the representation of the stakeholders in the participation and decision-making process. Stakeholders should agree on the process of decision-making, dispute resolution and timeframe. The framework encourages participation of stakeholders in the decision-making process concerning resettlement and restoration, offering them choices to select the acceptable options. Participation is required at all stages of the compensation process, that is, planning, implementation, and evaluation. In the World Bank (2017) this is Environmental and Social Standard 10: 'Stakeholder Engagement and Information Disclosure'.

Schmidt et al. (2020) point out that for affected people the mere 'participation' of any type holds the risk that this participation becomes to be seen as acceptance of the outcome of the participation process. Therefore, many affected people do not want to participate as they do not accept the dam project as legitimate and do not believe their voice will be taken into account (Singto et al. 2020).

Indicators for representation include: public hearings to inform beneficiaries and potentially affected families; co-design of infrastructure; participation in decision-making; informed consent; co-governance of projects; and complaints mechanisms.

Compensation for lost assets and livelihoods

As indicated in the Introduction, Hay et al. (2019) recommend looking into the exact land tenure and compensation practices in cases of involuntary displacement. The World Bank (2017) Standard 5 'Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, Requirement' establishes that compensation offered in projects affecting income or livelihood of affected groups should be sufficient to improve or at least restore their livelihoods. Benefit-sharing with affected people is seen as an effective way to guarantee sufficient compensation (p.62). Indicators for compensation are: quantity and quality of compensated land – if provided at all (regarding land productivity, location, equivalent benefits); and availability of compensation for lost land, assets and livelihood. Furthermore, it is important to consider post-resettlement support for the affected families (Chen et al. 2021; Downing et al. 2021).

To assess the relative economic value of the paid cash-for-land compensation we introduce a 'Comparative Index' in the Methodology section that compares the compensation with the average family income in the region of the dam project. The Comparative Index helps to assess the value of the offered monetary compensation relative to the local economic situation of affected families, and can also be used to compare outcomes of compensation processes over time and over different projects.

Acceptance of the dam project and the compensation by affected people

Recognition of values and genuine representation of affected people in decision-making about a dam project will increase the acceptance of the project by the affected people. However, acceptance is a complex issue, and is much related to the experience of the affected people with government organisations and interventions. Mayeda and Boyd (2020) summarize that important causes to oppose against water resource projects are environmental impacts,

community livelihood impacts, and flawed informing and consulting processes. Del Bene et al. (2018) describe the resistance to dam construction projects and the often violent repression of protests. Chanchitpricha and Bond (2020) highlight the lack of legitimacy of impact assessment in Thailand, resulting in low acceptance of, and trust in, EIA studies.

Indicators for the acceptance and support for projects are: degree of consent; occurrence of protests and resistance; and repressive measures.

2.2 The relations between the variables of the conceptual framework

Arrow I in Figure 1 represents the mutual reinforcement of recognition and representation as outlined in the paragraph above (see also Hart et al. 2020). Arrow II indicates that compensation is more likely to conform to the demand of the affected people if their ideas, values and knowledge are recognized by the decision makers and if they are represented in the body that determines the compensation (Tagliarino 2017). Arrow III indicates the voice benefitting and affected people have in the general project design. If they have more say, it is more likely they will accept and support the project (Singto et al. 2020). Arrow IV represents the idea that people that will benefit from the project are more likely to accept and support the project, while affected people that are not duly compensated will oppose the project (Singto et al. 2021). However, local inhabitants may also oppose a dam project for other reasons than loss of livelihood. They might for instance prefer their local water management system. An example is given by Bhoomiboonchoo (2018) and Fung et al. (2019) who describe the collective *Muang Faai* irrigation systems in the North of Thailand that are threatened by the construction of concrete weirs and dams. Other reasons to oppose a dam project can be historically or politically motivated.

To protect the rights of affected people, it is important to recognize their values and make sure they have sufficient representation in decision-making arenas. However, if the building of the dam is conditional upon the acceptance of the affected people, they obtain a *de facto* 'veto right' that might come with the risk of cancellation of the project and thus depriving a potentially large group of people from the project's benefits (Sneddon and Fox 2008). In case of indigenous populations, the ILO Convention 169 from 1989 on Free, Prior and Informed Consent (FPIC) grants the affected people the right to decide on the implementation of a project (Hanna et al. 2016). However, in many cases the affected people are not indigenous people, or not recognized as such by the government. Also, in those cases, the affected people should participate in the decision-making on the planned project.

3. Methodology

To assess the effects of recognition of values and representation of affected people on compensation of lost assets and livelihood, and acceptance of the project we performed a qualitative, exploratory, study on five Water Reservoir Construction (WRC) projects in Thailand. Five dam projects were selected for analysis of the compensation process: Prong Khun Petch, Tapi-Phumduang, Huay Sai Khaw, Wang Hip and Klong Klai. Information on the dam projects and compensation was obtained mainly from literature research. For this literature research, three sources were used: first, The Cabinet Resolution of 2 May 1997 and five EIA and/or feasibility reports by the Royal Irrigation Department (RID 2001; RID 2010a, 2010b; 2016b; 2018b). Second, scientific literature on compensation processes and the specific dam projects was scrutinized. Third, grey literature including reports from NGOs and webpages was used to obtain additional information. In the case of three ongoing dam projects (Huay Sai Khaw, Wang Hip and Klong Klai) in addition to document review fieldwork was conducted by the first author. Several field visits, focus group discussions and workshops were organized in Wang Hip and Klong Klai by the first author between 2015 and 2019 (see Table 1). In the Huay Sai Khaw project 14 affected people were interviewed about land compensation and participation issues in 2019. The interviews were conducted based on ethical consideration and informed consent was granted by community leaders and interviewees.

Table 1. Overview of stakeholders involved (including public hearings, focus groups and interviews) and key data sources per project.

