



Rights, rivers and renewables: Lessons from hydropower conflict in Borneo on the role of cultural politics in energy planning for Small Island Developing States

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1. Introduction

1.1. The intersection between indigenous rights and Small Island Developing States (SIDS)

The special role of Small Island Developing States (SIDS) in global environmental protection and the universal importance of their fragile ecosystems was solidified in the Declaration of Barbados and the Barbados Program of Action (BPOA, 1994). Indigenous peoples have also obtained a greater voice at the international level in the past two decades, with the Decade of the World's Indigenous People from 1995 and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) adopted in 2007. Many SIDS of Africa, the Caribbean and the Asian-Pacific are populated by indigenous peoples who have been traditional stewards of their ecosystems, and their biological and cultural diversity. Together, their ecological importance and the historic marginalization of their indigenous peoples has propelled Small Island Developing States (SIDS) to the forefront of the environmental movement (Shirley and Kammen, 2013). SIDS are internationally recognized for their critical role in the Paris Agreement of 2015 and as dominant players in encouraging increasingly aggressive country commitments during continued UNFCCC deliberations.

Yet today SIDS remain host to more and more extractive industry, such as large-scale mining, logging and power generation, having drastic impacts on indigenous communities and their ecosystems. The 1 GW coal plant planned for Lamu, Kenya (Ogolla, 2016; Carvallo et al., 2017), the 23 new coal power plants being built across the Philippines (Geget et al., 2014), or the 13 GW coal power plant recently approved in the Sundarbans Islands, Bangladesh (Bedi, 2018), all point to increasing stressors placed on SIDS in an age of rapid economic development. Each of these cases is shrouded in controversy, being fervently protested by local indigenous-led environmental movements that question the very rational and need for the projects. While lip service has been paid through the now many international legal protocols that make direct reference to indigenous rights, it is arguable whether these universally

accepted ideals turn in to practice. There has generally been a failure to meaningfully engage with customary law and the implementation of culturally inclusive planning policy (Techera, 2010). Given the growing number of large-scale energy projects being developed in SIDS, the magnitude of their potential impacts, and how directly cultural dynamics can affect decision-making processes in such spaces, it is critical to advance discussion of the role of cultural politics in energy planning for SIDS.

In this paper we deconstruct the case of an energy mega-project in Borneo - an island in the Pacific shared by three sovereign countries, and home to some of the last remaining primary forest of Southeast Asia. We explore the chronology of government-led plans to build out over 18 GW of hydropower in the Malaysian state of Sarawak and the local conflict that emerged. Through an actor-oriented political ecology approach we identify the state- and non-state actors, their claims and the strategies they use to mobilize their claims. This descriptive exercise shows the failure of international indigenous rights laws to intervene in the practicalities of local decision-making. It articulates how deeply embedded yet invisible cultural politics is in the energy planning process and emphasizes the need for mainstreaming inclusivity in planning policy. Based on insights from the Borneo case study we identify specific ways in which the international community and science communication are actively supporting indigenous communities in small islands mobilize their claims in lieu of inclusive planning processes. Finally, we provide recommendation for SIDS policy makers to encourage practical and culturally appropriate energy planning in line with the ethos of our international indigenous rights law.

1.2. The story of a mega-dam resurgence in Borneo

The forested Baram Basin of Sarawak, East Malaysia is home to numerous indigenous and ethnic minorities such as the Kayan, Kenyah, Iban and Penan. Dozens of villages string along the Baram River, on land historically and legally acknowledged through Native Customary

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Rights (NCR). In the late 2000s, the Baram Basin became the next basin scheduled for dam construction according to the state's development agenda to create cheap hydroelectricity to attract heavy industry to the state for economic development – called the Sarawak Corridor of Renewable Energy (SCORE). Highly controversial, the 2.4 GW Bakun Dam was commissioned in 2012 in the neighboring Rajang Basin, causing massive displacement and major civil unrest. There had since been rumors of another 1.2 GW dam planned for Baram.

One morning in August 2013 a notice appeared in the local newspaper. A government gazette announced that the Ministry of Resource Planning and the Environment had legally acquired 4000 hectares (ha) of NCR land for building an access road. The Ministry's authority to acquire native lands came directly from the Sarawak Land Code. Persons had sixty days from the date of notice to submit all documents required for compensation claims. No provision for objections. With the failures of the Bakun resettlement scheme still fresh, a local alliance of affected communities formed almost immediately to raise awareness on the land acquisitions and the dispossession they represent. The Baram Protection Action Committee (BPAC), supported by the Sarawak-wide network SAVE Rivers and the national coalition of Indigenous People (JOAS), established two road blocks in the basin – one at the access road near the small town of Long Lama and one near the dam site itself - to prevent construction, surveying work and logging at the proposed dam location. For a year the roadblocks stalled preparatory construction work.

In December 2014 another gazette was posted, this time announcing the acquisition of over 38,000 ha of NCR lands for the construction of the dam and its reservoir. By this time the local Baram alliance had several cases in high court that challenged the State's legality in extinguishing the rights of indigenous people to ancestral land. They found that 26 villages would be displaced by the Baram dam and its 400 km² flooded reservoir area, affecting more than 20,000 people. Furthermore, both gazette announcements were issued before a Social and Environmental Impact Assessment (SEIA) had been completed for the project and certainly before any public consultation had been solicited. In fact, it was not clear that the state had any intention to seek community participation or consent before construction. This, argued the alliance, was in clear violation of the United Nations Declaration of Rights for Indigenous Peoples, to which Malaysia is signatory, and which requires the free, prior and informed consent (FPIC) of affected indigenous peoples prior to any project's development.

Both roadblocks gradually transformed into constantly manned blockades with living facilities. The Forest Department dispatched forest officers to dismantle the blockades on numerous occasions to allow logging companies to move tractors and bulldozers into the dam site for land clearing. Each time the blockades were dismantled, protesters rebuilt the barriers. Through social media stories of the Baram social movement spread to other indigenous communities across the state, across to the neighboring state of Sabah, and across the straits to Peninsula Malaysia. As the blockades stretched into their third year - making these the longest blockades in Sarawak history - much international support and attention was amassed, bringing new voices to the conflict. In March 2016 the government of Sarawak legally withdrew their claim over the land where the dam was to be built, effectively cancelling the project. The anti-Baram Dam Campaign remains 'cautiously optimistic' about their victory and has since transitioned their focus to ensuring long-term indigenous land-rights protections in the river basin.

