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Challenging knowledge hierarchies: working toward sustainable development in Sri Lanka's energy sector

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This paper analyzes sustainable development practices within Sri Lanka's energy sector. It directs attention to how expertise functions in development decision making in ways that can unintentionally inhibit sustainable development. Understanding expertise as merely specialized knowledge clouds its role as a social activity. In practice, expertise is a combination of knowledge and authority, and expert knowledge exists within a hierarchically ordered authority structure of diverse knowledge domains—what is referred to here as “knowledge hierarchies.” Knowledge hierarchies exclude the participation of some relevant knowledge domains, and thereby preclude the possibility of local sustainable development. The Energy Forum of Sri Lanka, a small renewable energy advocacy organization, strives to enable sustainability by going beyond facile calls for greater inclusion to confront the mechanisms of exclusion. The paper documents three of the Energy Forum's development interventions intended to level out the knowledge hierarchy that inhibits sustainable energy development in Sri Lanka. Drawing insights from the Energy Forum's approach, the paper argues that experts who wish to contribute to sustainable development must attend to the knowledge hierarchies in which they operate to ensure that their own authority does not exclude other relevant knowledge domains.

KEYWORDS: sustainable development, energy resources, decision models, social behavior, indigenous knowledge, renewable energy resources, nongovernmental organization

Introduction: Rethinking Development, Rethinking Expertise

The importance of sustainable development is clear. Global ecological change, increasing inequities in wealth and access to resources, and the dismantling of social and cultural “safety nets” provide good reasons for caring about and working toward sustainability. The role of expertise in sustainable development, however, is not so clear. Surely, achieving sustainability requires robust expert knowledge in diverse domains: ecology, biology, environmental monitoring, national and global policy, development economics, and many others. Much scholarly attention has been devoted to identifying and developing these knowledge domains in the service of sustainability. Far less attention has been given to empirical study of expert practices directed toward sustainability and the larger social contexts in which those practices have meaning. Based on ethnographic fieldwork among Sri Lanka's renewable energy community, this paper shows that the role of expertise in development practice is multifaceted, with some facets contradicting what we typically understand as the experts' role.

Before scrutinizing expert practices in Sri Lanka, though, it is important to clarify and contextualize the

paper's key concepts: sustainable development and expertise. “Sustainable development” means different things to different people, but two distinct common usages prevail (Smillie, 2000). In the United States, and perhaps much of the North, the majority of people associate sustainable development with efforts to align goods and services provision with ecological protection, so that biological systems can remain or become healthy while human societies construct higher living standards.¹ Here, sustainable development means economic or material (infrastructure, technology, consumer goods, built environment) gains that are ecologically sustainable in terms of resource extraction, waste production, and long-term ecosystem health. For many development workers, however, sustainable development has a different meaning. It refers primarily to the ability of development initiatives to subsist over time, especially after external development funds and expertise are withdrawn. Ecological sustainability is part of the equation here, since local environmental decay would

¹ Following current trends in development scholarship, I use the shorthand “North” and “South” to distinguish between economically wealthier and poorer countries, respectively. Within this terminology, Australia and New Zealand are understood to be economically (as well as culturally) integrated among the economically powerful countries in the global North.

eventually undermine development projects. However, ecological sustainability is only a part of the equation, and typically not the most central part, at least among development project planners. More central are financial sustainability, community-level skills creation (or “capacity building” in the development jargon), awareness raising and community investment, and ongoing project management, typically through local organizational support. The ecological and project sustainability discourses are not mutually exclusive, of course, and examples of each exist in both the North and South despite the rift between their dominant uses in each context. Nevertheless, this paper relies primarily on the latter understanding of sustainable development, because it directs attention to a broader spectrum of relevant expert knowledge.

Sustainable development in this sense is the latest in a long series of efforts to rethink “development” and how it ought to best be pursued. The need for rethinking has been stimulated, in part, by a long history of disappointing results (Rist, 1997). Focusing on *sustainability* adds something new to development thinking, both in terms of attention to facets of the development equation beyond technological and institutional infrastructure and in terms of the knowledge base necessary to design more robust interventions (Van der Ryn & Cowan, 1996; McLennan, 2004; Willard & Andjelkovic, 2005). Like much prior thinking, however, the idea of sustainable development falls prey to problematic assumptions about how development occurs, or why it fails to occur. Like dominant development thinking—that is, the way most people understand the development problem—much of the work on sustainable development is based on a deficiency model, where lack of adequate material or knowledge resources are understood to cause underdevelopment (Escobar, 1995). Development is to be stimulated, according to this model, by injecting the missing resources. In this way, sustainable development calls for a broader set of knowledge resources than traditional development, but the role played by development experts is roughly equivalent (see, e.g., UNDESA, 2002).

The deficiency model of underdevelopment has several important shortcomings, not the least its misattribution of symptoms as causes. Rather than causing underdevelopment, lack of adequate resources is a symptom of deeper structural problems (Escobar, 1995; Rist, 1997). Even if underdevelopment is defined as (as opposed to being caused by) lack of material and knowledge resources, that says little about whether resolving such deficiencies at a specific time will result in *sustainable* development solutions. “Dependency theory” goes further to argue that pro-

vision of development assistance fosters dependence on donors and thereby impedes development efforts.²

Rejecting the assumption that resource deficiencies are the primary cause of underdevelopment has important implications for analyzing the role of expertise in sustainable development. If underdevelopment is merely a problem of deficient resources, then knowledge and financial resources could easily be added to fill the void. If the problem is not merely deficient resources, then the role played by expertise must be more complicated than simply providing those resources. Thus, in rejecting the deficiency model of underdevelopment, we must also challenge assumptions about expertise (Woodhouse & Nieuwma, 1997). Certainly, designing sustainable development interventions requires contributions by diverse domains of expert knowledge. However, “expertise” is more than the knowledge embodied within individuals. Expertise is a whole set of *social practices* that entail complexities glossed over in typical understandings of expertise as individualized knowledge (Bereiter & Scardamalia, 1993; Hutchins, 1995; Agre & Schuler, 1997). Most importantly for this analysis, expertise functions not only through knowledge transfer, but also as a strategic resource in struggles surrounding decision-making authority (Fischer, 1990; Frankena, 1992; Epstein, 1996; Martin, 1996). Because it is a social practice, it is important to approach the analysis of expertise in sustainable development with attention to social power (Fortun, 2001; Woodhouse & Nieuwma, 2001; Nieuwma, 2004).

