Chapter 2
Think Global, Act Global in the Mekong Delta? Environmental Change, Civil Society, and NGOs

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Abstract The Mekong delta is experiencing rapid growth in foreign investment and trade, urban development, industry, agriculture, and fisheries. With these come externalities of river-flow interruptions, habitat destruction, and pollution interacting with climate change to weaken environmental services. Results can present unprecedented livelihood challenges to communities in one of the most environmentally vulnerable areas of Vietnam. Overcoming the increasing stress and its consequences requires new skills, a forward-looking governance framework, and engagement of millions of delta households. Questions therefore arise about how to address the magnitude and geographic scale of such challenges by developing appropriate institutional and human resources how and to ascertain society's proper role in this process. Civil-society studies have mostly examined the political and societal context of nongovernmental organizations (NGOs) in Vietnam, but NGO initiatives in environmental restoration are at an early stage and less frequently studied. Defining the urgent environmental pressures on the Mekong delta, especially in aquatic systems, this chapter outlines the need for an expanded vision in identifying solutions and widening society's contributions. This chapter also details the institutional constraints to society and NGO action. The chapter argues that more visible global engagement in restoration and management is needed given Vietnam's position as an emerging, natural resource-dependent society and its increasingly international-linked delta economy.

Keywords Civil Society • Environment • Mekong • NGO • Vietnam

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2.1 Introduction

The impressive record by Vietnam in reducing poverty and unemployment, improving health, attracting investment, expanding exports in the production of food as well as manufactured goods and services has been termed a model of development and a success story (Thoburn 2009). After more than a decade of continuous high growth rates and progressive integration with the world economy, Vietnam's development has, however, been challenged by multiple international crises in food, finance, health, and internal macroeconomic instability (Riedel 2009). Both national and international agencies have commented on the need to reexamine development strategy and to focus rather more on the quality of growth as Vietnam approaches middle-income status (Nguyen Anh Ngoc et al. 2009; Pincus 2010).

Development has come at an environmental cost, and nowhere have the impacts of development been more pronounced than in Vietnam's coastal zone. Most industrial and commercial activity occurs in these areas, and most of Vietnam's major cities, population, and people of low-income status are located in the coastal zone and delta areas. Large-scale finance and infrastructure investments are focused mainly along the coastline and in its expanding urban centers. The Mekong delta (including 12 provinces, Ho Chi Minh, and Can Tho cities) has been a leading driver of national development and international trade. About 27% of the country's manufacturing firms and 29% of manufacturing workers are located in Ho Chi Minh City (Dore et al. 2008). The 2009 Provincial Competitiveness Index indicates that 10 of the 12 delta provinces, along with Ho Chi Minh and Can Tho cities, are ranked in the top 22 positions (Malesky 2009), and national production statistics (Table 2.1) identify the delta as the main business center, rice and fisheries producer, and revenue earner in Vietnam.

Ho Chi Minh City and environs captured almost 30% of foreign direct investment (FDI) in Vietnam from 1988 to 2007 (Athukorala and Tien Quang Tran 2008). The region is also the major contributor to foreign-exchange earnings through

Table 2.1 Contribution of Mekong delta production to Vietnam's economy (Source: GSO 2009)

Industry, agriculture, and fishery statistics	Mekong Delta[a]	Percent in country
Gross industry output (Billion VND)[b]	460,993	31
Net business turnover (Billion VND)[c]	1,194,230	35
Planted area of paddy rice ('000 Ha)	3,889	52
Production of paddy rice ('000 tons)	20,788	53
Number of farms	58,896	49
Number of fish farms	25,770	74
Aquaculture water surface ('000 Ha)	762	72
Aquaculture shrimp production (tons)	315,691	81
Aquaculture fish production (tons)	1,428,972	77
Gross output of fisheries (Billion VND)	34,407	69
Production of fisheries (tons)	2,744,145	60

[a]Includes Ho Chi Minh city, Can Tho city, and 12 provinces
[b]Current prices
[c]For 2007

exports, including 90% of national rice exports and aquatic products that have driven national fisheries expansion, making this sector the fourth highest earner of foreign exchange for Vietnam. By 2008, catfish (*Pangasius* and *Pangasionodon* sp.) aquaculture exports (mainly from the delta) reached 117 countries and territories and were valued at US$ 1.45 billion. At the same time, shrimp (mainly *Penaeus monodon*) exports were valued at US$ 1.63 billion. Catfish and shrimp exports combined accounted for 68% of Vietnamese aquatic-product exports. These national contributions and Ho Chi Minh City's revenue-sharing with other provinces have led Malesky (2008) to argue that the city has special national leverage. Vind and Fold (2010) have proposed that the city is emerging in international importance as part of a "Global Commodity Chain" with extended impact on the countryside through the attraction of migrant labor and international connectivity.

Coastal development pressures will intensify as Vietnam plans to increase the contribution of the coastal and maritime economy to more than 50% of national GDP by 2020 (CPV 2007). As the southeast region and delta continue to attract investments (Dinh Thi Thanh Binh 2010) and international exposure, it is also likely that this region will increasingly become even more of a public environmental "hotspot." The future brings both great opportunities and worrying challenges. No longer considered only a biodiversity or conservation issue, environmental threats are a growing and critical social and economic concern, especially for many communities whose livelihoods depend directly on living resources. The need to accelerate action to reduce environmental damage in Vietnam and to restore ecosystems is being increasingly voiced by government, citizens, international nongovernmental organizations (INGOs), and donors (Anon 2008; MPI 2009; Vietnam Development Report 2007).