1.3. Acknowledging the role of cultural politics to energy planning in SIDS

This story highlights many issues in contemporary large-scale energy infrastructure development and energy planning - in particular, the discriminatory use of the law to deny access to rights of indigenous peoples. Sarawak's river system has been framed as an immensely valuable resource that is almost completely uncommodified. The

'manufacture' of a storyline (Huber and Joshi, 2015) about hydropower and its economic benefits for the state along with the exclusionary use of the law evokes earlier discursive constructions and action strategies that served to legitimize controversial development schemes during colonial and post-colonial regimes of the twentieth century such as timber logging, large scale palm oil plantation and mining expansion.

Furthermore, as our Baram example illustrates, hydro development can be not only a means to commodification and wealth extraction from water resources, but also a means of extending state control into predominantly rural areas. Water resources then, we posit, can be thought of as a new frontier in neo-capital resource commodification. Building on aged, entrenched cultural relationships, the recent mega-dam resurgence represents a new era in the long history of resource conflict. Conceptualizing infrastructure like this, as socio-technical systems, points to the inherent inertia against leaving established, centralized patterns of control. This is the very reason why cultural politics and power asymmetries in decision-making processes need to be more explicitly acknowledged. Given the ecological and cultural sensitivity of SIDS and other marginalized spaces bearing the brunt of industrial expansion it is critical that energy planning advance toward an inclusive and data-informed exercise.

Borneo's mega-dams have now attracted tremendous media attention and have prompted a small but growing academic literature. Writers primarily appraise the dams with respect to cost recovery, technical performance and their contribution to energy security (Choy, 2005; Oh et al., 2011; Sovacool and Bulan, 2011a, 2011b, 2012). More recently, Aiken and Leigh provide a comprehensive and extensive analysis on the aftermath of dam development induced displacement and resettlement in East Malaysia (Aiken and Leigh, 2015). While descriptions of impact are an important part of the discussion, we aim to extend the conversation a step further. We argue that energy planning processes must not only ask about the distribution of costs and benefits but must also investigate the history of cultural dynamics and their role in the very construction and use of narratives (Shirley and Kammen, 2018). In so doing we examine the processes that give rise to projects, not just their impacts and the mitigation thereof. We consider the roots alongside the consequences, leading to more transparent decision-making.

1.4. Methodology

In this paper we will provide a detailed, actor-oriented account of the energy resource conflict, contributing to the literature that calls for greater emphasis on the role of cultural politics in energy planning. We begin with the proposition, as stated above, that hydro development is a new frontier in an old pattern of territorialization and that this articulation has implications for the energy planning process. In this paper we ask the question: what evidence supports this argument? More specifically, what claims and methods for mobilization can we identify being used in the SCORE conflict and how do they parallel those used by actors in older conflicts? What are the implications for energy planning in Sarawak – and SIDS more broadly - considering these findings?

To explore actors and relations our research involved extensive field work investigations in both East and West Malaysia. We conducted 50 open-ended and semi-structured interviews with participants from 36 institutions that represent a cross section of stakeholders involved in the dam debate. We conducted interviews with state and federal agency officials (nine), civil society groups (three), Malaysian environmental NGOs (four), regional governance agencies (three), international NGOs (seven), local renewable energy project developers (five), local academia (four) and indigenous villages (twelve).

We selected villages from areas that have been and will be affected by SCORE dams. We visited the Bakun resettlement village Sungai Asap; Long Lawen – the only village in the Bakun area where residents declined to be resettled; villages surrounding the Murum Dam and

villages in the Baram basin. These villages represent Iban, Kenyah, Kayan and Penan indigenous groups. We also interviewed protesters at both Baram blockade sites. Interviews revolved around drivers for SCORE, the rationale of individual and collective responses to hydro development and relationships between actors. We conducted technical site visits, visiting the operational Bakun Dam, the sites of both blockades, palm oil plantations, and a number of renewable energy technology projects from local developers including micro-hydro project sites, solar installation sites and biomass waste-to-energy plants.

This field work was conducted over the course of roughly one year, from 2014 to 2015. We derived additional information from contemporary local media and academic literature focused on East Malaysia. Throughout this paper we summarize interviewee statements anonymously due to the request of participants and the particularly sensitive nature of the dams in Malaysia. We provide a list of institutions visited or interviewed in [Appendix 1](#).

2. Energy planning and the hydropower conflict in Borneo

2.1. A brief introduction to the Sarawak Corridor of renewable energy

Sarawak, located along the northern coast of the island of Borneo, is the poorest and most rural state in Malaysia. It has a population of 2.47 million, more than half of which are indigenous groups living in rural village communities ([State Planning Unit, 2011](#)). An increased focus on cheap electricity to attract manufacturing and industry is the state's approach to achieving high income economy status. The current peak annual energy demand in Sarawak is 1250 megawatts (MW), met by a mix of diesel, coal and natural gas generation either operated or purchased by the state utility company. Over the long term SCORE involves at least 12 large hydroelectric dams and two coal power plants scheduled to be built before 2030, together constituting over 9300 MW of capacity ([Sovacool and Bulan, 2012](#); [Harris and Lang, 2014](#)). Six dams are scheduled to be completed by 2020 with three major dams already under different stages of development ([Baviskar, 2003](#)). In 2012 the 2400 MW Bakun dam became operational ([Oh et al., 2011](#)). At 205 meters high it is Asia's largest dam outside China. The dam's reservoir submerged 700 km² of land and displaced about 10,000 people ([Sovacool and Bulan, 2012](#)).

2.2. Main actors and common narratives of in the hydropower conflict

Sarawak's hydropower wealth comes from its natural hydrology. In the state perspective these rivers are an untapped source of mechanical power that should be commoditized and exploited. Strikingly similar perspectives grounded the narratives about harnessing unproductive land which rationalized the distribution of native customary lands as forest concessions for timber logging and palm oil in the 1970s and 1980s ([Colchester, 1993](#)). In fact, Sarawak's forest area declined almost 50% in just these two decades largely due to indiscriminate concession and license distribution for timber logging and land conversion to oil palm plantation ([FERN, 2006](#); [Malaysian Oil Palm Industry, 2014](#)). Today oil palm covers 1.2 million ha or 10% of Sarawak's total land area, representing more than two-thirds of land under agricultural crop cover, expanding at 10% a year ([Cooke et al., 2011](#)).

More than 720,000 ha of this land is claimed by indigenous communities, known as Native Customary Land ([Colchester, 1993](#)). Nevertheless, the government has pursued policy that favors large-scale estates over smallholder production, to the extent that over 80% of the total planted area is now managed by private oil palm plantation owners or privatized government agencies - such as Sime Darby Bhd, Rimbunan Hijau Group, Ta Ann Holdings Bhd and Samling Group - which are granted long-term leases over state lands despite claims of customary ownership. Meanwhile, independent smallholders only contribute represent 7% of total planted area ([oil palm, 2013](#); [Harvey, 2009](#)).