Thus, achieving sustainable development requires moving beyond the deficiency model of underdevelopment and rethinking the role played by expertise in development practice (Brand & Karvonen, 2007). Rather than thinking of expertise merely as specialized knowledge added to the development mix, this article employs a practice-based definition: *expertise is specialized knowledge combined with authority*. By understanding expertise as “knowledge plus authority,” we are better able to see that knowledge domains needed for sustainable development are not simply absent, but are systematically excluded, and that expertise is implicated in that exclusion (Kothari, 2001). In this way, misconceptions surrounding expertise—specifically the tendency to equate expertise with specialized knowledge—undermine efforts to rethink the “development problem” and make it impossible to achieve sustainable development. Only by understanding how ex-

² Dependency theory has been widely discussed and has different variations, including notably Frank’s (1967) macro-level Marxian treatment. For an accessible introduction to dependency theory, see Ferraro, 1996. Harvey & Lind (2005) provide a recent review and critique of the dependency thesis.

pertise functions to exclude relevant knowledge domains in development decision making can we devise strategies for countering it and thereby hope to achieve sustainable development.

To make this argument, the next section introduces Sri Lanka's energy context and highlights the importance of knowledge authority structures—what are called “knowledge hierarchies”—to expert decision making in that context. Next, I focus on one organization, the Energy Forum, and its efforts to institutionalize sustainable development in Sri Lanka's energy sector. By describing three specific intervention strategies, this discussion shows how the Energy Forum sought to systematically empower marginalized social groups and bolster the authority of their knowledge vis-à-vis established experts. I then analyze the Energy Forum's strategies as interventions into knowledge hierarchies, or, in other words, as the *renegotiation of expertise* in that context. Finally, the concluding section reflects on the importance of reconceptualizing expertise to contribute most effectively to sustainable development practices.

Knowledge Hierarchies in Sri Lanka's Energy Sector

To contextualize my analysis, this section turns to Sri Lanka's energy sector, challenges to sustainable development practices in that context, and the role played by expertise.³ A tropical island located off the southern tip of India, Sri Lanka has a population of just over 19 million people and enjoys higher than regional averages in health, education, and economic indicators. Ranking 93 in the United Nations Development Programme's 2005 Human Development Index, Sri Lanka is situated in the middle of the “medium human development” category, with life expectancy at birth of 74 years, adult literacy rates above 90% (89% for females and 92% for males), and gross domestic product (GDP) per capita of US\$948 (purchasing price parity US\$3778) (UNDP, 2005). The nation's ethnic makeup is roughly 74% Sinhalese, 18% Tamil, and 7% “Sri Lankan Moors,” which overlaps considerably with its religious makeup: 70% Buddhist, 15% Hindu, 7.5% Muslim, and 7.5% Christian (half of Sinhalese and half of Tamil ethnic heritage). The vast majority of Sri Lankans live in rural settings, with only 22% of the population in urban areas. Sri Lanka's mountainous geography combines with tropical rainfall to create an ideal setting for hydropower which provides over two-thirds of the nation's 1,500MW generation capacity, with the majority of the remainder coming

from fossil fuel-fired thermal generation (CEB, 1999).

Sri Lanka's energy setting is particularly relevant for investigating the role of expertise in development due in part to two challenges facing the country. First, electricity-supply deficiencies have plagued Sri Lanka since the 1980s, resulting in substantial power cuts across the nation for months on end. Due to heavy reliance on hydropower, energy-supply shortages are exacerbated during periods of drought. These shortages—recurrently dubbed “the energy crisis”—capture national attention and, at their peaks (1995–1996 and 2001–2002), were among Sri Lanka's most divisive political issues, surpassing even the 20-plus-year civil conflict in terms of attention from politicians and the media. Power cuts are administered by the national electricity monopoly, the Ceylon Electricity Board (CEB), as rolling, scheduled—and frequently unscheduled—blackouts, where power is cut for entire regions of the country for hours at a time. While larger businesses and wealthy residents have installed private generators, the majority of the population goes without electricity during power cuts. At the peak of the 2001–2002 power crisis, electricity was cut to the entire city of Colombo for up to six hours per day—three hours during the day and three hours in the evening.

The second, related challenge is that of rural electrification. While electricity shortages occupy newspaper headlines for months on end, advocates of Sri Lanka's rural poor agitate for greater attention to “the other side of the energy crisis.” Over two million households, comprising almost 50% of the country's population, lie beyond reach of grid electricity altogether. Despite an impressive ascent in rural electrification rates over the past few decades, grid extensions to remote regions are costly and further exacerbate the electricity-supply deficiency. Without access to grid electricity, “off grid” households either do without power or rely on costly alternatives: kerosene lanterns for lighting and, for the better off, automobile batteries (charged in the nearest grid-connected town) for radio and television.