Water resource projects	Stakeholders involved in public hearings, focus groups and interviews	Key sources of the data
Prong Khun Petch	<ul style="list-style-type: none"> - Public hearing with 2,200 people (beneficiaries and affected families) from 124 sub-districts - Census assessment of 352 affected people (public hearing with affected families) 	<ul style="list-style-type: none"> - RID (2003) - RID (2011)
Tapi – Phum Duang	<ul style="list-style-type: none"> - A meeting with provincial officers from 3 districts, 12 local administration offices, 20 headmen of sub-districts, and 44 headmen of villages - Census assessment of 397 affected people 	<ul style="list-style-type: none"> - RID (2019a) - Online news
Huay Sai Khaw	<ul style="list-style-type: none"> - Community meeting with 398 beneficiary households - 14 semi-structured interviews in 2019 	<ul style="list-style-type: none"> - RID (2019b) - By the first author
Wang Hip	<ul style="list-style-type: none"> - 132 questionnaires with beneficiary people - 2 focus group meetings with 10 affected people each in 2019 	<ul style="list-style-type: none"> - RID (2016a) - RID (2016b) - By the first author
Klong Klai	<ul style="list-style-type: none"> - 79 questionnaires with beneficiary people - 2 focus group meetings with 10 community leaders each in 2019 	<ul style="list-style-type: none"> - RID (2017) - By the first author

To be able to compare the demanded, offered and paid cash compensations between very different geographic locations and time periods, for each project we compare the compensations per hectare with the nominal Gross Provincial Product (GPP) per capita (in current US\$) of the specific province in which the dam was built, in the year of the compensation. The GPP provides an indication of the average income per person in the province in a given year (Powell and Skarbek 2006). It must be noted that the average income for a household depends on the number of members of a household. The total compensation depends on the size of the land of a household. The compensation/GPP ratio (the Comparative Index) offers an indication of the cash value attributed to land compared to the income in a region in a particular year. This index can be taken as a rough indication of the years an average household can live from the compensation, although many specific factors influence the income needed. The Office of the National Economic and Social Development Council provides the average GPP, The National Statistical Office provides the average number of members per household (2010a), and the agricultural census (2013) the average landholding size per household (all data at the provincial level).

To collect data on the variables (b) *representation of the affected people in decision-making on the project*, and (d) *the acceptance and support for the project by the affected people*, literature study, focus group discussions and interviews were conducted.

The five dam projects in Table 2 (Prong Khun Petch, Tapi-Phumduang, Huay Sai Khaw, Wang Hip and Klong Klai) were selected as they are recent projects (started after the new Constitution of 2007), and as information on the compensation process was available.

- The **Prong Khun Petch** dam project is a medium-scale reservoir for irrigation purpose which has been under construction since 2016. The storage capacity of the reservoir will be 43.7 hm³, covering 942 ha to serve 4,480 ha of irrigated area. The dam was approved in 1989.
- **Tapi – PumDuang Irrigation System.** The Tapi-Phumduang irrigation system project was approved in 2009. Currently, it is still under construction. It will provide irrigation water to 11,840 ha.
- The **Huay Sai Khaw** project is a medium-scale reservoir for irrigation of which construction started in 2016 and was planned to finish in 2019. The designed water storage capacity is 5.4 hm³, and the reservoir will cover 680 ha. The project, initially initiated in 1978 and officially requested in 1992, aimed to support 7,368 ha of irrigated land for 398 households. The pre-feasibility study was conducted from 1998 to 2001.

Table 2. Basic information about the studied cases (source: own elaboration from the cabinet resolution of 2 may 1997: The meeting results on negotiation on the issues of AOP; RID report (2018), Singto et al. (2018)).

WRC Projects	Main purpose of dams	Water storage capacity (Hm ³)	Area of reservoir (ha)	Irrigated area (ha)	Displaced people	Total area affected (ha)	Year of establishment of compensation
Prong Khun Petch 2016–2019	Medium-scale reservoir for irrigation	43.7	942	4,480	352 people	989	2011
Tapi – Phum Duang 2009–2021	Medium-scale canals for irrigation	-	-	11,8367	397 people	576	Payment in process
Huay Sai Khaw 2016–2019	Medium-scale reservoir for irrigation	5.4	680	480	22 people	159	Delayed compensation
Wang Hip 2015–2021, not yet started	Medium-scale reservoir for irrigation	20.1	5,000	2082	68 people	151	Under strong oppositions
Klong Klai newly requested in 2015	Reservoir for irrigation	n/a	n/a	n/a	Not yet known	n/a	In planning process

- The **Wang Hip** medium-scale dam-building project was initiated in 1990. Its main intended purpose was irrigation of 2082 ha, supplementing provision of drinking water for the town of Thung Song (27,000 inhabitants), and flood control (RID 2016a, 2017). The construction was planned to start in 2015 and the project would be concluded in 2021. Its water storage capacity would be 20 hm³ and the reservoir would cover 81.6 ha.
- The original **Klong Klai** water resources project was first proposed in 1996 as part of the Southern Seaboard Development Project. The proposed medium-scale dam would have a water storage capacity of 62 hm³, provide water for industry development, and affect 95 ha belonging to 64 households according to the census and assessment of impacts. From 2015 a new and different project was proposed to construct infrastructure to provide water for agriculture, and control riverbank erosion and flooding in the downstream part of the catchment.

Figure 2 gives an overview of the location of these cases and Table 1 presents basic data on each project.

4. Legal context: regulations for compensation in Thailand

The Rules of the Office of the Prime Minister about public hearings 2548 (2005), and especially the Constitution 2550 (2007) Section 7 Paragraph 2, specified that all development projects had to arrange a participatory process for affected people to speak

out about involuntary resettlements and compensation. The 2007 Constitution marked a clear change towards a more participatory approach. In the following the specific regulations for compensation for displacement are described (see also summary in Table 3).

4.1 Land expropriation laws and regulations in Thailand

In Thailand, offering land-for-land compensation is virtually impossible because all land suitable for agriculture is occupied by farmers, or situated in protected forest reserves. Therefore, cash-for-land is offered as compensation.

The regulations on compensation changed as a response to prolonged protests of people affected by dams. Established in 1995 to protest against the Pak Mun dam, the NGO Assembly of the Poor (AOP) had an important role in the support of the local protests. Functioning as a national platform of local movements, AOP mobilizes negotiation power vis-a-vis government authorities.

As a reaction to these demands, the Thai government implemented public hearings and transparency of information through Act 1997 (2540). Additionally, according to Ministry of Natural Resources and Environment Notification (2012), all dam projects supplying an irrigated area of more than 12,800 ha (80,000 rai) require an Environmental Impact Assessment (EIA). In June 2013, the Administrative Court ruled necessary a public hearing and an EIA before signing any land purchase contract. The EIA evaluates the benefits and impacts of the proposed project. The EIA has to be approved by the Ministry which should have consent



Figure 2. Location of cases of water reservoir construction projects in this article (source: own elaboration based on google earth).

of the president(s) of the sub-district(s) affected by the dam building. The affected communities do not have a veto right.