In the Mekong delta, despite the growing evidence of environmental damage, top-down management action has been slow and inadequate; and water-based environmental threats are increasing. Broadening civic engagement in policy development, decision-making, and implementation has been suggested as much-needed, new development pathways are emerging (Friend 2009; Hirsch 2001; Lebel et al. 2005). While local-level action is essential to improve the quality of economic development in the delta and to overcome environmental threats, it is proposed that much greater emphasis than presently exists must be given to the reality of the delta's growing international development drivers, national leverage, and linkages between the two. Local initiatives should take advantage of international conservation trends and develop effective advocacy and diplomacy to influence and mitigate effects that arise outside the delta. To do this effectively, given the social complexity, wider and more organized community engagement is also needed.

2.2 The Environmental Situation in the Delta

The Mekong delta spans 39,000 km^2 in Vietnam with 61% in agriculture and aquaculture use (Deltares 2009). In terms of fish species, the delta is reported to be the most biodiverse region of the Mekong River, with 73 families and 481 species.

Its ecosystems are, however, vulnerable due to agriculture, urban and industrial pollution, eutrophication, sediment fluctuation, dredging, water diversion, habitat damage, and over-harvesting (ICEM 2010). At basin levels, Vietnam has lost more than 60% of the mangrove forests in wetlands and tidal floodplains, especially in deltaic areas, with more than 2,000 km^2 lost in the last 20 years. Only 21% of existing mangrove areas are original forests, the rest have been replanted (VEPA 2005). Sub-tidal coastal and marine wetlands, which form more than 25% of Vietnam's delta wetlands, are under stress (Snidvongs et al. 2003). A wide diversity of farming, rice cropping cycles, and aquaculture systems have displaced delta wetlands (Phan Minh Thu and Populus 2007; Joffre and Bosma 2009; Sakamoto et al. 2009), and urban and industrial development have also led to a reduction in cultivable land (Tran Thi Van and Ha Duong Xuan Bao 2007). Clearing of coastal forests for agriculture and aquaculture has contributed to ecosystem fragmentation, the intensified energy of coastal waves and winds reaching inland, increased flood risk, and facilitated extension of saline regimes inland (Mazda et al. 2004). Globally, the Mekong coastal ecosystem is ranked third in terms of threats from cumulative land-based impacts of nutrients, organic and inorganic pollution, and the coastal population (Halpern et al. 2009).

Pollution loads in the Mekong delta are significant. Ho Chi Minh City is ranked as the first and Can Tho City as the fourteenth most polluting municipality/province in Vietnam (Dore et al. 2008). Pollution is a mix of agriculture and aquaculture chemicals and waste, as well as industrial and urban solid, liquid, and gaseous discharges. Monitoring of the delta has identified extremely high concentrations of veterinary antibiotics linked to livestock farming (Managaki et al. 2007), and pesticide use is estimated to cost US$ 251 million in terms of the loss of use of water resources (Dang Minh Phuong and Gopalakrishnan 2003). Health costs of pesticides are estimated at US$ 650/farmer/ km^2 (Nguyen Huu Dung and Tran Thi Thanh Dung 1999). A bio-monitoring program initiated by the Mekong River Commission (Dao Huy Giap et al. 2010) showed that in 2008 only 40% of sites sampled in the Mekong delta of Vietnam were rated as Class "B" (good).

Perhaps, however, the most contentious trans-boundary issue is the development of dams. Up to 153 major dams are in various stages of development throughout the Mekong basin. These barriers will result to changes in hydrology, sediment load, water quality, and flow interruptions. Kummu et al. (2010) provide estimates of the amount of sediment trapped by existing and planned reservoirs on the mainstream and subbasins of the Mekong River, concluding that more than 50% of the total basin sediment load could be trapped, with potentially severe impacts on the floodplains and delta area in Cambodia and Vietnam.

With 40–70% of the total fish catch in the Mekong reported to depend on migrating species (Barlow et al. 2008; Baran and Myschowoda 2008), the future of fisheries' livelihoods in the world's largest inland fishery looks bleak. Vietnam's delta fisheries are considered as "High Risk" due to biodiversity changes and barriers to completion of life cycles and migrations. Poor households that are the most dependent on capture fisheries will be the most affected (Baran and Myschowoda 2009; Kang et al. 2009).

Delta-capture fisheries' indicators already show downward trends. Declines in catches and sizes of large migratory fish and an increase in low-value species in Mekong fisheries are documented by Baran and Myschowda (2008), and coastal fishery surveys of Soc Trang, Bac Lieu, and Ca Mau provinces indicate that 70% of catches are composed of young and immature fish (Tran Van Viet and Tran Xuan Loi 2007). Catch rates of the inshore trawler fleets in Ca Mau and Bac Lieu provinces from 1996 to 2002 also show reductions of 30–40% in shrimp catches (Christensen and Dang Van 2008).

The Mekong River may not only have near-coastal impacts. Delta coastal fisheries' productivity was earlier linked by Chevey (1933) to annual flooding of the Tonle Sap Lake in Cambodia. Oceanographic studies suggest that the Mekong River plume stimulates phytoplankton growth and oceanic primary production in the western South China Sea (Bombar et al. 2010; Voss et al. 2006), with about 77% of the surface water in the central part diluted by Mekong River flow (Chen et al. 2009). Impact on the Gulf of Thailand is less studied; however, the river's plume is known to reach the middle part of the Gulf (Wolanski and Nguyen Huu Nhan 2005). The downstream ecosystem linkages of the plume, including possible effects on offshore fisheries, remain to be determined.