A number of writers highlight how the concept of 'idle' land was erroneously used to describe native lands, legitimating large-scale agrarian transformation through these processes ([Cramb and Sujang, 2011, 2013](#); [Bissonnette; Ribot and Peluso, 2003](#); [Barney, 2008](#); [Mccarthy and Cramb, 2009](#); [Cramb, 2013](#); [Vandergeest and Peluso, 2006](#)). In the case of Sarawak's hydro resource the value of rivers has been defined by the state as the total power capacity in megawatts that it can sustain ([Tate and Sarawak Electricity Supply Corporation, 1999](#)). The former CEO of the state energy company is often quoted in the media explaining that SCORE allows Sarawak to realize its full potential and that protesters are stifling growth in the same way as they are currently trying to suppress the palm oil industry ([Sarawak's Power Play, 2014](#)).

From the local community perspective however, Sarawak's river systems are a direct source of livelihood and support the health of forest ecosystems needed for survival. Limiting rights and access to rivers has huge impact on how indigenous communities live and subsist, including their physical livelihoods, security, health, education, mobility and identities [[FERN, 2006](#), p. 11]. Much literature reports on the impacts of the Batang Ai and Bakun Dam resettlements. Cut off from access to the river and forest, their major source of food, livelihood and transport, villagers displaced by the Bakun dam reported severe struggles ([Gabungan, 1999](#); [Aiken and Leigh, 2015](#)). The lands allocated by government are often distant and marginal. Without transport and fertile land families grow less crop, and therefore spend more buying food in the markets. Waged employment becomes the major means of income earning, which disadvantages women and the elderly given well-documented discriminatory employment practices ([Hong, 1987](#)). Literature also notes the difficulty of transport for schooling, and the lack of free land to forage for fuel wood leading to the need to purchase LPG for cooking alongside new utility bills such as electricity and water ([Hong, 1987](#)).

These changes put families accustomed to subsistence living into a situation where they are now part of a cash economy with even less land to produce surplus for trade, particularly for nomadic tribes such as the Penan. Resettlement is thus not just an issue of compensation, it is also an issue of the cultural extinction of ethnic minority groups whose identities are tightly tied to their rivers and land ([Hong, 1987](#)). An excellent description of the dams' displacement effects is found in [Aiken and Leigh \(2015\)](#). A complete description of resettlement impacts is beyond the scope of this article.

While land rights and the impacts of displacement are the common narrative of indigenous communities, other arguments being forwarded by urban civil society include the macroeconomics of the state's energy plans, source of funds for investment, and rational for accelerated dam construction in the face of low state-wide demand ([Bakun Turbines, 2014](#)). This question of necessity is compounded by the lack of information on dam impacts available, including environmental impacts. Borneo has been identified as one of earth's 34 biodiversity hotspots and a major evolutionary hotpot for a diverse range of flora and fauna. Borneo's forests house the highest level of plant and mammal species richness in Southeast Asia ([de Bruynet et al., 2014](#); [Struebiget et al., 2015](#)). The lowland forests of Northwest Borneo are among the most floristically diverse forests in the world. Individual hectares of forest in this area often have species richness that is matched only by forests in western Amazonia ([Ormeet et al., 2005](#)). Thus the indirect cost of the development of this 20 GW of mega-dam capacity would lie in at least 2425 km² of direct habitat loss from one of the oldest forests in the world at a time when the need for accelerated efforts to conserve Borneo's rainforests is globally acknowledged ([Mittermeier et al., 2005](#); [Pei Ling, 2013](#)). It is not clear that the ecological repercussions of this loss have been calculated or considered in decision-making. This is an emerging claim coming from both the local and international environmental NGO community.

Therefore, we see that while indigenous rights are the main front of the community protest movement, and economic rationale the concern

of urban civil society, issues of ecological distribution are also gaining importance, now part of the basis for fierce international criticism of SCORE. In the next section we will show how the state claims we have identified stem from Sarawak's political evolution. We will briefly outline the material mechanisms that have become available to state actors over time, how they have been practiced in the past, and how cultural asymmetry influences decision-making, including the use of social identity to access power and through legal mechanisms.

3. A history of state claims and mobilization strategy in resource planning

3.1. Access to social relations and the precedent for power asymmetry

3.1.1. The evolution of ethnic-based asymmetries in Sarawak

Modern Malaysia began with the Federation of Malaya's independence from the British Empire in 1957. After a brief Japanese occupation during WWII, an anti-colonial insurgency emerged in 1948 and fought for almost a decade to secure its independence. Six years later in 1963, Malaya united with Northern Borneo and Singapore to form Malaysia for closer political and economic cooperation. Singapore was later expelled in 1965. The Federation of Malaysia now consists of eleven states on Peninsular Malaysia, and Sabah and Sarawak on Northern Borneo (Colchester, 1993).

The Malaysian constitution which to today governs this federation was established in 1957 and is written with language that distinguishes between ethnic groups. Specifically, it states that while all Malaysian citizens are equal, *Bumiputera* (which translated to 'son of the soil' and refers to Muslim Malays) are entitled to special privileges and preferential treatment, disadvantaging Chinese and Indian immigrants and non-Malay communities including local indigenous communities such as the Iban and Penan (Cooke, 1997).

This establishment of a political and economic elite has invariably led to widespread political patronage, which has been difficult to counter due to the lack of established regulatory mechanisms. The alliance of Malay forces in Sarawak with those on the Peninsula has thus led to a progressive distortion of the state's democratic process, frustrating native attempts to gain representation and thereby denying their right to representation and influence in governance. The result has been to reinforce the profound feelings of powerlessness that were already well established in the native communities through colonial and post-colonial manipulation and control (Colchester, 1993).

This social power asymmetry directly influences the politics of extractive industry. It encourages state actors to engage in rent-seizing behavior to gain the right to allocate licenses or rents. Patronage practices and their effects can span across sectors and across generations (Corruption, 2013). For instance, after licenses are distributed, existing communities resettled, and the lands logged for timber, the cleared forests with convenient access routes now in place become prime lands for planting other commodities or for inundation to create a dam reservoir. Meanwhile, the property rights and ability to accumulate wealth remain with the original license grantee (Straumann, 2014). The access to social identity and its relation to authority and the planning process therefore shapes an individual's ability to benefit from both public and private resources. In the next section we explore the relevance of this social asymmetry to SCORE.