The Act of Land Acquisition 1987 (2530) established the guidelines for determining compensation levels, that is, compensation should be based on market prices for land, registered prices for land transactions, character and location, and reason of purchase (RID 2010a). The Census Committee, chaired by the Provincial Governor, and appointed by the Ministry of Agriculture and Cooperatives, determines the amount of land held and the ownership in case of title deeds.

and the land used in the case of informal use (without title deeds). The Land Acquisition Act distinguishes three methods to determine compensations, depending on the land tenure situation:

(1) Land with title. If landowners agree to sell: the deliberative method is applied. The Cabinet Resolution of 10 October 1957 (2500) establishes that first the corresponding department should negotiate a price with the affected people. If they disagree and the land is required, then the Act of Land Acquisition is applied. According to the Act of Land Acquisition of 1987 a Land Valuation Committee is established that

Table 3. Laws related to land acquisition in Thailand (source: own elaboration based on RID 2010a).

	With title deed	Without title deed	
	Owner agrees with compensation	Owner disagrees with compensation	
Land acquisition method	<ul style="list-style-type: none"> • Negotiating land price 	<ul style="list-style-type: none"> • Decree of Land Expropriation • Land acquisition method paying for titled land 	<ul style="list-style-type: none"> • Cabinet resolution 11 July 2532 (1989) • Relocation allowance for land used under customary rules
Assignment of committeees to determine the values of land and crops	<ul style="list-style-type: none"> • Compensation valuation is calculated according to the Land Acquisition Act 2530 (1987) • Land Value Committee is assigned by the Agricultural Minister, the District Governor is the chair of the Committee 	<ul style="list-style-type: none"> • Compensation valuation is calculated following the Decree 1987 section 9 paragraph 4 • Land Valuation Committee is assigned by the Agricultural Minister, the District Governor is the chair of the Committee 	<ul style="list-style-type: none"> • The price is evaluated regarding Cabinet Resolution, then the affected people can appeal against the set compensation. • Land Valuation Committee appointed by Cabinet Resolution, the Provincial Governor is the chair of the Committee
Approval of compensation payment	<ul style="list-style-type: none"> • Check, prioritize and approve the compensation list by RID 	<ul style="list-style-type: none"> • Check, prioritize and approve the compensation list by RID • If still disagreements, the Cabinet can approve • If still refused, appealing to the court for the final decision on the compensation 	<ul style="list-style-type: none"> • The Committee assigned by Cabinet resolution decides on the offer by the Land Valuation Committee

determines the price. According to the Order of Ministry of Agriculture and Cooperatives of 7 September 2009 (2552) the Land Valuation Committee comprises of the District Governor as the chair and further includes the chief of land registration in the province from the Land Department, the president of the local government council, and the chief of land acquisition of RID in the area. This price should not be higher than the latest transaction price as registered in the official land transfer register. The Committee proposes the price to RID for its approval.

(2) Land with title. If landowners disagree to sell: The Decree of Land Expropriation is applied with the same Land Valuation Committee. A land survey is issued and announced in places near the disputed land and the local government offices. The land survey is conducted to establish actual size, ownership and crops. If the landowners agree with the purchase, but disagree with the offered price, they may appeal to the Ministry of Agriculture and Cooperatives. This Ministry will assign five land experts to propose their comments to the Cabinet for making a decision. If the landowners refuse the offered price, they may start a lawsuit within a year after the Cabinet decision.

(3) Land without title deeds. Cabinet Resolution 11 July 1989 (2532) is applied, whether the land users agree or not. This happens when RID is allowed by other government departments to use the land for WRC, but it finds later that the land is occupied and used by one or more persons for a longer period, but without land title. The Cabinet Resolution aims to implement the project and compensate this group of people with a 'relocation allowance' compensating lost income from assets including land, buildings and crops on the land. The process is similar to the previous methods, except the chair of the Compensation Valuation Committee has to be the Provincial Governor instead of the District Governor. There are

no concrete criteria for the relocation allowance, but this should be lower than the acquisition price of land with title. In practice, it is often half.

Lost perennial crops are also compensated, and this might be a substantial part of the total cash compensation. According to the Cabinet Resolution 11 July 1989 (2532), buildings and perennial crops must be compensated, excluding annual crops. The Census Committee proposes the price for compensation from the census survey. The Agriculture Department established a crop valuation method with standard prices for perennial crops and number of trees per unit of land (RID 2013).

5. Results: compensation processes and outcomes of five dam projects

In this section, the compensation process for the five case studies is described.

5.1. Prong Khun Petch Dam

According to the regulations on 10 July 1989 a survey committee was appointed, chaired by the Provincial Governor and with half of the members selected from the community, to conduct a census to identify the affected people that needed to be compensated for land, either with land title or without. Land compensation was based on market prices of land in the area. The project affected 69 households, or 352 people. An EIA was not needed due to its small size. The compensation was ordered to be paid in 1989 at 1,460 US\$/ha. As of 2019, some compensations had been paid, and some were still in the process.

In 1996, several NGOs requested to study the environmental impact more in depth and the construction to be stopped. Consequently, the government ordered to suspend the project in April 1996. However, some

500 farmers mobilized in favour of the project and demanded the continuation of the project. During a public hearing in February 1997 some 22,200 people from the five involved districts almost unanimously expressed their support for the project (only 4 people voted against the dam) (RID 2003, 2011). Nevertheless, the government ordered to halt the project, together with other dam projects, on 29 April 1997. In the same year, another public hearing was arranged in 124 sub-districts inviting representation of communities in voting. This time, 122 sub-districts agreed with the reservoir against two that remained in disagreement, but the votes did not focus on the fate of the affected people.

Meanwhile, the people that opposed the project, supported by NGOs, such as AOP, demonstrated to stop the project due to environmental concerns and demanded a new census in which half of the committee members would be proposed by the NGOs. Finally, in 2005, the government commissioned a study on environmental and social impacts and to compensate lost livelihoods in economically and socially appropriate manners. This study was done in 2007 with participation of the communities. Upon implementation of these compensations, affected people that had received the compensation of 1,460 US\$/ha before the project was stopped in 1996 protested because those who received compensation in 2011 received a higher amount. In April 2011, the government endorsed the equal compensation for both groups (RID 2011). The government approved the continuation of the project in 2016.