2.3 Climate Change in the Delta

Superimposed on national development changes are the environmental, social, and economic impacts of climate change. The planning scenario for Vietnam is an average sea level rise (SLR) of 1 m by 2100, modeled to affect 37.8% of the Mekong delta and 23% of the greater Ho Chi Minh City area. Expected results are inundation and salinization of land, coastal infrastructure, industrial enterprises, critical biodiversity, and protected areas. By 2050, about one million persons are estimated to be threatened with displacement (Carew-Reid 2008; UNDP 2009). Ho Chi Minh City is projected to be among the ten most globally exposed cities by the 2070s (Nicholls et al. 2008). Indirect effects and economic and social impacts are less well understood, though intra-regional migration is expected to increase. It has also been suggested that nearer-term climate challenges may be translated into international trade pressure through tariffs, taxes, restrictions to "carbon neutral" products, or the purchase of carbon credits being applied to exporting countries that do not cut emissions (Baumüller 2010; Kirkpatrick et al. 2010).

Of special concern in the delta are climate-change synergies with the multiple stressors of ongoing economic development. These include (1) Coastal subsidence caused by excessive groundwater extraction and deforestation (Pham Thi Viet Nga 2008) leading to increased areas and depth of salt-water intrusion; (2) Coastal deforestation – for example, of mangroves – that accelerates erosion, intensifies wind energy reaching the coast, increasing tidal heights, flooding, salt-water intrusion, and greenhouse-gas levels (Mazda et al. 2002, 2004); (3) Water-flow interruptions through improper barriers, dikes, or dams that may increase the risk

of flooding (Le Thi Viet Hoa 2007); (4) Urban and industrial development practices that amplify surface-temperature increases due to urban heat-island effects, already documented up to 9° higher in Ho Chi Minh City (Tran Thi Van and Ha Duong Xuan Bao 2010); (5) Overfishing that makes recruitment in fish populations more variable and more vulnerable to environmental and climate extremes (Anderson et al. 2008). How these combine to shape ecosystem change and their dependent delta communities warrants much greater attention, especially the need to avoid adaptive responses that focus only on selected effects, for example, sea level rise, but in doing so create other environmental and social stresses.

2.4 Environmental Restoration: Developmental Issues

Economic progress in the delta depends on restoring environmental capital while advancing economic development. This is a scientific and social challenge it, and directs development planning to value the delta's environment and ecosystems in ways not limited to marketable commodities or restricted to present value. These research initiatives are still at an early stage in Vietnam but are delivering valuable information for planning. For example, Do Nam Thang and Bennett (2008) demonstrate that a biodiversity conservation program in Tram Chim National Park generates a net social benefit of US$ 0.15–0.96 million. Timber extraction is forecast to increase at an annual rate of 6% beginning in 2010, the Mekong River Delta being one of the most important timber-producing regions (World Bank 2010). However, Vu Xuan Nguyet Hong et al. (2007), in comparing forest-use value in Vietnam, estimated conservation-oriented forests to generate higher values than production/timber use. Development externalities in the delta (pollution, deforestation, habitat damage, overfishing, river-flow interruptions) and incentives also need to be quantified in financial and social terms and used in planning decisions, management, and enforcement.

Administratively, at the country level in Vietnam, there are a range of implementing and collaborating institutions that make environmental governance more challenging. Key institutions and organizations relating to the United Nations Framework Convention on Climate Change (UNFCCC) include 7 ministry and ministry-level institutions and 13 national institutes (MonRE 2005), and for water resources management-9 ministries and 18 departments (Do Thi Nham 2008). In addition, there are academic institutes, provincial- and municipality-level departments, and university-based institutions. In terms of legislation, there are national laws, regulations, decrees, directives, decisions, ordinances, and circulars at country, provincial, and local levels. From 1987 to 2003, over 100 of these legal instruments have been issued in the fisheries sector alone (Pomeroy et al. 2009). Despite this profusion, there may be overlaps, inconsistencies, loopholes, or other inadequacies – for example, a low level of fines, inconsistent monitoring and enforcement, and rent capture – leading to minimal compliance even by serial offenders.

Settlement of citizens' administrative complaints also strains existing systems. Hoang Ngoc Giao et al. (2009) concluded that there is an increasing trend of formal complaints in diverse areas, including land management and the environment, and that complaints were becoming more complicated and diversified. Citizens, however, had difficulty in organizing, presenting, and settling their claims, state organs were overloaded in handling them, and inefficiency in existing mechanisms may in fact prolong and increase complaints. These conditions suggest that there are opportunities for third-party perspectives and engagement through national and international civil-society organizations (CSOs) to strengthen citizen capacities to manage their claims and to assist the government in improving the systems that process them.

The challenges of competing geographic scales of interventions are also significant. Major projects, planning, and research programs in the Mekong operate at scales defined by boundaries as the "Greater Mekong Sub-Region, Mekong Basin, Mekong River, Lower Mekong, and Mekong Delta." These provide a "top-down" framework and a "big picture" context that promotes cooperation at country and regional levels to address trans-boundary challenges. However, this scaling tends to ignore the local, where production activities occur and also where most of the initiatives aimed at reversing environmental damage and its social impacts take place. Some have asked what impact does this "rescaling" of the challenge, this larger-scale emphasis and region-wide institutional effort, have on development of civil-society groups' efforts to come to terms with these same environmental issues (Hirsch 2001)?

In parallel, community-based levels of management are often proposed as the major form of intervention for a number of reasons: perceived inadequacies of top-down or central government management; a preconceived belief in grass-roots solutions; trust in the effectiveness of traditional and culturally embedded approaches; inadequate analysis of local situations and drivers; practical limits imposed by short-term and underfinanced interventions to handle "manageable" situations with a visible result; and limitations of implementing agencies. Often, site-specific reasons for the apparent failure of "top-down, central government" approaches (the commonly used description) are not examined. The result is that scattered community-based projects are becoming a dominant development strategy, and they continue to be favored by donors to civil-society groups and formal NGO programs. Past World Bank portfolios for funding this approach approximated US$ 7 billion (Mansuri and Rao 2003). Interestingly, in a study of four project sites in Vietnam with a view to involving intermediaries in introducing Payment for Environmental Services (PES) programs, all interviewees claimed that local organizations had the least power among possible intermediaries (Pham Thu Thuy et al. 2010).