3.1.2. The role of social relations and power dynamics in energy planning

We begin by exploring the authority for planning and assessment of SCORE's projects. Looking at some of the key business interests involved in SCORE we find that the benefits that come from business involvement in the dams are also narrowly distributed. For instance, the civil construction contractors Sarawak Hidro used in building Bakun were investigated and found to be subsidiaries of a number of Malaysian companies that the Chief Minister and his *Bumiputera* family own or had shares in, such as Cahya Mata Sarawak (2015b). Bakun's civil works also

involved Sime Darby, a Malaysian based conglomerate with strong political ties and one of the major recipients of timber contracts in the state.

Much uncertainty exists over the cost of the dams, but some estimates suggest that costs escalated to RM 7.3 billion (USD 2.3 billion) from initial estimates of RM 3 billion (USD 0.94 billion), more than a 600% overrun (Oh et al., 2011). Experts attribute these overruns to: (i) artificially low contract bids, (ii) the awarding of government contracts to politically connected companies with no demonstrated experience in dam construction (such as Sime Darby Bhd) leading to the need for many complicated sub-contractual arrangements, and (iii) the dam's suboptimal electricity sale performance during its operational phase due to lack of demand. In fact some experts speculate that Bakun will continue to make further losses as Sarawak Hidro will have little bargaining power against buyers in negotiating power purchase agreements due to this surplus (Sovacool and Bulan, 2011a), (Sovacool and Bulan, 2012). Cost overruns are typical and well-documented in hydropower finance (Ansar et al., 2014), flying in the face of SCORE's economic rationale. This debt accrual is particularly controversial given the project's primary funding source. Most of the loans for Bakun came from the Malaysia Employee Provident Fund and the Pension Fund (Oh et al., 2011; Sovacool and Bulan, 2011c, 2012).

Thus both the business interests that benefit from the dams as well as the assessment and approval authority are concentrated among few state actors that openly protect *Bumiputera* welfare, representing major conflicts of interest. The very companies benefiting and profiting from the development plans are thus able to conveniently defer to the government's authority when necessary, absolving themselves of political leveraging. We thus see the access to social relations being available to an elite set of decision makers. Through careful selection of management and consulting expertise within SEB and patronizing particular private companies, the state government is essentially consolidating access to and control over water resources into the hands of largely *Bumiputera* interests for wealth accumulation and closing the space to other ethnic groups with less political leverage.

3.2. The evolution of legal mechanisms as tools for mobilizing state claims

3.2.1. Land law as a means of state territorialization

Malaysia has evolved a two-tiered federal and state government structure, which allows states significant autonomy in the exercise of regulatory power. Individual states have their own constitutions and executive legislature. Sabah and Sarawak, who joined the Malaysian federation later, retain largely independent control over matters of local government, religion and natural resources including the ability to formulate their own land laws and resource management policies. As a result national coordination of environmental law between local and federal authorities is often difficult (Hezri and Nordin Hasan, 2006). Such stratified dualism is common among small islands territories within larger countries (Techera, 2010).

In Sarawak the state crafts and revises land laws with little civil society participation or federal involvement which allows for their manipulation by political interests. The use of land law to redistribute land title and limit native rights is well documented and has majorly shaped the state's timber and plantation industries (FERN, 2006; Cramb and Sujang, 2013; McCarthy and Cramb, 2009; Cramb, 2007; Corson, 2011; Vandergeest and Peluso, 2006; Peluso and Vandergeest, 2001). When the British explorer James Brooke came to Borneo in 1839 he found a sophisticated customary land law, called *adat*, already well-established by indigenous communities across the island. The long-house, or community living space, was and remains the defining feature of the indigenous village community. While systems differed between Iban, Kenyah, Kayan and other native indigenous groups, every long-house community in Sarawak, and indeed in Borneo, considered itself as owning an extensive tract of communal land which extended far beyond the areas used for swidden or rotational agriculture (Colchester, 1993).

Realizing the importance of native customary tenure to indigenous communities the official policy under Brooke's rule was initially one of non-interference, as manifested in the 1842 Sarawak Land Code which prohibited immigrant races from settling on land already occupied by natives. However as the economic potential of global commodities such as palm oil became clear, the government would need more flexible control over land ownership. Hong presents a highly detailed chronology of the Sarawak Land Code from its inception in 1842 under the Brooke Administration and shows how indigenous people's autonomy narrowed over the years (Hong, 1987).

By 1863 the first official Land Law, known as the Land Regulations, was created and defined all unoccupied lands as property of the government. While natives could continue to practice customary tenure within their Longhouse's domain, they could no longer automatically claim rights to lands outside of that domain. This presented a major restriction to the indigenous population whose livelihood revolved around rotating between different areas of land for subsistence agriculture. The law also subsumed all farm lands within a single communal area, diminishing both the individual's rights and the community's rights to ownership of larger territories (Colchester, 1993; Bissonnette).

In the hydro context we saw this clearly exemplified in the manner of the state's acquisition of lands for Baram Dam. The news of the beginning of construction work for the Baram Dam came in 2012 in the form of a Land Code Direction published in the local newspaper which stated that, in exercise of the powers conferred by the Land Code, all areas delineated therein *'are required for public purpose, namely the development of a hydroelectric dam and the government has to acquire them.'* The Direction allows claimants two months to submit claims and supporting documents to the Department of Land and Surveying stating that compensation will only be paid to those claimants with proven native customary rights over the said land. However even claiming compensation, as little as it may be, is also a difficult process given the lack of support villages have in demarcating community lands.

This is a clear example of James Scott's compelling theory of state spaces. According to Scott, the historical basis of freedom in pre-colonial and colonial Southeast Asia was physical mobility – the capacity to be free of the reach of the state (Scott, 1999; Scott, 1998). The tendency of the state has historically been to narrow this margin of social autonomy, by restricting physical mobility, closing off the 'forest commons' and the 'free-access frontier' essentially creating what Scott terms 'state spaces' and reducing the total 'non-state space' (Scott, 1998). In the former the subject population is settled into permanent communities producing an economic surplus easily appropriated by the state. In the latter the population is sparsely settled, typically practicing swidden agriculture and is highly mobile, severely limiting the possibilities of state appropriation (Scott, 1998).

Sarawak is a largely rural state where social autonomy is highly valued and yet, ironically, heavily determined by the state. This is the situation of indigenous people in many SIDS (Techera, 2010). State determination of who can accumulate wealth from resources through the distribution of contracts and licenses as noted in the previous section, it is a form of enclosure. The enclosing of lands for hydro development and exclusion of individuals who lay claim to them is a clear example of state territorialization in operation.