In response to these energy “crises,” a relatively cohesive (if frequently contentious) community of energy and development experts coalesced and it was among these individuals that my research on energy and development expertise in Sri Lanka was conducted.⁴ Well developed in both breadth and depth, Sri Lanka's energy community is populated by

³ Portions of this section are taken from my dissertation (Nieusma, 2004).

⁴ My research in Sri Lanka consisted of 11 months of participant-observation, dozens of interviews, and media coverage analysis in 2000 (supported by the US National Science Foundation) and 2001–2002 (supported by the US-Sri Lanka Fulbright Commission).

Table 1 Major Organizations in Sri Lanka's Energy Sector.

Sector	Organization	Expert Knowledge Domains
Government of Sri Lanka	Ministry of Power & Energy	Oversight of state-owned energy agencies; energy policy making
	Ceylon Electricity Board (CEB)	Nationwide electricity-systems operation; least-cost energy systems modeling; large-scale hydro and thermal energy technology
	Alternative Energy Unit, Ministry of Science & Technology (MoST)	Energy-systems modeling and R&D; sustainable biomass agriculture; dendro technology
	National Engineering R&D Centre	Appropriate technology R&D; renewable energy technologies
	Ministry of the Environment	Environmental protection and policy; carbon trading
	Provincial Councils	Provincial energy policy; rural electrification
Private-Sector Organizations	Shell Renewables	Solar home-system financing and sales; sales office-network extensions
	Solar Electric Light Company	Solar home-system financing and sales; sales office-network extensions
	Lanka Electric	Electricity generation for grid connections
	Independent hydro power developers	Off-grid and grid-connected small-scale hydro systems design and implementation
	Solar Industries Association	Solar energy technology R&D, sales, and financing; lobbying of policy makers
	Bio Energy Association of Sri Lanka	Biomass energy R&D, finance, agriculture, and technology; lobbying of policy makers
Non-Governmental Organizations	Intermediate Technology Development Group, South Asia (ITDG-SA)	Appropriate technology R&D; technology-based development planning; rural development
	Energy Forum	Renewable energy technology and policy; grassroots-awareness raising; rural development
	Electricity Consumer Societies	Off-grid energy systems operation and maintenance
	Community-based development organizations	Rural development design and assessment; miscellaneous foci
International Development Organizations	World Bank (Renewable Energy Program Teams)	Energy-program finance; energy markets; renewable energy technologies
	Asian Development Bank (ADB)	Infrastructure-program finance

organizations and prominent individuals representing the three major social sectors—public, private, and civil society—as well as international development organizations (occupying hybrid positions). Table 1 lists the most prominent organizations that make up Sri Lanka's energy sector, with a focus on those entities working with renewable energy technologies or rural development. Table 1 also identifies each organization's primary domains of expert knowledge.

The diversity of organizational players provides undeniable strengths to Sri Lanka's energy sector. In spheres as complex as development planning, input from diverse knowledge domains is needed for informed decision making. Indeed, despite limited success in attaining development goals, five decades of intervention have led to more complex development initiatives that draw on a wider range of experiences, going beyond scientific, technical, and financial expertise to include cultural knowledge (Sen, 2004) and an understanding of the limits of technology-based aid (Willoughby, 1990). The widely touted, if loosely conceptualized, "integrated development" approach

attempts to bring together such experts in development planning.⁵ Furthermore, advocates of alternative development paradigms emphasize the need to include diverse "local knowledge" domains in addition to recognized expert knowledge. "Local knowledge" refers to knowledge domains relevant to specific contexts of project implementation and their environmental, cultural, political, and organizational peculiarities (Antweiler, 1998). This includes experiential knowledge at the same level as the decision being made—for example, national, provincial, and community—each with its own idiosyncrasies. It also includes local adaptations of "expert" knowledge, where generalized disciplinary knowledge is made meaningful within local

⁵ "Integrated rural development" strategies were popular during the 1970s and then fell out of favor after about a decade (Smillie, 2000). Still, the general idea of integrated development has remained in circulation, including among development workers in Sri Lanka. A contemporary example of an integrated development strategy is the World Bank's cross-sectoral initiatives that attempt to connect various projects and experts, in sectors as diverse as healthcare, education, infrastructure, and rural economic development.

worldviews.⁶ Problems arising from the failure to account for context-specific circumstances have been well theorized and documented since at least the early 1970s (Schumacher, 1973; Chambers, 1983; Papanek, 1984; Smillie, 2000).⁷

The fact that numerous organizations with diverse interests and wide-ranging expertise populate Sri Lanka’s energy setting, however, does not ease energy development decision making within the community. Intense negotiations occur among experts with competing notions of what is required for successful development, and sometimes with radically divergent definitions of development itself. In the course of research, these negotiations provoked questions such as: Is grid electrification a prerequisite for rural economic development, or does it encourage passivity and dependence? Should the design of development programs start from sound financial planning or experienced community needs? Can development projects be deemed successful simply by electrifying households, or are improved social and economic indicators also necessary? Such questions were debated in numerous settings across Sri Lanka. While the substance of these negotiations was interesting, my concern here is only with the processes by which they occurred. In particular, the following discussion will explore how knowledge and authority mapped onto expert practices in this context: Which forms of knowledge were included in or excluded from sustainable development decision-making processes? How were such determinations made? And how were they resisted?

One important determinant of authority in Sri Lanka’s energy sector is organizational power. Not surprisingly, powerful entities enjoy greater authority in development decision making than weaker organizations or unorganized groups. Yet even the most authoritative do not rely on power alone in coming to

decisions; they do not simply disregard their critics out of hand. Instead, the most institutionally powerful players justify development decisions by appealing to the expert knowledge under their command. During my research, for instance, the World Bank, arguably the most powerful player in Sri Lanka’s energy sector, typically justified its decisions by appealing to the authority of two domains of knowledge: project finance and market economics. Regardless of a proposed development project’s overall merits, if it did not fit the World Bank’s finance-based development approach, it was rejected on that count. Hence, organizational power combines with the authority of expertise to set the terms of debate in Sri Lanka’s energy sector.