Criticism has also been raised of the validity of exclusive dependence on participatory and community-based derived knowledge and research (Rambo 2009), and there have also been difficulties in identifying achievement of success in community-based management (Shackelton et al. 2010). Nevertheless, it has been argued that in community intervention, "there is no management 'end-point' to be achieved,

only continual adjustments and capacity-building efforts," using an experimentive and adaptive management approach, but still requiring higher-order governmental support (Truong Van Tuyen et al. 2010). Where threats, drivers, and control originate only locally, in most cases solutions can be found locally. In the cases of national, trans-boundary, regional, and international origins of physical disturbances or economic-demand-driven local actions, as in the Mekong delta, permanent solutions need multilevel management, as well as wider stakeholder and institutional involvement (Berkes 2007). Identifying such boundaries that need to be addressed, Cash et al. (2006) propose spatial, temporal, jurisdictional, institutional, management, network, and knowledge components. Berkes (2006) cautions that "overemphasis on community-based management runs the risk of defining issues at one level instead of many. Communities may be complex and embedded in further complexity due to intervening layers and external drivers, and because of the problem of fit between institution and ecosystem boundaries." Cudney-Bueno and Basurto (2009) show that failure to obtain higher-level, cross-scale governance support for community-based management efforts can lead to their demise. These perspectives place greater demands on civil-society groups and NGOs to develop strategies that rigorously examine each situation, develop criteria and forms of entry and exit, work at different scales, and justifying these in their development plans.

Two main development challenges emerge from these tensions. First, there is the challenge of establishing connectivity and support between the wider framework across countries and the local groundwork in communities. Establishing this connectivity continues to elude donors, development agencies, government planners, civil-society organizations operating locally, and researchers. Secondly, there is the challenge of integrating local project interactions, developing a typology of success factors and upscaling, and learning from successes and failures in a way that fits the complexity of the environmental challenge. A common shortcoming is interpreting success as temporary progress at one or a few sites without knowing or covering the wider scope of interventions or the mechanism to extend initial achievements.

Traditional development has been mainly direct and based on expansion of organizations to service a wider base, for example, larger government and nongovernmental organizations (NGOs). Other options that need to be explored with greater effort are the indirect, multiplying impact of creating new and autonomous organizations and changing behavior in existing organizations (Uvin et al. 2000). Progress can be made by being open to combinations of participatory approaches, not prejudging solutions, and involving those whose actions either contribute to environmental threats, are affected by them, or whose participation is needed to enable success. Not surprising, this is challenging. Different sectors, levels and participation capacities are involved. The inertia of habits, historical and asymmetric power relationships have to be overcome, where local groups engage more organized, technically prepared and better funded institutions.

Of additional concern in incorporating community individuals and groups and exercising devolved management authority are potential abuses such as local elite capture and rent-seeking by wealthier or politically connected community members, empowering themselves by rearranging local authority. Case studies show

elite capture to be pervasive in community-based projects. Civil-society organizations have a role to play in working toward establishing systems that allocate rights transparently, are accountable, have legitimacy and trust, and provide opportunities for community members to voice their concerns (Béné et al. 2009; Fritzen 2007; Platteau 2004). Reviewing international NGO (INGO) activity in Vietnam from 1990 to 1999, caution was given to ensure that the selection process for local partners did not inadvertently create new local elites with special advantages (Nguyen Kim Ha 2001).

There has been a significant amount of enabling legislation in Vietnam by the government to promote expanded public participation and new approaches, but implementation has been slow. Recent attempts in Cat Tien National Park to develop PES partnerships with local communities have revealed a number of fundamental challenges. These include limitations in the communities' capacities to organize, negotiate, and sustain agreements, the need for a deeper understanding of the diversity of community attitudes, their past government relations, and costs of engagement (Petheram and Campbell 2010). Government institutional arrangements also add transaction costs for communities and NGOs through the spreading of governance responsibilities for similar functions among different agencies. Pham Thu Thuy et al. (2008) note that "four biodiversity monitoring systems belong to different departments in MARD (Ministry of Agriculture and Rural Development) and MoNRE (Ministry of Natural Resources and Environment). Each of these agencies uses its own approaches, indicators, and standards, with no shared systems or agreements."

The international biodiversity importance of the Mekong delta also warrants greater management emphasis. There are 30 protected areas with 19 declared of national importance and 4 areas of international biodiversity significance (FPD/MARD, UNDP and IUCN 2006). The delta also hosts three international biosphere reserves (Kien Giang, Can Gio, and Mui Ca Mau) as part of the World Network of Biosphere Reserves coordinated by the United Nations Educational, Scientific, and Cultural Organization. However, the design of most of the delta's protected areas covers relatively small areas, and encroachment, fragmentation, and sea level rise threaten their future (Pilgrim 2007). The management framework of the biosphere reserves needs strengthening, especially with regard to increasing local community involvement beyond statutory "consultations" and devolving greater authority to local management boards. Of the more than US$ 325 million of financing for major protected areas in Vietnam allocated from 1995 to 2005, most (63%) came from Official Development Assistance (ODA) but with inadequate funding for conservation activities. On average, funding was equivalent to 0.1–0.2% of total ODA and 0.1% of annual government expenditure (FPD/MARD, UNDP and IUCN 2006). It would seem reasonable that biodiversity areas of national and international significance and world biosphere reserves merit higher levels of management and conservation support.