5.2. *Tapi – PumDuang irrigation system*

No EIA study was necessary because of the relatively small size. Representation of affected people was established in a meeting chaired by the Provincial Governor. He agreed upon the requests to arrange public participation and allow benefited and affected people to propose alternative solutions and assess the support for the project. A census assessed the number of affected people, differentiated by type of land title. The project will affect 397 farmers owning a total of 576 ha. Reports in the local media showed different numbers of affected people and area of land acquisition.

After the project approval, the project was met with strong resistance. Nevertheless, the decree of land expropriation was issued in April 2011. The affected people demanded an explicit rate of compensation, as unclear information was the prominent issue of opposition against the project. The compensation offered was 14,600 US\$/ha with title deeds, where the affected people requested 91,240 US\$/ha. Loss of jobs, absence of benefit sharing, and unavailability of equivalent land on the market were other reasons for opposing the

compensation offered. Uncertainty also arose on the presumed land use change from paddy rice to less water consuming crops such as para rubber and oil palm. Compensation for land at market price was offered; however, no collective restoration support was offered. Although the opposition caused a delay, the government re-approved the project in 2017 with more participation of the villages but without additional compensation. Still some 200 farmers did not want the project, and continued to refuse the offered compensation, resulting in more delay of the project.

5.3. *Huay Sai Khaw Dam*

Representation in the project design was through community leaders participating in meetings. The participation was mainly about the details of the project, but the time of construction and schedule of the payment of compensation were not clearly informed during the planning process. There was no consultation on the design options. Based on the census, some people would lose parts of their land, and 22 people had to be displaced.

The valuation discourse was focused on compensation rate and the moment of payment. The affected people's requested amounts were almost twice as high as those on offer, and additionally land prices had increased considerably in the region as a result of the increased demand for land. This made it completely impossible to buy the same area of land as lost to the reservoir (RID 2019b). One main issue was that the local people had known for years about the construction of the dam, but did not know when construction would start. With the expropriation process underway farmers stopped fertilizing their land, but the construction was only started 15 years after the pre-feasibility study was completed. To restore livelihoods, land with title deed was offered 37,338 US\$/ha, and land without title deed 30,052 US\$/ha. The payment of the compensation showed many delays due to the bureaucratic fiscal budget system. Payments started in 2017, however, as of 2019 the 22 displaced people had not been paid fully yet. Most of the farmers accepted the offer, as they acknowledged the project already for a long time. They just asked for a quick payment. Only a few farmers did not accept it.

5.4. *Wang Hip*

Representation in decision-making as regulated under the EIA minimum requirement started in 2009 and the project was approved in 2015. The affected people argued that they did not participate in the beginning of the planning process and consultation meetings that are part of the EIA, and stated that only the people who agreed with the dam were invited. The developers insisted that the invitation was distributed to them, but

they refused to attend the meetings. The affected people would lose 150.8 ha of land officially owned by 68 affected people (Singto et al. 2018).

The affected people protested fiercely against the construction of the dam. They regarded the benefits of the project to be unrealistic and overestimated, and the negative effects for the environment and their community to be underestimated. They expressed their valuation of the river, community, houses and trees in terms of place-based values. During interviews, they stressed their deep-felt connection with the free-flowing river near their village.

During the EIA process, the compensation for land was established at US\$ 41,000 per ha based on the official procedure that uses the officially registered land transaction price and compensation for the lost tree crops. However, this land price is lower than the real market price, and the affected people claim their crops, including para-rubber, are worth much more. The affected people demanded US\$ 90,000 per ha (RID 2016b), which the RID could not pay, as RID has to follow the official rules for establishing land and crop valuation. Furthermore, a large part of the rubber tree plantations was situated in a protected forest and not taken into account for compensation. The affected families refrained from participating in the talks about compensation because they did not trust the government, and continued to fiercely oppose the project.

5.5. Klong Klai

In 2015 farmers requested RID to develop a new design for a dam to provide water for agriculture, control riverbank erosion, and control flooding in the downstream part of the catchment. The project was started with the newly introduced 'Community-Based Irrigation' (CBI) approach, with representatives of the communities participating in the design (RID 2017). The CBI members were representatives of local farmers from the Krung Ching river basin covering 54 villages in five sub-districts assigned by RID to study water problems and find acceptable interventions to solve the water problems. Community leaders nominated the CBI members (Singto et al. 2018).

This CBI process was a follow-up to an earlier proposed WRC project. The affected people opposed strongly to the initially proposed dam project, mainly because the project would benefit the industry rather than agriculture, leading to the cancellation of the proposed project design in 2008. Although the water in the newly proposed project would not be for industry development, the village V6 resisted this plan as they feared their land would not be compensated because many farmers did not have land title deeds, or that land would not be sufficiently compensated for the current high income from durian fruit production. Currently, the

process is underway to find another location for the dam. Balanced representation of different groups in the design process, trust, and access to information are needed to come to fruitful negotiation, but have been insufficiently present until the end of the field research, despite the participatory CBI approach. Restoring livelihoods and compensation were not set as an agenda in the CBI implementation to avoid that conflicts would disrupt the participatory planning in the early stage of the project preparation process.

6. Analysis of case studies according to conceptual framework

In this section, we will discuss and compare the five cases according to the four features of involuntary resettlement presented in Section 2: (a) Recognition of values and impact assessment, (b) Representation of affected people, (c) Actual compensation of lost assets and livelihoods, and (d) Acceptance of, and support for, project by affected people.

6.1 Recognition of values and impact assessment (variable (a) from Figure. 1)

The compensation process in Thailand focusses on monetary compensation. The language of valuation of the government is in terms of the market value of the land and buildings, as officially registered, and the cash value of the perennial crops on that land. The villagers also use the economic values to express the value of their land (although they claim higher prices), but also deploy other languages of valuation. The affected people stressed the ecosystem and natural values of the land. For example, during a focus group an affected farmer in the Wang Hip case exclaimed: *'The forest in Wang Hip area is abundant where almost extinct animals inhabit'*. This value was supported by environmentalists that massive amount of water will negatively affect the fish inhabiting shallow water. The inhabitants attribute spiritual and cultural values to the river and forests. An affected farmer in the Klong Klai case raised the cultural belief issue: *'The spirit of Klong Klai river will no longer protect us if the dam construction brings drastic change to the river'*. This value expression did resonate and was not side-lined. The World Bank (2017) stresses the importance of recognition of other than economic values.