Groups that reject the World Bank’s prioritization of financial indicators still must learn to use the language of project finance, market creation, and income generation if their voices are to be heard among the most powerful development project decision makers. In this way, decision making in Sri Lanka facilitates participation by those groups with the corresponding expert knowledge—those fluent in the dominant discourse. At the same time, it discourages participation by groups not conversant in the dominant discourse—those without the expert knowledge valued by authority structures. Figure 1 illustrates, in a loose hierarchy of authority, diverse organizations populating Sri Lanka’s energy community. The figure also includes diverse knowledge domains surrounding energy and development projects in that hierarchy and draws connections between the different organizations and the knowledge domains best represented within them. The term “knowledge hierarchy” refers to the authority structure of different knowledge domains, as represented in the left-hand column. In Sri Lanka’s energy community, the knowledge domains of market economics and project finance have greater authority than, for instance,

⁶ Scholars in science and technology studies have shown that all knowledge is an integral part of the specific worldviews in which it functions (Haraway, 1991; Restivo, 1994). No group brings pure knowledge divorced from the worldview that gives it meaning. Thus, as knowledge, even technical knowledge, is created within or moves between cultural groups, it is adapted to fit within those groups’ worldviews (Eglash, 2004). This insight has particular importance for how we conceptualize “local knowledge.” In an important respect, all knowledge is “local” in terms of being situated in a particular context. While Colombo is Sri Lanka’s “national” decision-making setting, the knowledge that circulates in Colombo is no more national than that which circulates in rural villages. Colombo knowledge does not encompass the knowledge of rural localities in the same way as a nation encompasses its hinterlands.

⁷ One could reasonably argue that the appropriate technology movement’s most enduring contribution to development thinking is that “context matters,” that context-specific knowledge is crucial to development planning and project implementation (Willoughby, 1990).

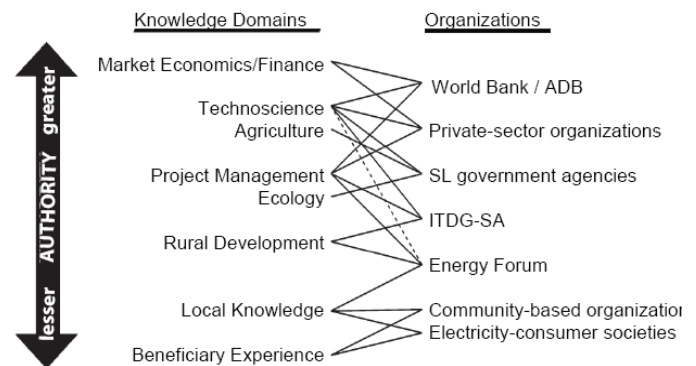


Figure 1 Knowledge and Organizational Authority Hierarchies in Sri Lanka

those of ecology and rural development. Beneficiary experience tends to have strictly limited relative authority. The figure does not suggest a causal relationship, but does show a clear correlation between organizational power and the authority of knowledge domains held within organizations.

This knowledge hierarchy is neither formal nor fixed. Relative positions change slightly over time, across context, and by issue. However, the overall configuration, and the connections between authoritative knowledge and organizational power, endures. Participants positioned lower in the hierarchies are not denied the “right” to have a say in development planning by virtue of their social standing or otherwise, but the perspectives of those individuals who represent less authoritative knowledge domains (or organizations) are simply trumped in decision making by those with greater authority.

As a brief example, let us consider a development project aimed at disseminating solar home systems in rural Sri Lanka. Community-level expertise with regard to the effectiveness of this project in meeting rural development goals—such as increased economic security, higher education achievements, and initiation of entrepreneurial activity—was neither denied legitimacy nor publicly devalued by the most powerful decision makers. To the contrary, its legitimacy was affirmed. Yet, in the relevant decision-making settings, it was nevertheless considered less important than the financial solvency of the development program itself. Rural development expertise simply did not overrule financial concerns affecting development planning.

Organizations with expert knowledge in domains lower in the hierarchy struggle to find ways to inject their perspectives into development planning, working within the dominant discourse to be heard while simultaneously challenging basic assumptions of that discourse. One such organization is the Energy Forum, a small non-governmental organization staffed and directed by six engineers and experts in community organizing and awareness raising. It works closely with project implementers and development workers representing a variety of disciplines. It also has exceptionally strong ties to local knowledge “experts” at many levels: Sri Lankan energy policy makers, regional environmentalists, provincial government functionaries, and community-based organizations across rural Sri Lanka. The Energy Forum employs a roundabout strategy for bringing marginalized expertise to the decision-making table. Rather than confronting the legitimacy of organizational power imbalances in Sri Lanka—a strategically “unmentionable” topic—the Energy Forum challenges the legitimacy of the given expert knowledge authority structure. Instead of confronting institutional

power inequalities head on, which most certainly would be a losing battle, the Energy Forum targets the knowledge hierarchy itself. In so doing, it seeks to put “experts” of various stripes on more equal footing, both in numerous local contexts and across the nation’s energy and development community.