NGOs have an important role in advocating for improved protected area management systems, reducing further ecosystem fragmentation, and working toward active and informed community involvement, improved livelihoods, and financial support for protected areas. In the context of protected-area ecotourism in Vietnam, García-Herrera (2009) identified a range of possible NGO roles: as a

bridge between stakeholders, for example, communities, government, and the private sector; acting as an objective intermediary and facilitator; providing training, capacity development, and conservation awareness; and contributing to the implementation of eco-certification. Ecotourism development in Vietnam is a special case needing action and rigorous standards. Often used as a marketing tool in mass tourism, many ecotourism ventures pose serious threats for protected areas. The Institute for Tourism Development Research reported that 95% of Vietnam's tourism sites are advertised as offering ecotourism and that 90% of ecotourism guides lack environmental knowledge (Ngoc Anh 2007).

2.5 Challenges in Fishery Management

The Mekong delta is the center of Vietnam's fisheries industry and aquatic-product exports. As Vietnam's economy moves from a production orientation to an international-market orientation, fishery management requirements have increased to include a mix of traditional and novel approaches involving government, the private sector, and the public, with both obligatory and voluntary options. In particular, a set of globalized conservation and management values continues to emerge, embedded in multinational treaties and conventions. Regulatory action is becoming increasingly demanding as international law and "Soft Law" instruments for environment-related issues are numerous. The CIESIN database[1] lists 62 international environment-related and fishery agreements to which Vietnam is signatory. These carry obligations and related implementation costs, and they are managed by semiautonomous international agencies with different styles and rates of implementation and different scales, for example, from global environmental change to site-based programs and sector-focused goals (Cochrane and Doulman 2005; Schipper and Pelling 2006).

Fishery-management approaches in Vietnam, however, have not yet moved toward recovery-oriented plans (Pitcher 2001). Rather than rebuilding and restoring ecosystems, the current approach prioritizes the sustaining of existing levels of degraded ecosystems or present numbers of wildlife. Recovery planning will require new skills to evaluate and apply new analytical and planning methods; for example, the transition from single-species management based on surplus-production models to ecosystem-based analysis and management which emerged in the 1970s in Southeast Asian fisheries (Pauly and Chuenpagdee 2003). Some are suggesting the integration of physical, biological, and social sciences into the "Earth System Science" and "Global Change Science" categories; this proposal reflects the scale and interdependencies of environmental systems and human actions (Lehodey et al. 2006; NRC 2007). New forms of collaborative research and management also need to be explored using mobile technologies, the Internet, and

[1] ENTRI – Environment Treaties and Resource Indicators. Center for International Earth Science Information Network (CIESIN), Columbia University, New York, USA. http://sedac.ciesin.columbia.edu/entri/countryProfile.jsp?ISO=VNM

community volunteers as citizen scientists in environmental data collection, monitoring, and cooperating in knowledge creation.

One of the results of moving toward a market economy is the increased export focus of fishery products. The fishery sector has become of major export importance with a value of US$ 4.25 billion in 2009 (VASEP 2010), and there are plans for it to develop as the "leading sector for the course of industrialization and modernization of the agriculture sector" (Prime Minister of Government 2006). Investment and development need to be managed to minimize environmental damage. The main export products of farmed catfish (*Pangasius* and *Pangasionodon* sp.) and shrimp (mainly *Penaeus monodon*), with activities centered in the Mekong delta, are still heavily dependent on imported feed. Edwards et al. (2004) report that high-quality fish meal for fish fingerlings (mainly *Pangasius* sp.) and crustaceans (mainly shrimp) in aquaculture is mainly imported, representing about 90% of the total fish meal used. Annual fish meal imports have increased from 14,000 tons in 1999 to about 400,000 tons, with imports reported from Thailand, Hong Kong, Taiwan, and the USA and fish oil from Korea (Le Nguyen Doan Khoi 2007; Le Thang Hung and Huynh Pham Viet Thuy 2007). The environmental impacts of export-oriented aquaculture also affect local-capture fisheries. Estimates are that by 2004, about 100,000–120,000 tons of unsustainably harvested marine fish were being used for *Pangasius* catfish feed (APFIC 2005).

It has been argued (Deutsch et al. 2007) that there is a need to expand the discussion and management of aquaculture production from the local farm site to include the global marine-production system supporting the farm in order to ensure traceability of aquaculture inputs, including knowledge of any impacts on source ecosystems. This applies to fish-processing enterprises in Vietnam as well, as there is increasing demand for stocks of imported fish to process due to local plants operating at about 50% of capacity (Anon 2010). Resolving these environmental challenges is complicated by the "stretching" of the international aquatic-production chain with alternative and intermediate suppliers obscuring original ecosystem impacts (Lebel et al. 2002).

There is recognition that while progress is being made in conservation, the number, types, and scale of fisheries-management challenges have increased; and traditional input and output management controls need to be expanded to adopt additional, flexible, and more novel approaches that also commercially benefit producers. In 2009, a community-level capture fishery for clams (*Meretrix lyrata*) in Ben Tre province received international certification from the Marine Stewardship Council (MSC) – the first MSC fishery certification in Vietnam and Southeast Asia (Tran Truong Luu et al. 2009). Market-based and voluntary interventions are increasingly being considered, including certification, and life cycle and value chain approaches for shrimp and fish aquaculture after being given the export focus of many Mekong delta products (Vo Thi Thanh Loc et al. 2010). A number of consultations and trials have been initiated towards meeting international certification standards for shrimp (mainly *Penaeus monodon*) and finfish aquaculture products (Anon 2009a; Vu Dzung Tien and Griffiths 2009). The selection, application, and monitoring of certification schemes, regulations, and standards can, however, be

confusing; and guidance is especially needed for small producers, processors, and exporters (Ha Trieu 2010). There are schemes promoted for varied objectives (e.g., conservation, consumer health, animal and social welfare) by industry, governments, NGOs, "organic" and "fair-trade" labels, and codes (Corsin et al. 2007). This diversity, the continuing evolution of the fisheries and regulation schemes, and technical understanding challenge government agencies and NGOs as service providers and agents of change in the industry, especially small producers who have greater difficulty in compliance.