3.2.2. The Social and Environmental Impact Assessment process (SEIA)

In this section we briefly look at another use of legal mechanisms to enforce cultural asymmetries in the hydro conflict – namely, the SEIA process. While Malaysia's 1987 EIA Order mandates EIAs for a select category of activities be conducted and published for projects prior to approval, as noted above this federal legislation does not have to be enforced where state legislation already exists (Memon, 2000). In Sarawak the Natural Resources and Environmental Order (NREO) 1994 does indeed require an SEIA for select activities prior to approval and is therefore the default legislation. As a significant point of departure however, NREO makes no reference to the need for public participation,

consultation or comment (Natural Resources and Environment, 2015). As a result, little effort is made in distribution of SEIAs and very few people have access to the information contained in them, especially those in remote areas. In fact, projects and resettlement plans are often approved with little public awareness at all (Revisiting the Bakun Dam, 2011). This system is highly controversial for its lack of transparency – it denies access to knowledge, it makes it difficult for civil society groups to access or comment on EIAs, and where NGOs and community groups are included as stakeholders, they are brought into the project process in late stages and in relatively powerless positions to participate in decision-making (Gellert and Lynch, 2003).

The state government justifies its SEIA process on the argument that existing channels of electoral democracy provide ample opportunities for people to have their say (Memon, 2000). This sharply contrasts international assessment standards and the principles of the United Nations Declaration on the Rights of the Indigenous Peoples (UNDRIP) which require governments to obtain free, prior and informed consent (FPIC) of affected indigenous peoples before implementing development projects within their territory (Sarawak Government, 2014). New laws such as the Land Surveyors Ordinance 2001, which criminalizes activities such as community mapping, make land rights defense in these legal proceedings more difficult, compounding the denial of access to information. In other words, exclusion from access to information and participation in the assessment process disadvantages native groups through knowledge asymmetry.

In summary, we have seen how state autonomy and ethnic asymmetries have together created a situation where state-based actors can use the discretionary authority afforded them to deny and reallocate access to rights, to territorialize spaces and to commodify resources. The transition of free lands to tightly controlled state-spaces and the misuse of legal tools such as the SEIA process further disadvantage indigenous groups and perpetuate major asymmetries in the amount of power different actors can exercise over land management. The state actor dynamics playing out in energy strongly parallel those which defined forest conflicts of the logging and palm oil industries. We now explore the landscape of non-state actors, major counter-claims and means of mobilization.

3.3. Non-state actors and mechanisms for mobilizing counter-claims

3.3.1. Legacy of the indigenous peoples protest movement

The lack of legal avenues to participate in decision-making has forced indigenous communities to pursue other avenues of mobilizing claims to land - namely protest movements (Weiss and Hasan, 2002). Protest action has a long history in Sarawak with NGOs such as Friends of the Earth and the Malaysia Nature Society staging peaceful protests and mounting blockades in the 1970s and 1980s to prevent the encroachment of logging companies (Ramakrishna et al., 2002; Cooke et al., 2002). These actions were frustrated by legal manipulation and a well-orchestrated government campaign of countering the opposition through discursive displacement (Baram Dam, 2015; Malaysian NGO, 2012; Sarawak Energy, 2015).

Similar protest and protest-control action has arisen in the hydro conflict (Lee et al., 2014). The indigenous face of the mega dam protest movement is an organization called Save Rivers. In 2011 the state government began to hold briefing sessions about the proposed Baram Dam and started construction of the road to the dam site. In October, 2011 several Sarawak-based civil society organizations that were concerned about the social, cultural, and ecological implications for the people and the forests of Baram joined forces to form the Save Sarawak Rivers Network (Save Rivers), whose mission is to build broad-based support to educate and mobilize the public against the dams.

Though there was a coalition of concerned NGOs which formed around the Bakun Dam, they pursued legal proceedings over the legality of companies involved in the dam and over the findings of the SEIA. These legal strategies yielded limited results and the relocation of

native communities proceeded despite the claims (Lee et al., 2014). Save Rivers is supported by local community-based organizations (CBOs) such as JOAS that lobby for indigenous people's rights in Sarawak. The organization places major a focus on educating native communities about the realities of displacement, organizing conferences and seminars and mobilizing people for non-violent direct action.

When the Sarawak government took the first steps to extinguish the land rights of indigenous communities at the dam site, Save Rivers led the establishment of two blockades to prevent dam workers from accessing the proposed site of the Baram dam. The blockades physically disrupted work on the dam and also acted as community centers for gathering during important campaign events and conferences. While government attempted to dismantle the blockades on several occasions, they were continuously maintained and managed from October 2013 until mid-2017, well after the dam was legally cancelled.

Save Rivers and their partners organized a major event in May 2013 to coincide with the International Hydropower Association (IHA) conference that was hosted by SEB in Kuching, Sarawak. Save Rivers gathered residents from Baram, local and international politicians, and international and local NGOs for a simultaneous conference on indigenous rights that included several protests and marches held outside of the IHA venue. This alternative conference drew supporters from around the Malaysia.

Many international news agencies such as National Geographic and the Times wrote about and followed the progress of the blockades (Pei Ling, 2013). Together with the international NGO community, Save Rivers successfully lobbied Hydro Tasmania (an Australian dam operation and consultancy firm) to pull out of its engineering and management service contact with SEB (Hydro Tasmania, 2012; Wong). Rio Tinto Alcan (a global mining company) has also pulled out of its aluminum smelter venture, which was the flagship industrial project expected to purchase Bakun's hydropower (Backing Out Of Bakun, 2012). The conflict garnered so much attention that the former Prime Minister of Malaysia made an open statement calling on Sarawak Chief Minister to re-think SCORE (Davidson, 2015).

In this sense, the protest action has proven successful at staving of construction and in raising rural and international awareness, but progress of the social movement is complicated by the complex landscape that is the indigenous voice, which is not homogenous (Weiss and Hasan, 2002). Even in the Baram basin alone among the very villages that will be displaced, the indigenous stance is not uniformly 'anti-dam'. In our interviews there were many different interpretations of what development for Baram looks like. The heterogeneity is compounded by urban civil society in Sarawak, which is just as riddled with class interests and ethnic division as the state [(Cooke et al., 2002), p. 166].

3.3.1.1. Civil society finds new mechanisms for mobilizing claims in Sarawak. In addition to this heterogeneity, organizing civil society is difficult work in Sarawak, due to the stigmatization of NGOs by the state, according to environmental NGO survey respondents. The sheer number of almost insurmountable legal barriers involved in establishing NGOs, lobbying groups or trustees in Sarawak (Lai et al., 2002) limits their number and constrains their capacities, making it difficult to establish themselves as legitimate stakeholders in the SEIA process, dysfunctional as it is. This also puts tremendous pressure on the few environmental NGOs that exist and operate to be broad enough to represent the interests of many different demographic stakeholders, spreading resources thin. NGOs report that it is also difficult to garner support from Sarawak's urban non-indigenous civil society that has itself largely resigned to a dispassionate acceptance of the state's authoritarian tendencies. As previously noted, Malaysian society has been largely affected by Bumiputera affirmative action policies of the 1970s which have promoted the growth and expansion of a new Malay middle class, particularly in the professional, technical, administrative

and managerial categories. Urban civil society thus seems removed from the plight of the rural villager and where vocal about the SCORE agenda, it develops arguments from the position of economic rational, more than land rights, for which there is little data.