The Energy Forum’s Three Development Interventions

In part because of its competing missions, the Energy Forum occupies an interesting place in Sri Lanka’s alternative energy community (see Figure 2). As a “forum” for Sri Lanka’s energy sector the organization’s first mission is to facilitate communication and cooperation among sometimes-competing energy-sector interest groups. In this role, the Energy Forum’s leadership seeks to maintain the organization as a nonpartisan “network hub” by not taking sides but by facilitating dialogue in energy controversies. The organization’s second mission, however, is to advocate specific types of solutions to energy and development problems. Of course, advocacy entails partisanship which conflicts with the first mission. Additionally, this second mission has its own internal tension, namely, that between endorsing specific alternative energy technologies and promoting the interests of the rural poor, especially through rural electrification.⁸ Members of the Energy Forum recognize that, although these two goals are often aligned, alternative energy technologies and the interests of rural villagers are not always compatible.

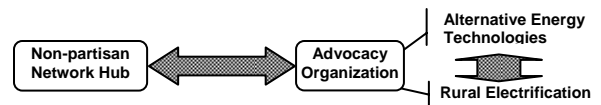


Figure 2 Tensions in Energy Forum’s organizational missions

The Energy Forum’s efforts to negotiate the tensions surrounding its multiple organizational missions parallel its work to reconcile a host of sometimes aligning, sometimes competing external interests and expertise surrounding energy and development in Sri Lanka. To provide a concrete sense of the organization’s approach, the following subsections will describe three specific activities: interest-group organizing, consensus meetings, and organizational networking. Each of these activities captures the Energy Forum’s implicit strategy of renegotiating the

⁸ The Energy Forum promoted “renewable, decentralized energy options,” such as small-scale hydro, solar photovoltaic, solar thermal, wind, and bio-energy. My shorthand “alternative energy technologies” encompasses these various systems.

role of expert knowledge in development decision making.

Interest-group Organizing

The first strategy employed by the Energy Forum to achieve its organizational missions has been interest-group organizing. Many players within Sri Lanka's energy community are poorly organized or totally unorganized, and many established development organizations work to coordinate a variety of interest groups in a number of contexts. Energy-sector development organizations seek to engage with rural communities for different reasons. One reason is the widely held belief that establishing formal organizational structures in beneficiary communities is needed to coordinate grassroots-development activities and to institutionalize responsibilities surrounding electrification-development initiatives. For example, if local community leaders are enrolled to promote solar-home systems or to collect loan repayments from community members who purchase such systems, it greatly facilitates the ability of rural electrification projects to meet their administrative and financial objectives. Likewise, if villages with micro-hydro facilities could effectively manage their own energy systems, rather than having them administered from distant Colombo, these projects could also more easily meet their goals.

In this vein, the Energy Forum organized several electricity consumer societies (ECSs) within villages that hosted alternative energy development projects. ECSs were initially launched in remote mountain villages with micro-hydro power plants. This was undertaken in part because such systems require careful monitoring (so that appliances such as irons, immersion water heaters, and refrigerators do not cause overloads), but also because a formal institutional structure is required for on-going management of project financing, systems operation, and plant maintenance. Almost everyone in Sri Lanka agrees that grassroots community organizations facilitate the administration of development projects and, therefore, are important determinants of project "success."

Most development workers recognize that strong community organizations benefit development projects by facilitating their administration. However, rural community advocates like the Energy Forum prioritize community organizing for a different reason, namely, because of its potential to promote learning and consolidate political power within rural communities, making them more effective in negotiating with external development decision makers. Community organization promotes learning by creating focal points for the interaction of residents and local skills-building initiatives. By consolidating political power within communities this kind of partici-

pation creates the potential to reverse the flow of information and, hence, development "knowledge." The Energy Forum's staff believes that for any group to have a voice in development decision making, even an indirect one, that entity needs to be cohesively organized so that powerful external groups do not advance their own interests by playing one community group against another. Rural communities without formal organizations cannot effectively represent their interests to government officials or external development agencies. The Energy Forum worked directly with many rural communities and local organizations across Sri Lanka and it often attempted to represent their interests in development planning meetings. At times, the Energy Forum was partially effective in speaking on behalf of rural communities, but its staff members believed they could only do so imperfectly, in a manner different from those groups speaking for themselves.

While ECSs effectively operated in dozens of villages across Sri Lanka as of 2002, the remoteness of the villages and the lack of communication channels meant that most of them could not share their experiences or coordinate their activities. Poor interaction among ECSs also meant that even official ECS representatives could speak authoritatively only on behalf of individual villages. For instance, when ECS representatives criticized specific policies or practices surrounding development programs, national decision makers easily dismissed those criticisms as anecdotal, "non-expert," or otherwise not characteristic of systemic shortcomings. To foster greater collaboration among ECSs and to bolster their authority the Energy Forum sought to take their organization to the next level. Working together with all of the individual societies, the Energy Forum helped to create a formal meta-organization, the Federation of Electricity Consumer Societies (FECSs). This meta-organization, the Energy Forum hoped, would not only encourage mutual learning among individual societies but also provide a powerful voice for communicating shared concerns to development program decision makers.

As this initiative illustrates, the Energy Forum seeks to create strong, cohesive organizations that can provide a vehicle for rural communities to present for themselves their experiences and understandings, allowing them to initiate communication flows that move up the development chain of command instead of always remaining only on the receiving end. By coordinating interest groups within and between rural communities, and by creating organizations to communicate rural perspectives to national decision makers, the Energy Forum has sought to increase the authority of rural community representatives vis-à-vis recognized development experts in Colombo's highly organized institutions.

Consensus Meetings

A second strategy employed by the Energy Forum has been the “consensus meeting.” In Sri Lanka’s national energy sector, certain groups are mired in highly contentious disputes over energy planning: community-development experts struggle with least-cost economists, socialist Provincial Council ministers struggle with World Bank program managers, and environmentalists struggle with coal-power advocates. Although all these groups are represented by what most participants would concede are, in fact, “experts,” there are significant differences in their authority. The Energy Forum’s consensus meetings brought together these “competing” experts to counter the divisiveness that inhibits development planning surrounding energy and electrification.