2.6 Civil Society, Vietnamese NGOs, and the Environment

In situations where environmental resources are overexploited, other nonmarket environmental values are not accounted for. Dependent communities are poor and have limited voice, rights, and access to influence policy or enforcement; corruption influences decision-making more than knowledge. In such situations, attempts to restore environmental benefits are demanding. These parameters, in essence, define the work for emerging civil-society organizations and NGOs, whose leadership, management style, and governance arrangements also greatly influence program success.

Vietnam has a record of informal environmental regulation or "community-driven regulation" as described by O'Rourke (2002), where local communities supported by local social organizations respond to local environmental events. It was reported, for example, in 2009 that farmers' associations from Ho Chi Minh City, Dong Nai, and Ba Ria Vung Tau provinces received nearly 11,000 letters demanding legal action against an industrial river polluter. Cases are also reported in the national media and sometimes involve public responses by academics and government agencies (Phung Thuy Phuong and Mol 2001; Vietnam Net 2009). However, such community actions tend to be ad hoc, local, and reactive, often based on immediate and visible economic and health threats, not institutionalized precautionary approaches to avoid long-term environmental damage.

In the study of civil society and its organizations in Vietnam, it is useful to recollect the history of a society emerging through a long colonial period, national conflict, and centrally planned socialist governance toward a market economy, as well as from an agriculture-based economy to an industrial economy. The study both of civil society and of civil-society-linked organizations and NGOs in Vietnam has been undertaken in particular by foreign observers concerned mainly with the evolution, societal, regulatory, and state relations of organizations and only minimally on sectoral issues (though agriculture is better analyzed than others) and on environmental issues. Following the transition of organizations from their origins to the present day, it is important to identify their situational constraints and their developing capacities as partners in dealing with environmental change.

Initial attempts to develop Vietnamese NGOs (VNGOs) and operations of international NGOs (INGOs) in Vietnam are reported as hesitant and challenging

(Hannah 2007). Early analyses in Vietnam commented on the closeness of the first organizations to the government, in some cases, with lateral transfers of individuals from government agencies reconstituting themselves as separate or connected organizations, with a minimal of action-oriented activities (Pednekar 1995). As late as 2001, it was reported that in Vietnam independent local or national environmental NGOs that performed the role of mobilizing communities and an environmental movement were absent (Hirsch 2001; Phung PT and Mol 2001). But later reviews (Lux and Straussman 2004) conclude it is "increasingly clear that the forms, functions, and behavior of Vietnamese NGOs are more and more similar to non-state counterparts in the rest of the world." Sabharwal and Than Thi Thien Huong (2005) also identified a broad trend in that the "growth of development NGOs [is] essentially different from the organizations that emerged as a product of the retrenchment process during the late 1980's." More recently, however, the annual report presented to the government by international donors led by the World Bank still noted, "the processes of creating new civil society organizations are burdensome, and not all are treated equally …. in Vietnam's devolving system, the devolution of civil society has been approached cautiously" (Vietnam Development Report 2010). Recent legislation covering the process to establish and operate associations remains highly legalistic and associations tightly controlled (Prime Minister of Government 2010).

A formal national role for NGOs in economic development and management was recognized in the Government of Vietnam's Five-Year Socioeconomic Development Plan (SEDP) 2006–2010. In this plan, NGOs would act as service providers in humanitarian activities, addressing poverty and environmental management of pollution and sanitation. In addition, the SEDP encourages civil society to "engage in managing and monitoring some public fields" and planning, implementing, and monitoring the SEDP from central to local levels (GOV 2006). There also seems to be a rapid growth of organizations calling themselves NGOs or sometimes VNGOs, whether or not they fit Western conceptions and categories. Nørlund et al. (2006) list a typology of six main types of national organizations with a wide range of functions (mass organizations, umbrella organizations, professional associations, faith-based organizations, VNGOs, and informal groups). Kerkvliet (2003) and Nørlund (2007) suggest that useful evaluation criteria to consider are an organization's origin, affiliation with and dependency on the state, funding source, voluntary membership, governance, work program, and nonprofit orientation. The numbers in each category are publicly un-quantified, but an estimated 65–70 million persons are members.

Organizations may register under a variety of decrees and regulations with varying rights, responsibilities, and geographic jurisdictions. The Vietnam Union of Science and Technology Associations (VUSTA) is estimated to have 1.15 million members across the country (Nørlund et al. 2006). Citizen surveys in Vietnam indicate that 7.6% of persons in 1999 identified themselves as belonging to an environment/conservation organization (Dalton 2005), a higher percentage than in the 17 European countries surveyed. While the diversity of registration procedures and mechanisms facilitates growth in numbers of organizations, it challenges the development of effective governance, performance standards, and accountability.

The debate on VNGO performance in Vietnam is ongoing but not yet informed by comprehensive assessment or public access to information on outcomes and results. There is some skepticism of aid-imposed "civil society" and "participatory" solutions (Molenaers and Renard 2009). Concerns are also expressed regarding whether NGOs are compromised by being aid-driven or because of government restrictions, and questions have arisen as to whether or not their results are really superior to those of government institutions (Gray 1999). Similarly, it has been argued that many NGOs place emphasis on delivering short-term, project-specific outputs rather than meaningful community engagement (Pham Thu Thuy et al. 2010). Organizational limitations in VNGOs have been identified in management, leadership, technical and language skills, networking, communication with government agencies, narrow geographic focus, and staff turnover. On the other hand, noted assets include high motivation levels of their predominantly young staffs, a more egalitarian approach to working with communities, ability to mobilize voluntary resources, lower costs than commercial enterprises, and ability to minimize operational overheads (ADB 1999; AusAID 2000; TAF 2008).