When assessing the impacts of dams, according to the World Bank (2017) it is important to take into account all affected people and their direct and indirect uses of the river and drowned land. In Thailand the assessment of impacts can be part of the EIA or a public hearing. In several cases, affected people accused the government of not wanting to conduct

an EIA while this was demanded, or that the EIA was not executed well as part of the affected people was not consulted. Enríquez-de-salamanca (2018) argued that the possible bias in the EIA can be reduced by delicately balancing the political power of the stakeholders in the assessment process.

From the cases, especially Prong Khun Petch, it becomes clear that the Thai law had great difficulty in recognizing non-land-based impacts. Impacts on hunting, grazing and gathering of non-forest products were mostly ignored. This makes that large differences exist in the number of people that claim to be impacted, and the actual number of people recognized as affected (Siciliano and Urban 2017). For the government, it is hard to recognize non-land-based deprived people as it risks attracting and rewarding non-grounded claims by outsiders. This problem could be tackled by working closely together with the local communities that know and have registered the people using the affected resources. Another major problem for the compensation is the fact that many affected people do not have title deeds of the land they cultivate. This is tackled by granting them a relocation allowance, but at lower rates as compared to the land with title deeds. Moreover, the long period between the initial project meetings and the start of the construction creates much uncertainty and not-compensated loss of income (Kirchherr et al. 2018; Singto et al. 2021).

6.2 Representation of affected people (variable (b) in Figure. 1)

According to the World Bank (2017) guidelines, affected people should be able to participate at all four levels: be informed, be consulted, by collaboration, and by joint decision-making. In Thailand, the 2007 Constitution stipulated that affected people must be heard. Laws and regulations stipulated various mechanisms for participation: through EIAs, through public hearings, and through representation in the Land Valuation and Compensation Committees. Consultation in the overall project objectives and design has recently been introduced through the Community-Based Irrigation approach (RID 2017).

The case studies show different forms of participation of the affected people. In the case of projects with prior EIA studies the affected people were informed and consulted. However, in most cases information provision to – and representation of affected people in the Land Valuation and Compensation Committees – was deficient. Although community-based design can be useful in resolving conflicting interests related to dam building (Del Bene et al. 2018), even the new commu-

nity-based approach did not yet lead to joint design of the WRC project because of mistrust and conflicting interests of the villages. This echoes Tagliarino (2017) that laws and regulations applied in most of WRC projects around the globe have not effectively implemented the WB guidelines on representation of displaced people.

6.3 Compensation and restoration or improvement of livelihoods (variable (c) in Figure. 1)

The World Bank (2017) stresses the importance of a compensation that improves the livelihoods of the affected people, which should preferably take the form of benefit-sharing to restore livelihoods (Cernea 2008). In Thailand the compensation is based on the Land Acquisition Act of 1987. In the regulation the land price is the market price, as registered in the official register of land transactions. It takes into account not only the land with officially registered title deeds, but untitled land also. In Thailand, benefit-sharing is not practiced as a way to compensate affected people.

Table 4 provides an overview of the economic values demanded by the affected people and the compensations approved by the government. The table shows that these approved prices were lower than requested. The requested prices referred to the market value, where the approved prices reflect the registered prices from the Land Department. We compared the offered compensation with the GPP. Strikingly, this 'Comparative Index' shows that displaced people would be able to sustain themselves for 7.8 years following displacement.

In absolute terms, it becomes quite clear that families cannot live long from the cash compensation they receive for their land. An example calculation for the Wang Hip project to illustrate this: assuming a household has 3.3 members and 2.05 hectares of land their cash compensation would be $2.05 \times (\text{US\$ } 10,939 \text{ for land} + \text{US\$ } 32,161 \text{ for crop}) = \text{US\$ } 88,269$. The household would need some $3.3 \times 2,704 \text{ US\$}/\text{year}/\text{person}$, or 8,923 US\$. The Comparative Index is 9.9, implying the family could only live some ten years from their compensation. This finding is in line with Vanclay (2017) and Cernea (2008) who state that although improvements are being made in consultation of affected people in dam planning processes, there are high risks of impoverishment of affected people.

Ways to improve the compensation would be to index approved prices per hectare to the GPP in the region of the dam project and to account for the time before new sources of income are developed (e.g.

Table 4. Demanded and offered land compensation compared with GPP per capita.

WRC projects	Province	Year of compensation (A)	Approved compensation (\$/ha) (B)	Average land size /household (ha) in 2013 (C)		Crop compensation (\$/ha) (E)	Crop compensation \$/household (F) (CxE)	Lost occupation allowance (\$/household) (G)	Total compensation/ household (H)	Average members/ household Y2000/ 2010 (I)	Compensation/ members (J)	GPP/capita (\$/year) (K)	GPP/Comparative Index (L) (J/K)
				Average land size /household (ha)	compensation/ household (D) (BxC)								
Prong Khun Patch	Chaiyaphum	2011	10,249	3.50	35,911	—	—	—	35,911	3.3	10,882	1,662	6.5
Tapi – Phum Duang	Surat Thani	2009	14,571	3.49	50,822	22,767	79,411	—	130,233	3.3	39,465	3,567	11.1
Huay Sai Khaw	Krabi	2017	14,733	2.51	37,008	22,767	57,191	—	94,199	3.5	26,914	7,051	3.8
Wang Hip Klong Kliai	Nakhon Si Thammarat	2015	10,939	2.05	22,403	32,161	65,866	—	88,269	3.3	26,748	2,704	9.9
Average	n/a	n/a	n/a	2.05	n/a	n/a	n/a	n/a	n/a	3.3	n/a	n/a	n/a
										7.8			

A: The year the land compensation was approved

B: The compensation rate refers to the inundated area with land title deed in general, not considering the distances from roads and other facilities and buildings

C: Average land size/household in the province (The National Statistical Office, 2014)

E: Crop compensation based on EIA meeting reports RID_2001; RID_2003, 2011, 2016b, 2018b); assumed for compensation calculations are main crops: oil palm for Tapi – Phum Duang and Huay Sai Khaw, and para rubber for Wang Hip. In the Prong Khun Patch project no tree crops were grown

F: The Secretariat of the Cabinet (1997)

I: Average number of members per household is taken from the Y2013 database (The National Statistical Office, 2014)

K: Gross Provincial Product based on Office of the National Economic and Social Development Council (2017) <https://www.nesdb.go.th/main.php?filename=grossRegional>

L: The Comparative index compares the compensation paid in US\$ to the Gross Provincial Product (GPP) per person in the year of compensation in the corresponding province. It reflects the number of years settlers can maintain an average living standard if the compensation is not reinvested.