Through its consensus-building approach, the Energy Forum does not intend to eliminate substantive disagreement, but to catalyze constructive dialogue and mend strained relations among entrenched positions. For example, in bringing together CEB officials with representatives of environmental groups the Energy Forum did not expect to resolve a decades-long debate over the future of coal power in Sri Lanka. This debate has forced the CEB to conduct site and environmental impact assessments for one proposed plant location after another, costing the CEB, and hence the nation, millions of dollars. The controversy also allows the CEB to place responsibility for deficiencies in the country’s electricity supply squarely, though undeservedly, on the shoulders of the environmental lobby. Especially in the nation’s newspapers, the debate between the two sides of the coal-power option is deeply divisive and, for the most part, unproductive. Similarly, though with less derision or fanfare, Provincial Council socialists clash with the World Bank over the appropriate role of government in rural electrification, with the former advocating a central role for government and the latter striving to eliminate, insofar as possible, government agencies from the implementation of development projects. Community development experts advocating decentralized technologies clash with least-cost energy planners advocating centralized coal power.

Rather than expecting to resolve these deep-seated disagreements or to equalize the considerable institutional power imbalances, the Energy Forum used its consensus meetings to subtly but significantly shift the discourse surrounding these issues. The consensus meetings achieved this goal by creating a balanced conversation among experts representing radically different positions of institutional authority. The Energy Forum adopted the position of “neutral mediator” by laying out the ground rules for

the discussion and moderating interactions to ensure that those rules were followed. It otherwise played a minimal role. The agendas for these meetings gave equal time to each side to present and respond, followed by a carefully moderated open discussion in which the Energy Forum did not take sides, explicitly or otherwise. Nevertheless, the very act of putting experts with different kinds and levels of institutional authority together as equals increased the less authoritative groups’ legitimacy.

Since the Energy Forum’s aim with the consensus meetings was to achieve agreement in terms of *procedure*, not necessarily in terms of substantive outcomes, participants were expected to agree on the importance of “hearing out” opposing perspectives. They were also expected to identify both where and why they disagreed and where and why they agreed. To be sure, creating procedural consensus in the face of ideological disagreement fueled by organizational power imbalances was no trivial achievement; the Energy Forum expended significant social capital and achieved modest results. But here again, as with organizing the FECSSs, something more was at stake: systematically empowering institutionally marginalized groups and increasing the relative authority of their expert knowledge. Whereas the Federation empowered rural community members *vis-à-vis* Colombo experts, the consensus meetings empowered one group of experts relative to another.

Organizational Networking

A third strategy employed by the Energy Forum has been organizational networking. The prior strategies discussed—interest group organizing and consensus meetings—are two among many ground-level activities that the Energy Forum has sought to integrate into a larger networking initiative. This larger initiative is intended to achieve systematic, fair, and well-informed energy decision making in Sri Lanka. In particular, the Energy Forum has sought to institutionalize a comprehensive approach to empowering marginalized groups through the creation of what it called the “National Energy Network.” As with consensus meetings and interest-group organizing, the Energy Forum had both modest, practical goals and grand ambitions for the National Energy Network. Practical goals included identifying and initiating strategic linkages between a host of previously unconnected organizations or interest groups, especially among different levels of the network. More ambitiously, the Energy Forum sought explicitly and systematically to bring more diverse interests and knowledge domains into the nation’s energy-planning and decision-making processes. For example, the network included organizations from all three social sectors—public, private, and civil society—as well as