In Vietnam, Nørlund (2007) identified civil-society organizations (CSOs) among the least influential organizations yet notes "all types reach down to the grassroots level better than similar government programs and policies. In that regard, CSOs have had an impact." Similarly, Wischermann (2003) notes "there is a widening gap between what society is in a desperate need of and what state and/or the economy can deliver. Civic Organizations are filling this gap and they are filling it in a very specific way." The space for civil-society action in climate-change action seems particularly open. A recent poll in Vietnam (World Bank 2009) records 93% of respondents indicating that the country has a responsibility to take steps to deal with climate change even if other countries did not, with 77% reporting that the government was not doing enough.

In terms of socioeconomic impact, an external evaluation for Vietnam commissioned by the European Commission found community-based organizations in rural areas to be "highly effective in poverty reduction, working with vulnerable groups, etc. Their work is not as visible as it deserves to be" (Particip GmbH 2009). An even less publicized role for NGOs (especially VNGOs) in Vietnam is their acceptance of volunteers to participate in fieldwork, projects, and events, and the opportunities they provide for student projects and theses. While such collaborations are often temporary, they provide informal education through "on-the-job" exposure, allowing many citizens (especially youth) to gain a deeper knowledge of society and local communities, and in the case of environmental-focused NGOs, of the issues facing biodiversity and natural resources in Vietnam.

2.7 International NGOs in the Mekong Delta

International NGOs (INGOs) have been increasingly active in Vietnam, with development assistance growing from an estimated US$ 20 million in 1990 to US$ 260 million in 2008, with about 650 INGOs estimated to operate now in Vietnam

(Anon 2009b). Together with 29 bilateral and 19 multilateral agencies, including United Nations Organizations, they form the international ODA and development community in Vietnam (DFID 2008), in addition to other INGOs not in Vietnam which also provide technical and financial support. According to Fforde (2005), INGOs and donors mainly channeled their efforts directly to and through state and mass organizations, a situation indicated as operating outside the mainstream of social development, compromising both their understanding of Vietnamese society and their effectiveness.

INGOs, however, played and still play significant roles, by: (1) increasingly funding local organizations including promoting grant programs reserved for VNGOs, the level of funding disbursed often limited by the local organization's technical and management capacity; (2) acting as a bridge between international and local organizations and government agencies, particularly beneficial when the concept of VNGOs was new in Vietnam; (3) facilitating capacity development of VNGOs by providing training and mentoring; and (4) contributing to VNGO leadership through transfers of Vietnamese professionals who previously worked in INGOs.

Records[2] indicate that between 2004 and 2008 at least 99 INGOs operated in the Mekong delta (including Ho Chi Minh and Can Tho cities) with an apparent increasing trend from 74 to 81 over this period. Of these, only 12–18 list themselves as having an Environment, Conservation, Wildlife, or Integrated Development focus. Most INGOs (76–81%) worked in Ho Chi Minh City, and while all provinces had INGO activity, 90–95% of INGOs worked only in four provinces or fewer. This pattern presents a case to have strong institutional coordination and information exchange so that knowledge of the delta's environment as a whole can be obtained and consolidated.

2.8 Information and Communication Challenges and Advocacy

The delta's environmental challenges, origins, scale, and locations require an effective exchange of experiences, successes, failures, knowledge, and open communication. However, development-oriented organizations operating in Vietnam do not tend to share information either at professional or at local community levels. There are some systems in place, however. For example, the VUFO-NGO Resource Centre based in Hanoi facilitates 17 sectoral working groups and moderates 28 Internet-based mailing lists with over 9,000 subscribers, but its operations are precarious "experiencing a financial deficit – to various degrees – since its establishment in 1993" (VUFO-NGO Resource Centre 2010). These initiatives are important to avoid "NGO fatigue," where a number of NGOs converge on the same

[2] Viet Nam INGO Directories, 2004-2005, 2006, 2007, 2008. Vietnam Union of Friendship Organizations (VUFO) NGO Resource Centre, Hanoi, Vietnam.

government authorities or local communities with different and sometimes conflicting messages or similar surveys.

While information on VNGO and INGO activities is reported to supervisory agencies and donors as operating requirements, for members of the public, accessing information on VNGO and INGO activities in Vietnam is time consuming, and information on achievements is not easily obtainable and is of variable quality. Institutional and project evaluation reports are rarely made public on an on-going basis or with outcome information. In a review of comanagement experiences, Swan (2010) comments "what is required of protected area comanagement in Vietnam is to learn and share lessons learnt, from both international and national experiences. At present, this is not occurring to a sufficient degree; the same mistakes are being repeatedly made, and few projects are critically evaluating, documenting, and disseminating achievements and failures." There are benefits to INGOs and VNGOs in improving transparency and the communication of information on their programs, not only to be accountable but also to extend their effectiveness. For example, taking advantage of the strong connections of VNGOs with local communities and INGOs with international communities will extend the geographic impact and advocacy effectiveness of their collaboration. The potential remains great even for basic information technology use in information-sharing. In a survey by the Asia Foundation, only 35% of VNGOs had Web sites (TAF 2008), and, according to another source, 45% of INGO's working in the Mekong delta listed Web sites (VUFO-NGO Resource Centre 2009). Given the estimated 23 million Internet users in Vietnam (VNNIC 2010), the limited Web site development of NGOs seems a continuing lost opportunity.