Table 5. Overview of key findings.

Key aspects to analysing compensation processes	Findings from the five case studies
(a) <i>Recognition of values and impact assessment</i>	<ul style="list-style-type: none"> - Affected people were not consulted. - Difficulty in recognizing non-land-based impacts - Affected people did not have title deeds
(b) <i>Representation of affected people in decision-making</i>	<ul style="list-style-type: none"> - Representation of the land valuation and compensation committees was deficient - Not yet led to co-design because of mistrust and conflicting interests
(c) <i>Compensation for lost assets and livelihoods</i>	<ul style="list-style-type: none"> - Benefit-sharing is not practiced to compensate affected people. - Families cannot live long (comparison index = 7.8) from cash compensation for their land. - No post-relocation support
(d) <i>Acceptance of the dam project and the compensation by affected people</i>	<ul style="list-style-type: none"> - Disputes against environmental, community livelihood, and flawed processes. - Low acceptance of, and trust in, EIA studies.

project delays and time before tree crops start producing). Such adjustments are pivotal to restoration of livelihood and the resettlement plan should be taken into account in the early planning process (Singto et al. 2021).

6.4 Acceptance of, and support for, the project by the affected people (variable (d) in Figure. 1)

In negotiations about the compensation, demands from affected people might not directly relate to the value of their property or livelihood. They express their disagreement with the project rather than disagreement with the compensation as such. They might oppose the dam construction for various, very different reasons, related to mistrust in the government or disagreement with the public purpose of the dam, the technical design of the project, or with the destruction of the natural habitat and aquatic and forest ecosystem (Mayeda and Boyd 2020). In this sense, the opposition and protests of affected people are not always to demand better compensation.

In the Tapi-Phumduang, Klong Klai and Wang Hip projects an important part of the farmers did not want the projects. That is why they did not accept the offered compensation. This is the reason why these projects are delayed and unfinished until now. In the case of the Huay Sai Khaw project, most of the farmers accepted the offered compensation because they acknowledged the project. Also, in Prong Khun Petch most farmers accepted the offered compensation (after both groups received equal payment per hectare).

In Table 5 the findings from the five case studies are summarized according to the four key aspects of the framework.

7. Discussion on the added value of the conceptual framework to existing frameworks

In the above section, we analysed the five dam projects with the four variables of the developed conceptual framework. The analysis confirms and coincides with three main points from the overview of frameworks to scrutinize dam-induced displacement presented by Hay et al. (2019). The first point that coincides with our framework is the importance of considering social, cultural and non-monetary economic costs of displacement. These costs can best be understood by taking into account multiple languages of valuation. The second point of the review that coincides with our framework is the importance of understanding the local legal context of land tenure arrangements. Interestingly, our study found that the low valuation of the land was caused by the custom of the farmers to register low land transaction prices to evade taxation. Thirdly, we agree with the importance of social power of stakeholders in their representation in negotiation about resettlement and compensation for lost assets and livelihoods.

Applying our framework to the five cases in Thailand also showed two important aspects that are not considered in the overview of frameworks by Hay et al. (2019), and were also not mentioned in the overview articles of Vanclay (2017; 2020). First, our study showed the importance of trust of the affected communities in government organizations. In several cases, the communities did not want to participate in meetings with RID officials. The mistrust was partially caused by past negative experiences of the community with government organizations and partially by disagreement with the proposed dam projects in which the affected communities had no say. Many affected people were not willing to accept any compensation offered. There was a lack of decision-making power of the affected communities over the dam projects themselves and compensation of lost assets and livelihood. Secondly, our study showed the usefulness of comparing the cash-for-land compensation with the nominal Gross Provincial Product (GPP) of an average affected family. The used index showed that affected families could only live from the cash compensation for an average of some seven years. The drawback of the use of the Comparative Index is that it does not take into account non-monetary benefits. Also, it is hard to establish how much a minimum Comparative Index should be in the case of cash compensation for land, as the source of the livelihood is taken away, even 10 years of income will not sustain the families after that period.

8. Conclusion and recommendations

The compensation of affected people of five dam construction projects in Thailand was scrutinized. Recent and ongoing projects were selected to verify the compensation following the Constitution of 2007, which led to more representation of affected communities through the EIA process. The key findings are: (1) that the representation of affected people had been limited (for example, not in all cases an EIA was required); (2) Non-economic, cultural and social values were not taken into account in the compensation process; and (3) The low cash compensation and low degree of representation and misrecognition of values held by the affected people led to protests and low degree of acceptance of both the offered compensation as well as the dam projects themselves. Low acceptance of the projects was also related to mistrust in the government organisations.

The comparative analysis with the 'Comparative Index' relating compensation for a household member with GPP per capita revealed that the cash compensation was not sufficient to buy new land. The Comparative Index had an average of 7.8. This is insufficient to sustain a living over a prolonged time and make investments for a new sustained income generation. The official regulations in combination with registration of low land prices by the farmers made it impossible for the government to pay higher compensations.

Based on the findings of the exploratory study four main recommendations can be made.

First of all, it is imperative to consider more effective representation of affected people in decision-making and recognize their languages of valuation to guarantee fair compensation. Compensation should be on the agenda in the early planning stages and village communities should be involved in land surveys and census committees to determine who is affected.

Secondly, non-land-based income (fishery, forest products) and non-economic values should be taken into account. The government should shift from present formally registered market values to deprived future income as a baseline to compensate. This shift of objective may increase compensations substantially, and consequently also increases costs of investment. An alternative might be to offer benefit-sharing from the projects revenues. The new 2017 Constitution does seem to hold promise in this regard.

Thirdly, implementation of plans for resettlement and timely compensation should be enforced and monitored. This will enhance the chance of a fruitful resettlement and fair compensation. In Thailand, the RID is responsible for executing the payment to affected people. In the studied cases, approved payment schemes were executed but sometimes took many years, which affected the affected people

negatively. Moreover, appeal mechanisms should be in place for affected people to appeal against decisions. If conflicts arise a third party should be installed to mediate the interests, rules and practices of all involved stakeholders.

Finally, as this exploratory research was based on only a small sample of projects, more research should be done to understand the effect of early engagement of affected people in dam projects and recognition of cultural, social and non-economic values on the levels of compensation and acceptance. Also, the analysis should be expanded to study the impact of the new 2017 Constitution on valuation and compensation processes.