The few environmental NGOs that exist are poorly connected, are extended little cooperation by the relevant government agencies and thus produce very little data for the public. An independent study into the downstream or upstream ecological impacts of dams, for instance - a gap often filled by environmental NGOs, is still lacking in Sarawak. SEIA information is inaccessible as mentioned above, and the lack of information impinges on the ability of local communities to effectively advance counter claims. We find that in lieu of an active local civil society and access to local information, indigenous people in Sarawak have turned to new means of mobilization - in particular, leveraging international community support and engaging in science communication.

In this recent conflict over SCORE most support for indigenous activist groups has thus come from ties with international environmental and human rights NGOs without bases in Sarawak, such as International Rivers, the Bruno Manser Fund, and The Borneo Project, some of which have been part of the larger international anti-dam movements since the 1980s (Bicker et al., 2003). These NGOs are playing an important role as they have been able to launch powerful opposition campaigns on the grounds of ecological and human rights damages that reach the international community and they place heavy pressure on multi-national companies involved in the projects through lobbying action and declarations (Nüsser, 2003). Though not their only objective, these groups help bring the ecological upstream and downstream impacts of the dams into the conversation. Through adoption of terms such as 'species diversity' and 'habitat loss' into their mainstream language, local social movements are creating their own means of advancing counter claims in lieu of legal or political avenues.

Furthermore, as mentioned in Section 1.3, there is a substantial new and growing body of academic literature on the economics of large-scale dams, their green-house gas emissions and ecological impact (Fearnside, 2005, 2014; Ansar et al., 2014). There is also academic literature on long-term optimization of capacity expansion in Sarawak, which identifies alternatives to large-scale hydro that are technically and economically feasible (Shirley and Kammen, 2015; Kitzes and Shirley, 2015). While academic literature does not often receive local media attention, local civil society organizations launched a science communication campaign to translate and disseminate these findings widely. Save Rivers in collaboration with their international NGO partners produced numbers short videos, wrote newspaper articles and held road shows in the village communities, explaining the findings of the academic literature into plain terms and in local languages. This strategy helped to quickly mobilize local action, created more opportunity for engaging international audiences, and with the publicity generated, provided a platform for influencing high-level ministers (Mega-dams, 2015; Sarawak, 2015a). The use of outside experts was a way to address asymmetries in access to knowledge. Well-communicated science overcame obstacles in access to information and countered the failing and exclusionary SEIA processes. Scientific evidence of alternatives empowered the campaign in its arguments. This highlights the importance of access to information and the political nature of knowledge production.

Thus, we find that in the face of non-participatory planning processes, local indigenous groups are finding ways to engage and collaborate with international NGOs and leverage academic knowledge production alongside traditional knowledge, creating a hybrid approach to cultural and territorial defense. By shaping cultural conflicts in terms of the global conservation debate and scientific evidence, marginalized indigenous social movements become centers of international attention, which provides new platforms for vocalizing claims and influencing state-actors (Bakker, 1999; Escobar, 1998).

3.3.1.2. Emerging proponents of alternative energy solutions. In summing up the complex landscape of non-state actors and actions, we focus for a moment on a final group of actors, not often acknowledged in the literature but who are important contributors to the debate. Though a smaller voice, proponents of renewable energy as feasible, alternative strategies for electricity supply are very important for the discussion of energy planning and represent a new source of local knowledge production. The renewable energy sector in Malaysia is small but growing steadily thanks to recent legislation and implementation of incentive policies. The federal Renewable Energy Policy and Action Plan 2009 aims to increase the renewable energy contribution to the national power generation mix. It sets a target of 4 GW of installed renewable energy capacity by 2030, raising the total installed capacity to 17% from less than 1% today. This target covers five individual types of renewable energy: biogas, biomass, municipal solid waste, small hydro and solar photovoltaic (PV).

The Sustainable Energy Development Authority (SEDA) Act 2011 provides for the establishment of an authority to implement these national policy objectives. The main mechanism first established was the Small Renewable Energy Program, which incentivized small local alternative power producers to generate electricity for sale ([Sustainable Energy Development Authority Malaysia, 2011](#)). This program has since been replaced by the Feed in Tariff (FiT) scheme which allows electricity produced from a local renewable energy source to be sold to authorized power utility companies at a fixed premium price. The goal is to offer cost-based compensation to renewable energy producers through price certainty and long-term contracts. There are now 750 MW of renewable energy either planned or operational across Malaysia. The renewable energy technology wave is spilling into Sarawak, but progress is slow. Sarawak is the only state that has not adopted the FiT policy and cannot be mandated to since it is not under the federal Energy Commission's authority. Since SEB offers few other incentive schemes operations here are still comparatively expensive.

Nevertheless, small renewable energy operators such as Kina Biopower and Seguntor in Sabah demonstrate the feasibility of biomass waste power production while other developers focus on micro hydro and photovoltaic systems. New project developers are slowly entering this space, helping to address the lack of local capacity and skilled labor for the emerging industry. Tonibung for instance, is a local renewable energy project developer that installs micro hydro and solar systems in rural communities across Sabah and Sarawak ([Tonibung, 2014](#)). Tonibung also established a renewable energy training center in Sabah. The center opened in 2014 and receives community members from across Malaysia. It offers work space, a technical curriculum and modules, leadership training, certification and facilities for product testing ([Turbine Fabrication, 2014](#)). To date it has graduated two cohorts of local energy technicians and the program continues to grow. In fact, decentralized renewable energy is one of the fastest growing energy markets in Malaysia, itself becoming a means of mobilizing action as we see below.

3.3.1.3. Rural renewable energy technology as a novel mobilization strategy. One of the most prominent voices in spreading awareness of dam impacts is the community of Long Lawen, a village in which half of the residents rejected resettlement plans during the inundation of the Bakun Dam in 1998 and moved to higher terrain within their ancestral land claim while the other half were resettled at Sungai Asap. The only means of transportation into or out of Long Lawen now involves a two-hour drive to the Bakun Dam from the nearest town and then an hour-long motor-boat ride from the Bakun Dam dock to a far edge of its reservoir where the village sits. Nevertheless, Long Lawen collaborated with Tonibung to install a 15 kW micro-hydro turbine power system that has been operating for over fifteen years and which supplies electricity to the long houses in their new space.