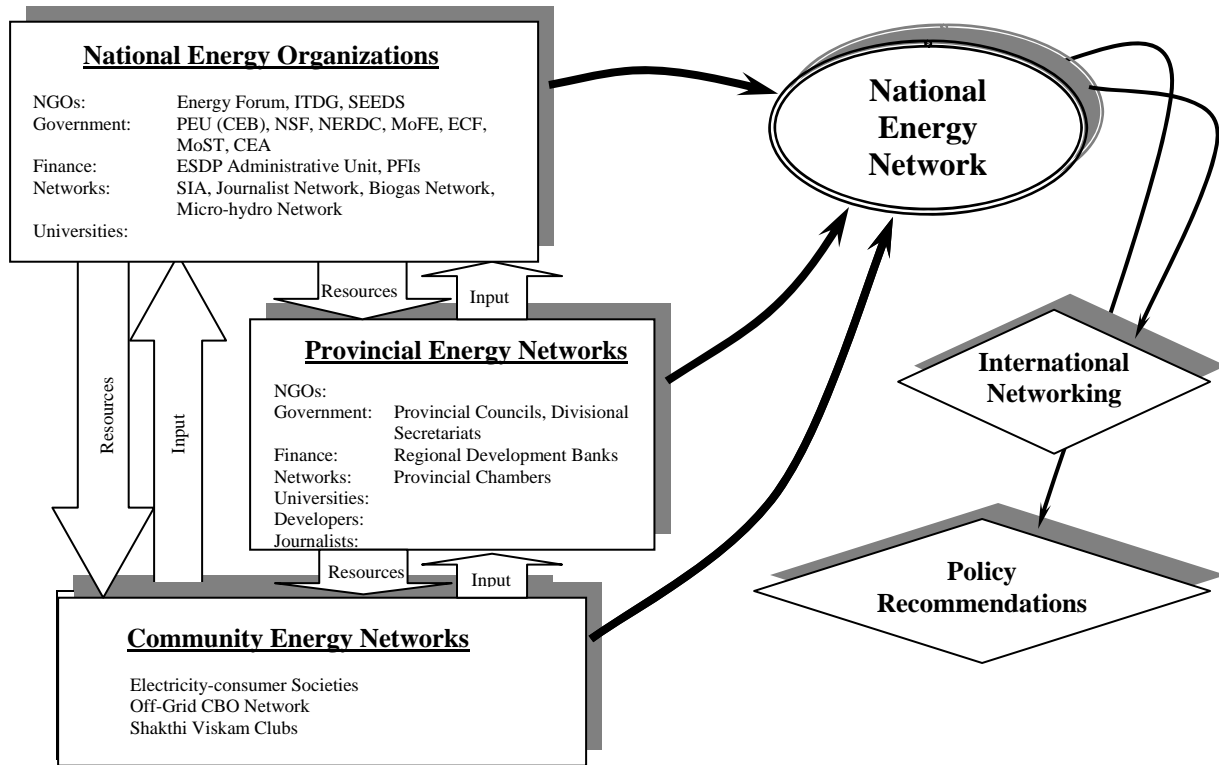


Figure 3 The Energy Forum's National Energy Network schematic (see appendix for acronyms).

from all three levels of government—national, provincial, and community. The National Energy Network was envisioned as a path to sustainable development through “strongly democratic” energy decision making.⁹

The Energy Forum’s conceptualization of the National Energy Network is illustrated in Figure 3. Despite the top-down representation of the national, provincial, and community levels in the figure, the individual arrows linking each level to the national network are intended to communicate that each is to have equal input. Similarly, input is to flow up, from communities to national organizations, and resources are to flow down. The Energy Forum’s coordinator intended this depiction to show how all energy policies should be directed to local community development needs rather than to solidifying the positions of authority of national or provincial organizations vis-à-vis other interests. In other words, the Energy Fo-

⁹ Benjamin Barber (1984) defines “strong democracy” as broad-based citizen participation in governance and elaborates how such participation contributes simultaneously to better decisions and participant edification. Selove (1995) extends the application of Barber’s concept from ordinary political contexts to technology design and implementation. Using the language of democratic deliberation, Fischer (2000) makes a similar argument in the context of environmental decision making.

rum believed that while national-level organizations should provide the financial and technological resources needed by local communities, the communities themselves should have a say in determining how those resources ultimately would be directed, based both on their priorities and on their knowledge about what is workable within their specific local contexts. Once again, we see a strategy to renegotiate the authority of different knowledge domains. One might even say that “expert” knowledge is involved in both flows: “how-to” knowledge as a resource flowing down and “what can work” knowledge flowing up.

According to the Energy Forum, the National Energy Network schematic also communicates something important about where “global” perspectives are to fit. The “international networking” diamond exists outside of the national network, indicating that it is Sri Lanka’s prerogative to determine its energy-policy directions and development goals and not that of the international agencies that provide development assistance. In the Energy Forum’s version of a national energy network, Sri Lankan decision makers would first determine the nation’s energy and development goals and then proactively “network” with international players for assistance to achieve those goals. Here again, strategic planning

input flows “up” to international agencies and resources flow “down” to increasingly local contexts: national, provincial, and rural community.

As conceptualized and represented, the National Energy Network embodies a powerful criticism of dominant development practice where external organizations determine development priorities (based on their own assessments of what is desirable and possible) and then create financial incentive structures for Sri Lankan organizations to achieve those priorities. With its conceptualization of the National Energy Network, and efforts to institutionalize elements of it, the Energy Forum attempted to renegotiate the relative authority of diverse knowledge domains contributing to development decision making, emphasizing the knowledge held by participants occupying different positions in the local-global spectrum. Here we see most explicitly how the Energy Forum has sought to empower marginalized social groups by increasing the authority of their knowledge relative to that of institutionally authorized development experts.

Challenging Knowledge Hierarchies

For most intractable development problems, the root cause is not lack of relevant knowledge but institutional structures that systematically exclude relevant groups from contributing their knowledge in effective ways (Chambers, 1983; 1997; Cooke & Kothari, 2001). In Sri Lanka, as in many development contexts, organizational power and expert authority reinforce one another and, intentionally or not, combine to exclude relevant knowledge domains from development decision making. Efforts to include “local knowledge” through more effective direct participation are an important step toward addressing the problem, but without simultaneously focusing on inequalities arising from knowledge hierarchies, these initiatives cannot address the underlying causes of unsustainable development practices. The Energy Forum countered this tendency by challenging the knowledge hierarchies that undermined effective participation by diverse stakeholders. In this way, the Energy Forum worked to create settings where diverse knowledge domains could be put on the table simultaneously and with greater equality, thereby building social and institutional infrastructure to enable sustainable, participatory development decision making (Sclove, 1995; Fischer, 2000). Arguing for the inclusion of local knowledge in development, however, does not go far enough (Cooke & Kothari, 2001). It is necessary to move beyond simple dualities regarding knowledge domains, such as “expert” and non-expert/local. The concept of a knowledge hierarchy suggests a much more complex arrange-

ment of “competing” knowledge domains and types of expertise within a given context. Within Sri Lanka’s energy community more and less authoritative knowledge domains constantly interact, including more and less authoritative domains of expert knowledge.

The most important mechanism of exclusion in this context is not outright denial of participation through raw institutional power. Rather, the most important mechanism is systematic delegitimation through highly circumscribed participation. Here, the Sri Lanka case sheds light on the more general lesson of how expertise can inhibit sustainable development. Exclusion operates through the relative authority of different knowledge domains and their prioritization: which receive the most attention, which receive first consideration, and which hold the power to overrule others. Of course, this insight does not deny the ability of powerful institutional players to simply deny or ignore competing perspectives. But such heavy-handed exclusion is relatively easy to identify and analytically straightforward to counter. More often, exclusion operates through more subtle mechanisms, such as minimizing the relevance or diminishing the authority of entire knowledge domains.