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References

Bhoomiboonchoo C (2018). The Recognition of Muang Fai water resource management customary law for the sustainable development of Thailand. (PhD thesis)

Blake D (2013). Sirindhorn dam affected communities still seeking justice and compensation. International Rivers; [accessed 10 March 2021], retrieved from: <https://www.internationalrivers.org/blogs/294/sirindhorn-dam-affected-communities-still-seeking-justice-and-compensation>

Buchanan KS. 2013. Contested discourses, knowledge, and socio-environmental conflict in ecuador. *Environ Sci Policy*. 30:19–25. doi:[10.1016/j.envsci.2012.12.012](https://doi.org/10.1016/j.envsci.2012.12.012).

Cerneia MM. 2008. Compensation and benefit sharing: why resettlement policies and practices must be reformed. *Water Sci Eng*. 1(1):89–120. doi:[10.1016/S1674-2370\(15\)30021-1](https://doi.org/10.1016/S1674-2370(15)30021-1).

Chanchitpricha C, Bond AJ. 2020. Evolution or revolution? Reflecting on IA effectiveness in Thailand. *Impact Assess Project Appraisal*. 38(2):156–166. doi:[10.1080/14615517.2019.1664821](https://doi.org/10.1080/14615517.2019.1664821).

Chen X, Vanclay F, Yu J. 2021. Evaluating Chinese policy on post-resettlement support for dam-induced displacement and resettlement. *Impact Assess Project Appraisal*. 39 (5):396–404. doi:[10.1080/14615517.2020.1771051](https://doi.org/10.1080/14615517.2020.1771051).

Del Bene D, Scheidel A, Temper L. 2018. More dams, more violence? A global analysis on resistances and repression around conflictive dams through co-produced knowledge. *Sustainability Sci*. 13(3):617–633. doi:[10.1007/s11625-018-0558-1](https://doi.org/10.1007/s11625-018-0558-1).

Downing TE, Shi G, Zaman M, Garcia-Downing C. 2021. Improving post-relocation support for people resettled by infrastructure development. *Impact Assess Project Appraisal*. 39(5):357–365. doi:10.1080/14615517.2021.1980277.

Enríquez-de-salamanca Á. 2018. Stakeholders' manipulation of environmental impact assessment. *Environ Impact Assess Rev*. 68:10–18. doi:10.1016/j.eiar.2017.10.003.

Fraser N. 2000. Rethinking recognition. *New Left Rev*. 3:107–120. May/June.

Fung Z, Pomun T, Charles KJ, Kirchherr J. 2019. Mapping the social impacts of small dams: the case of Thailand's Ing River basin. *Ambio*. 48(2):180–191. doi:10.1007/s13280-018-1062-7.

Hanna P, Vanclay F, Langdon EJ, Arts J. 2016. The importance of cultural aspects in impact assessment and project development: reflections from a case study of a hydroelectric dam in Brazil. *Impact Assess Project Appraisal*. 34(4):306–318. doi:10.1080/14615517.2016.1184501.

Hart B, O'Donnell E, Horne A. 2020. Sustainable water resources development in northern Australia: the need for coordination, integration and representation. *Int J Water Resour Dev*. 36(5):777–799. doi:10.1080/07900627.2019.1578199.

Hay M, Skinner J, Norton A. (2019). Dam-induced displacement and resettlement: a literature review. FutureDAMS Working Paper 4. Manchester: The University of Manchester.

Hess CEE, Fenrich E. 2017. Socio-environmental conflicts on hydropower: the São Luiz do Tapajós project in Brazil. *Environ Sci Policy*. 73:20–28. doi:10.1016/j.envsci.2017.03.005.

Hoogendam P, Boelens R. 2019. Dams and damages. Conflicting epistemological frameworks and interests concerning "compensation" for the misicuni project's socio-environmental impacts in Cochabamba, Bolivia. *Water*. 11 (3):408. doi:10.3390/w11030408.

Ijabadeniyi A, Vanclay F. 2020. Socially-Tolerated practices in environmental and social impact assessment reporting: discourses, displacement, and impoverishment. *Land*. 9 (2):33. doi:10.3390/land9020033.

Kirchherr J, Pomun T, Walton MJ. 2018. Mapping the social impacts of 'Damocles projects': the case of Thailand's (as yet Unbuilt) Kaeng Suea ten dam. *J Int Dev*. 30(3):474–492. doi:10.1002/jid.3246.

Kura Y, Joffre O, Laplante B, Sengvilaykham B. 2017. Coping with resettlement: a livelihood adaptation analysis in the Mekong River basin. *Land Use Policy*. 60:139–149. doi:10.1016/j.landusepol.2016.10.017.

Mack L (2018). Rasi salai dam violates people's cultural rights. *The Isaan Record*; [accessed 8 March 2021]. retrieved from: <https://isaanrecord.com/2018/12/13/rasi-salai-dam-violates-peoples-cultural-rights/>

Martínez-Alier J. 2012. Social metabolism, environmental cost-shifting and valuation languages. In: Jf G, Steppacher R, editors. *Towards an Integrated Paradigm in Heterodox Economics*. London: Palgrave Macmillan. 51–73. doi:10.1057/9780230361850_5.

Mayeda AM, Boyd AD. 2020. Factors influencing public perceptions of hydropower projects: a systematic literature review. *Renewable Sustainable Energy Rev*. 121:109713. doi:10.1016/j.rser.2020.109713.

Ministry of Natural Resources and Environment Notification. 2012. Ministry of natural resources and environment notification. Type and sizes of projects or activities required environmental impact assessment, criteria, procedures and guidelines. *R Gaz*. 127(97):1–31. dated 20th June B.E. 2555.

MOAC. 2017. The strategy of ministry of agricultural and cooperatives for 20 years (2017-2036). Ministry of agricultural and cooperatives. Bangkok (Thailand); p.1–24. <https://www.opsmoac.go.th/strategic-files-401191791792>

Powell B, Skarbek D. 2006. Sweatshops and third world living standards: are the jobs worth the sweat? *J Labor Res*. 27 (2):263–274. doi:10.1007/s12122-006-1006-z.

RID (2001). Post EIA report of the Khun Dan dam. The Royal Irrigation Department, Bangkok.

RID (2003). Project information report of Prong Khun Petch dam. (RID Office of Project Management), Ed.; Royal Irrigation Department: Bangkok.