Long Lawen, its story of resistance and its micro-hydro success have gained much popularity since the Bakun Dam was constructed. We

bring up this story because it illustrates the role that locally appropriate solutions can play in social movements. In Sarawak the micro-grid and more specifically micro-hydro technology, has come to take on social symbolism for the indigenous environmental movement that lobbies to save the Baram River. The mega-dams have never translated into electricity access for affected or upland river communities, however the micro-hydro system is an explicit representation of alternative use of the very same river resource to satisfy local needs.

A powerful movement has grown around the spread of micro-hydro systems from village to village in East Malaysia because of this stark juxtaposition ([Schnitzer et al., 2014](#)). Tonibung alone has now installed more than 24 micro-hydro systems in villages across East Malaysia. This is a sterling example of a growing grassroots operation that supports an emerging rural industry based on locally designed energy technology, simultaneously fostering an indigenous breed of environmental consciousness and energy progressiveness. Similarly, many SIDS are at the helm of renewable energy adoption, despite having negligible impacts on global greenhouse gas emissions, to make a statement about the need to advance sustainable energy solutions globally ([Shirley and Kammen, 2013](#)).

Thus, in addition to resistance and protest action which lobby *against* a certain type of development, indigenous groups are also mobilizing their claims to land and autonomy through *pro-development* demonstrations of energy self-sufficiency, affirming Bavisar's argument for the validity and importance of different cultural experiences of resource use ([Bavisar, 2003](#)). Tonibung and Save Rivers are now in the process of building micro-hydro systems in villages that would have been inundated by the Baram dam. Indigenous communities are arguing against large-scale hydro development by implementing even more innovative systems of small-scale hydro development, ironically contradicting the common notion of peasant resistance to modernization. The adoption of rural energy technology is a yet another new, creative mechanism for mobilizing indigenous counter claims in Sarawak.

3.4. Recent developments: success of the indigenous People's movement in Baram

The Baram blockades stood for over two years with much media attention, making it the longest standing dam blockade in Sarawak's history. Largely due to the local and international attention drawn by indigenous civil society organizations, the new Chief Minister publicly declared a moratorium on the Baram dam, in a landmark announcement in September, 2015. Then, in March 2016, the Sarawak government revoked its claim to the land that would have been used for the Baram Dam, thereby legally restoring indigenous land rights and officially stopping all progress on the dam ([Sarawak Report, 2015](#)). Stopping the Baram Dam was an unprecedented success for indigenous rights in Sarawak. Other recent successful indigenous movements have scraped five dams on two of Patagonia's wildest rivers in Chile, halted the two Dong Nai dams in Vietnam and led to the suspension of large dam building in Brazil's Amazon ([EJOLT, 2018](#); [Brazil, 2018](#); [Controversial dams, 2016](#)).

Despite this victory, the blockades remain in place and now serve as a venue for community events. Communities are wary that plans to rebuild the dam may resurface in the future. It also remains to be seen how the government will proceed with subsequent SCORE hydro projects. To prepare for this possibility, Save Rivers is now focusing on campaigns to build resilience in the Baram villages. Projects include building village-scale alternative energy systems (micro-hydro and solar) in villages that would have been inundated by the dam, as well as establishing a community-managed conservation zone that hopes to ensure long-term land rights. These initiatives actively seek to build community capacity and facilitate development of systems that are chosen and managed by communities, in harmony with their environment. As these events unfold Borneo continues to be an example of innovative ways in which indigenous peoples mobilize their claims in

the face of laws and planning processes that exclude them. In the section below we discuss broader implications for SIDS.

4. Discussion: articulation of the cultural politics embedded in planning and implications for SIDS

Conceptualizing energy infrastructure as socio-technical systems points to the inherent inertia against leaving established, centralized patterns of control (Nüsser, 2003). In this paper we describe the socio-technical nature of the Sarawak mega-dams to gain insight into how inertia in the established system may be impacting energy planning. We find that the particular evolution of government structure and the non-inclusion of customary law and practices has concentrated authority within a small clutch of individual actors in Sarawak. We see the use of social identities to access this authority, and the direct use of political power to accumulate personal wealth from resources. We see the use of land law for the denial of rights, displacement and enclosure of spaces. We see the use of law to criminalize dissent, and manipulation of the SEIA process to create barriers for public participation and access to knowledge.

Power asymmetry and the law are mechanisms employed by state and state related actors to territorialize rivers as energy resources. Benefits to local communities and landscapes are largely foregone in this top-down centralized model of intensive large-scale hydro development. Yet these communities bear the true costs of the dams through increased insecurity, loss of livelihoods and land rights violations. When seen in this light, the current energy planning process is a new form of state control, where the state continues to use its power of land rights designation to redistribute resource wealth and the benefits of development (Scott, 1999; Scott, 1998). This pattern of action is a reiteration of that from previous conflicts over access to forest lands in Sarawak, highlighting the systemic inertia inherent in creating inclusive planning processes. We find that in lieu of formal avenues for participation, indigenous people have adopted innovative mechanisms for advancing counter claims - revival of the local protest movement; engaging the international community and promoting science communication; and the pro-active adoption of renewable energy technology. Though indigenous communities are successfully defeating individual large-scale coal and hydropower projects through these means, they are time and resource intense. Long-term planning will require standardized means of participation.

Thus, although planning is often characterized as an apolitical techno-economic exercise, our method of carefully and explicitly identifying actors and their claims reveals the embedded cultural dominance often at play and exposes state-led territorialization of resources hidden under the narrative of energy demand. This is an important articulation, especially in the context of SIDS. As noted, SIDS are now seeing an expansion of large-scale industrial and energy related development. Like Sarawak, analysis of the proposed coal power plant in the Sundarbans Islands of Bangladesh (Bedi, 2018) or the coal power plant of Lamu island in Kenya (Ogolla, 2016; Carvallo et al., 2017) reveal grossly overestimated demand forecasts and cast doubt on the underlying reasons for power plant construction. Given the fragility of these ecosystems, transparent and informed planning processes are crucial, yet many SIDS are also home to indigenous communities that rarely receive political attention or access to their rights. Particularly those with large indigenous populations, SIDS struggle with implementation of international environmental law and standards at the domestic level. State-based legal systems in islands have tended to marginalize customary law, and international law itself has offered little guidance to states on how to address these challenges (Techera, 2010).