The development interventions discussed above show how the Energy Forum’s overarching intervention strategy is to challenge knowledge authority structures themselves. This strategy highlights the need to move beyond facile calls for greater inclusion in development decision making by confronting the *mechanisms of exclusion* resulting from knowledge hierarchies. Rather than advocating solely for wider inclusion in development decision-making contexts, the Energy Forum strives to understand how the knowledge hierarchy operates in Sri Lanka’s energy community and then to design intervention strategies that directly challenge the operation of that hierarchy. This strategy is founded upon recognition of how expertise embodies not only relevant expert knowledge but also how it is grounded in socially contingent authority structures. In other words, it recognizes how expert knowledge and authority come together as a resource for consolidating power around established institutions and approaches to development planning.

Through its interventions into Sri Lanka’s energy community, the Energy Forum challenges knowledge hierarchies by creating 1) localized contexts where participants’ expert authority is temporarily equalized (relatively, not absolutely) and 2) institutional structures that solidify authority and project it into the future. In this way, the Energy Forum seeks to mediate and redirect Sri Lanka’s overall energy and development planning by flattening the surrounding knowledge hierarchies in ways that systematically

empower marginalized knowledge domains. This strategy enables a form of inclusion that is genuinely open to diverse knowledge domains rather than merely allowing token representation of certain perspectives while simultaneously disqualifying that input by setting the terms of discussion so that their underlying knowledge becomes irrelevant. This strategy can easily be generalized to any development context. Because knowledge domains that are lower on relevant knowledge hierarchies are so regularly excluded in development planning, which further exacerbates political and economic inequalities, scholars interested in sustainable development should dedicate special attention to the operation of knowledge-authority structures and to theorizing alternatives.

By intervening to promote more open development processes, the Energy Forum challenged not just the exclusion of one or another particular group, but also the primary mechanism of exclusion—the knowledge hierarchy. By employing this approach, the Energy Forum recognized that even accepted “experts” of various stripes are marginalized relative to experts representing more authoritative knowledge domains. Challenging knowledge hierarchies themselves addressed the *process* of exclusion, not just one or more particular outcomes of that process. Hence, this approach challenges power imbalances head on instead of seeking to reconcile the particular makeup of a specific knowledge hierarchy at a given time. This approach confronts power imbalances head on instead of seeking to reconcile the makeup of a specific knowledge hierarchy at a given time. When the Energy Forum challenged knowledge hierarchies, it disallowed the most powerful groups from determining the terms of discussion, and instead allowed each major stakeholder to contribute its perspective—its knowledge and interests—in its own terms. Creating ways for particular groups to interact around common development questions required the Energy Forum to provide not only alternative contexts for collaboration, but also to fashion alternative structures for interaction. To achieve this goal, the Energy Forum built upon its expertise in community-awareness raising by reflecting that expertise back into the assemblage of development experts—not only toward rural villages. The Energy Forum’s authority was based on an innovative mix of competence in diverse development discourses, a steadfast appeal to common development goals, and a widely perceived sense of commitment and good will. The organization leveraged this authority in its efforts to challenge knowledge hierarchies.

Conclusion: Expertise and Sustainable Development

Achieving sustainable development requires going beyond the recognition that many knowledge domains are legitimate within decision making. The task also entails identifying systematically excluded domains, understanding how that exclusion takes place, and devising strategies for effectively including these marginalized perspectives. The existence of knowledge hierarchies creates barriers for effective integration of diverse knowledge domains by linking knowledge authority to institutional power rather than relevance to the problem at hand. When different knowledge domains suggest divergent decision paths, or when the complexity of an intervention requires planners to prioritize inputs, more authoritative knowledge domains typically trump less authoritative ones. Here, we see most clearly the importance of understanding expertise as specialized knowledge *plus* authority. It is authority rather than the possession of relevant knowledge that most sharply distinguishes those considered “experts” from other participants in the development process.

Without an understanding of how expertise is implicated in development failures, genuine and sustained empowerment of intended beneficiaries is impossible, and hence sustainable development is unlikely. The rearrangement of material resources by itself—that is, devising and distributing new technologies or new systems of material interaction while maintaining dominant relations of expertise—leaves existing authority structures intact and thereby precludes sustainable development. It is imperative, therefore, that experts who wish to contribute to more sustainable development initiatives attend to the knowledge hierarchies in which they operate. Unreflective appeals to the authority of expert knowledge—what we typically take to be “expertise”—recreates the very power inequalities that disable devolved decision making and local empowerment. If we consider “development” as empowerment, and “sustainable development” as empowerment that systematically leads to non-exploitative social and human-ecology interactions, then expertise hierarchies must be flattened (not inverted) so that experts representing the experiences, knowledge, and interests of marginalized social groups have a relatively greater voice in development decision making.

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Appendix: Acronyms for the Energy Forum’s National Energy Network Schematic

ITDG	Intermediate Technology Development Group, now Practical Action
SEEDS	Sarvodaya Economic Enterprises Development Services
PEU (CEB)	Pre-Electrification Unit (Ceylon Electricity Board)
NSF	National Science Foundation (Sri Lanka)
NERDC	National Engineering Research & Development Centre
MoFE	Ministry of Finance & Economy
ECF	Energy Conservation Fund
MoST	Ministry of Science & Technology
CEA	Central Environmental Authority
ESDP	Energy Services Delivery Project
PFI	Private Financial Institutions
SIA	Solar Industry Association
Shakthi Viskam Clubs	Student energy clubs