RID. 2010a. Manual for water resources development: land acquisition for irrigation. Bangkok: Royal Irrigation Department; p. 1–2.

RID (2010b). The report of studying environmental and social impacts of Prong Khun Petch. Royal Irrigation Department, Bangkok.

RID (2011). The report of studying environmental and social impacts of Prong Khun Petch. (RID Office of Project Management), Ed.; Royal Irrigation Department: Bangkok.

RID. 2013. List of moving free and crops affected by irrigation projects. Bureau of Legal Affairs and Land. Bangkok: Royal Irrigation Department.

RID (2016a). Environmental impact assessment EIA report; Wang hip project, Nakhon Si Thammarat province t; (RID Office of Project Management), Ed.; Royal Irrigation Department: Bangkok.

RID (2016b) Meeting report of mitigation to affected people in Wang Hip project on 20-Jan-2016. public participatory promotion division. Royal Irrigation Department, Bangkok.

RID (2017) Community-based irrigation report of water resources development project of Tha Sala and Nop Pitam districts in Nakhon Si Thammarat. Public Participatory Promotion Division. Royal Irrigation Department, Bangkok.

RID (2018b). Environmental impact assessment EIA report; Huai Kra Lang project, Chaiyaphum province t; (RID Office of Project Management), Ed.; Royal Irrigation Department, Bangkok.

RID (2019a). Tapi - PumDuang irrigation system report. Bureau of Large Scale Water resources Development. Royal Irrigation Department, Bangkok.

RID (2019b). Land acquisition report of Huay Sai Khaw reservoir. Bureau of legal affairs and land. Royal Irrigation Department, Bangkok.

RID (2020). Annual report, Royal Irrigation Department, Bangkok.

Rousseau J-F, Orange D, Habich-Sobiegalla S, Van Thiet N. 2017. Socialist hydropower governances compared: dams and resettlement as experienced by dai and Thai societies from the Sino-Vietnamese borderlands. *Reg Environ Change*. 17(8):2409–2419. doi:10.1007/s10113-017-1170-0.

Schlosberg D. 2004. Reconceiving environmental justice: global movements and political theories. *Env Polit*. 13 (3):517–540. doi:10.1080/0964401042000229025.

Schmidt L, Falk T, Siegmund-Schultze M, Spangenberg JH. 2020. The objectives of stakeholder involvement in transdisciplinary research. A conceptual framework for a reflective and reflexive practise. *Ecol Econ*. 176:106751. doi:10.1016/j.ecolecon.2020.106751.

Scudder T. 2019. Large dams, long term impacts on riverine communities and free flowing rivers, water resources development and management series. Singapore: Springer Nature.

Scudder T. 2020. A retrospective analysis of Laos's Nam Theun 2 Dam. *Int J Water Resour Dev.* 36(2-3):351–370. doi:10.1080/07900627.2019.1677456.

The Secretariat of the Cabinet. (1997). The Cabinet Resolution of 2 May 1997: The Meeting Results on Negotiation on the Issues of Assembly of the Poor; Bangkok.

Shah E, Vos J, Veldwisch GJ, Boelens R, Duarte-Abadía B. 2019. Environmental justice movements in globalising networks: a critical discussion on social resistance against large dams. *J Peasant Stud.* 48(5): 1–25.

Siciliano G, Urban F. 2017. Equity-based natural resource allocation for infrastructure development: evidence from large hydropower dams in Africa and Asia. *Ecol Econ.* 134:130–139. doi:10.1016/j.ecolecon.2016.12.034.

Singer J, Pham HT, Hoang H. 2014. Broadening stakeholder participation to improve outcomes for dam-forced resettlement in Vietnam. *Water Resour Rural Dev.* 4:85–103. doi:10.1016/j.wrr.2014.07.001.

Singto C, de Vries M, Hofstede GJ, Fleskens L. 2021. Ex ante impact assessment of reservoir construction projects for different stakeholders using agent-based modeling. *Water Resour Manage.* 35(3):1047–1064. doi:10.1007/s11269-021-02771-0.

Singto C, Fleskens L, Vos J. 2018. Institutionalizing participation in water resource development: bottom-up and top-down practices in southern Thailand. *Water.* 10 (6):781. doi:10.3390/w10060781.

Singto C, Fleskens L, Vos J, Quinn C. 2020. Applying Bayesian belief networks (BBNs) with stakeholders to explore and codesign options for water resource interventions. *Sustainable Water Resour Manage.* 6(2):1–17. doi:10.1007/s40899-020-00383-x.

Sneddon C, Fox C. 2008. Struggles over dams as struggles for justice: the World Commission on Dams (WCD) and anti-dam campaigns in Thailand and Mozambique. *Soc Nat Resour.* 21 (7):625–640. doi:10.1080/08941920701744231.

Strzelecka M, Tusznio J, Rechcinski M, Bockowski M, Grodzinska-Jurczak M. 2021. Resident perceptions of distribution, recognition and representation justice domains of environmental policy-making: the case of European ecological network natura 2000 in Poland. *Soc Nat Resour.* 34(2):248–268. doi:10.1080/08941920.2020.1809757.

Tagliarino NK. 2017. The status of national legal frameworks for valuing compensation for expropriated land: an analysis of whether national laws in 50 countries/regions across Asia, Africa, and Latin America comply with international standards on compensation valuation. *Land.* 6(2):37. doi:10.3390/land6020037.

Thorkildsen K. 2018. 'Land yes, dam no!' Justice-seeking strategies by the anti-dam movement in the Ribeira Valley, Brazil. *J Peasant Stud.* 45(2):347–367. doi:10.1080/03066150.2016.1217842.

Vanclay F. 2017. Project-induced displacement and resettlement: from impoverishment risks to an opportunity for development? *Impact Assess Project Appraisal.* 35 (1):3–21. doi:10.1080/14615517.2017.1278671.

Vanclay F. 2020. Reflections on Social Impact Assessment in the 21st century. *Impact Assess Project Appraisal.* 38 (2):126–131. doi:10.1080/14615517.2019.1685807.

WCD, World Commission on Dams (2000). Case study Thailand: pak mun dam and mekong/mun River Basins; [accessed 10 March 2021]. http://geocompendium.grid.unep.ch/reference_scheme/final_version/GEO/Geo-2-054.htm

The World Bank (2004). Involuntary Resettlement Sourcebook: Planning and Implementation in Development Projects. The World Bank.

World Bank. 2017. World bank environmental and social framework. Washington (DC): World Bank.