Exploration of the legal complexities of revitalizing and integrating customary law and practices into state policy is beyond the scope of this paper. Nevertheless, reckoning with the role of cultural politics in energy planning is clearly critical. Borneo is not a typical SIDS, but an

island territory primarily populated by indigenous communities and in the midst of an energy planning conflict unfolding in real-time. It thus offers crucial lessons. Drawing from our case study and the literature on cultural politics we identify areas of direct policy implication for energy planners in SIDS and for the international community (Shirley and Kammen, 2018; Escobar, 1998, 2006; Huber and Joshi, 2015).

First is the need to limit cultural dominance in the state's key institutions, especially those that create and implement development policy and local institutions that control access to rights. In Sarawak addressing cultural dominance might involve: extensive legal reformation beginning with the state land code; the establishment of anti-corruption legislation that limits political interference and promotes merit-based employment and business contracting; and legislation that institutes regulatory bodies for local industries that are independent, transparent and accountable to the courts. Each small island may have different challenges but limiting the ability for power asymmetry to infringe on decision-making processes is key.

Second is a need to create spaces for, and to support diverse visions of, rights and what the exercise of rights means. As we have seen, even within one river basin ideas of resource, subsistence, autonomy, identity, economy and development differ widely. Through deconstruction of the debate into actors and claims it also became clear that at the heart of the hydro conflict in Sarawak were differences in definition and understanding of concepts such as energy security. These differences clearly influence notions of 'problem' and 'solution' and reflect the situated perspectives of different actors in the conflict. Acknowledging and empowering non-dominant bio-cultural perspectives and experiences of nature is important. In Sarawak's case this might involve strategic intervention in the education system. As we have seen, relationships of dominance become socially indoctrinated and manifest themselves not only in obvious forms of injustice, but also in everyday relationships and interactions. Restoring confidence and freedom in one's identity is a long-term process of re-learning.

Third, while inclusivity is critical, a legitimate community of people who have rights to participate cannot be a foregone assumption in negotiation processes (Baviskar, 2003). Creation of such an organized civil society that acknowledges its own diversity will involve attention to the more nuanced expressions of political, ecological and cultural agency, and is important in identifying stakeholders for public participation. For Sarawak, even adherence to federal requirements for the SEIA process at minimum would support a broader representation of communities in the decision-making process.

Finally, this process of legal and political reform occurs over the long-term. However, as we see in Borneo and the other cases of successful anti-dam campaigns referred to earlier, indigenous communities are not just waiting, but rather are innovating alternate means of mobilizing their claims. In Sarawak we see local civil society partnering with international NGOs to access bigger audiences, engaging academic literature directly, communicating scientific evidence at the grass-roots level, and proactively adopting small-scale renewable energy technologies demonstrating energy progressiveness. The international community thus has a clear role to play in providing platforms to indigenous movements, and academia can play a critical role in addressing asymmetries in access to knowledge. As we have seen, visible and well-informed indigenous environmental movements are a strong mechanism for mobilizing claims in the face of exclusionary planning processes.

5. Conclusion: rights as fundamental to integrated energy planning

Drawing on interviews, discussions and theory from well-known schools of political ecology thought we distinguish between various actors' claims, strategies being used to mobilize claims and the asymmetries created or reinforced in decision-making. We find that the conflicts arising from these neoliberal state-led capitalist approaches to

energy development based on energy infrastructure mega-projects parallel other local conflicts over neo-colonial state development plans involving global commodity production, such as timber extraction and the spread of palm oil plantations. We argue that it is vital to contextualize energy planning within the objectives and impacts of previous development regimes as a frame of reference. This approach creates a framework for discussing the complexities of relations in a conflict, adding a critical component to the integrated design and assessment of large-scale energy projects.

Many civil society representatives and people from affected communities that we interviewed argued that land rights above all else must be the basis of meaningful change. Whether the conflict of the day is over dams, oil palm, timber logging, mining, the proposed industrial parks, or another resource, precedence of state claims over indigenous claims is at the root. The pool of actors may vary, the amount of international attention may fluctuate, the environmental impacts may become more complicated, and the language of the discourse may evolve, but the basic issue of access to land rights continues to sit at the

source of environmental conflict in many SIDS. If we see each of hydro-electric power plant proposed in Sarawak as part of this larger sphere, the issue of energy supply quickly becomes secondary to the elementary issue of indigenous people's rights and inclusion.

In our contemporary world of rapid economic development and an increasing need for power, much emphasis is placed on the idea of integrated energy planning. Such planning is normally defined by a techno-economic meaning of welfare and trade-offs. Our findings from this research strongly suggest that truly integrated energy planning must acknowledge indigenous rights and the inherently socio-technical nature of energy infrastructure. Integrated planning must address challenges of land rights allocation, wealth distribution, political dynamics and public participation, and its supporting international and state level laws must actively minimize the dependence on cultural power asymmetries. This type of planning and policy is critical for SIDS as joint stewards of some of earth's most fragile ecosystems and indigenous cultures.

Appendix 1. List of Institutions Interviewed

Stakeholder Type	Institution, Community or Organization
State and Federal Agencies	The Chief Minister of Sarawak Sarawak Energy Berhad (SEB) Malaysia Energy Commission Sabah Energy Corporation Sdn Bhd (SESB) Sarawak Forestry Department Sabah Forestry Department Sarawak Department of Irrigation and Drainage
Federal Development Agencies	Sustainable Energy Development Authority Human Rights Commission of Malaysia, Sabah Commissioner
Regional/International Governance Agencies	Association for Southeast Asian Nations (ASEAN) United National Development Program (Regional Office) USAID Regional Development Mission for Asia
Sarawak Indigenous Communities or Villages	Long San Long Liam Tanjung Tepalit Long Selatong Dikan Long Apu Long Anap Long Keluan Long Na'ha Long Lawen Long Lama Sungai Asap Mundung Abun
Local Civil Society Organizations (CSOs)	Save Rivers Jaringan Orang Asal SeMalaysia (JOAS) Center for Orang Asli Concerns (COAS) Partners of Community Organization Sabah (PACOS Trust)
International Advocacy NGOs	International Rivers Bruno Manser Fonds The Borneo Project
Malaysian Environmental NGOs	Malaysia Nature Society South East Asia Rainforest Research Program (SEARP) Center for Environmental Technology and Development Malaysia
International Environmental NGOs	Land, Empowerment, Animals, People (LEAP) World Wildlife Fund Wetlands International Roundtable On Sustainable Palm Oil Sustainable Forestry Council

Local Academia

Local renewable energy technology developers

UNIMAS, Sociology
 UNIMAS, Center of Excellence for Renewable Energy
 University of Malaysia, Economics and Law
 University Tenaga Malaysia, Engineering
 Cymao Plywood
 Seguntor Bioenergy
 Kinta Biomass Plant
 Wilmar Plantations
 Tonibung

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