In terms of technical information, the greatest need in Vietnam relates to the fact that national research is not being adequately covered and made available by national databases, library systems, and national institutions, thereby limiting peer review and making research results unavailable for national development. There is very limited circulation of many institution and university journals, published proceedings, results of workshop and conferences, project reports, and especially theses and dissertations from national universities. Paradoxically, publications produced by Mekong basin country institutions or by researchers and students of these countries in foreign institutions or (published in foreign journals), are sometimes more easily accessed through international search engines and databases than national databases or library systems in the Mekong basin countries that produce them. There are some documentation initiatives in Vietnam such as the National Center for Scientific & Technological Information – *NACESTI* (*www.vista.gov.vn*) and *Vietnam Journals Online* (*www.vjol.info/index.php*) that show great promise but are still limited in coverage and need technical and financial support to expand because of the rate of knowledge creation.

Foreign journals, commercial publications, and aggregation services such as the *Web of Science* still remain the main source of peer-reviewed information, but they are increasingly expensive and in languages not usable by all Mekong basin scientists. General Internet search engines such as *Google Scholar* are helpful and often competitive with commercial services in identifying new knowledge on Vietnam, as are other Internet-based thematic aggregating services, for example, the *Social*

Science Research Network – SSRN (*http://ssrn.com*) and *EconPapers* (*http://econpapers.repec.org/*) in social sciences. But not all information can be obtained without cost. International Open Access journals, Open Archive initiatives, and sponsored access to online journals through *AGORA*, *HINARI*, *and OARE*[3] are a significant help to life science researchers in Vietnam. But these sponsored-access services are not widely known in Vietnam, even within institutions that have free access to them. Very few NGOs seem to recognize the need, and even fewer pay attention to data and information-sharing and facilitating access as priority needs. Nor does this seem to be a development area favored by donors.

Obtaining information on the Mekong environment at a basin-wide scale is also challenging. There are, for example, development and donor agency networks and Web sites (Table 2.2). Most are traditional Web sites hosting information on publications, news, research updates, meetings, links, and some with national pages. Web site maintenance also needs to be improved, as many Websites have broken links and inadequate updates. Mekong information is also embedded in national and international organizations with Southeast Asia programs, including NGOs and global databases. While all these sources help with identifying information on completed and current research and issues, Internet technology is still not being used to share and take advantage of individual site content; nor is it being customized for the benefit of local users. Each Web site has to be browsed separately, and, as new information is added, the task becomes more time consuming. Importantly, in many cases the information contained is not in the main languages of the peoples of Mekong basin countries.

In terms of natural resource information, the Mekong River Commission (Campbell 2005) describes the Mekong as "one of the more poorly studied rivers … there are very few studies on the geomorphology of the river, very few published studies on any aspect of the ecology of the Mekong … we are limited by the poor knowledge of the biota." This reflects underrepresentation of riparian countries in research and in leading research, "Gray Literature" not being known even within countries generating it. There is a limited sharing of information. An analysis of 4579 freshwater biology papers published from 1992 to 2001 in 9 international journals showed only 1.6% were authored or coauthored by scientists based in Asia (Dudgeon 2003). Regionally, because of political implications, the disclosure of impact assessments at Mekong basin and national levels also tend to remain sequestered by regional agencies or countries requesting the studies (Cronin and Hamlin 2010).

Taking advantage of and contributing to international information systems is becoming increasingly important. Riparian countries in the Mekong basin share a common biodiversity. In the case of fish species for example, there are species, in the Mekong basin ecosystem that Vietnam has in common with its neighbors (from 20 species with Myanmar to 205 species with Cambodia). Table 2.3 shows the common occurrence of freshwater fish species for Mekong ecosystems in riparian countries.

[3] AGORA (Access to Global Online Research in Agriculture), HINARI (Health InterNetwork Access to Research Initiative), OARE (Online Access to Research in the Environment).

Table 2.2 Organizations, programs, and networks in the Mekong River Basin

Name	Type of activity	Organization	Web site
Greater Mekong Sub-Region Program (GMS)	Program	Asian Development Bank	www.eppo.go.th/inter/GMS/GMS.html
Mekong River Commission (MRC)	Program	Intergovernmental organization of Cambodia, Laos, Thailand, Vietnam	www.mrcmekong.org
International Rivers Network	Network	International Rivers Network (Nongovernmental)	www.internationalrivers.org/en/southeast-asia
Mekong Program on Water Environment and Resilience (M Power)	Network	Hosted by Chiang Mai University, Thailand	www.mpowernet.org/
Greater Mekong Sub-Region Academic and Research Network (GMSARN)	Network	Academic and Research institutions in Cambodia, China, Laos, Myanmar, Thailand, Vietnam	http://mpuhost04.ait.ac.th/gmsarn/sitegmsarn2009/home.php
Greater Mekong Sub-Region Energy and Environment Network (GMSEENet)	Network	Project of GMSARN	www.gmseenet.org/
Sustainable Mekong Research Network (Sumernet)	Network	Hosted by Stockholm Environment Institute (Sweden)	www.sumernet.org
Mekong Migration Network (MMN)	Network	Civil society and government organizations in Cambodia, China, Laos, Thailand, Vietnam	www.mekongmigration.org
University Network for Wetland Research and Training in the Mekong Region	Network	Mahidol University, Thailand	www.en.mahidol.ac.th/wetland/index.html#bg
Greater Mekong Sub-Region Tertiary Education Consortium Trust (GMSTEC)	Consortium	Universities in Australia, Cambodia, China, Laos, New Zealand, Thailand, Vietnam	www.gmstec.org/
Mekong Delta Development Research Institute (MDI)	Institute	Can Tho University, Vietnam	www.ctu.edu.vn/institutes/mdi/english/
Delta Research and Global Observation Network (DRAGON) Institute	Institute	Hosted by Can Tho University, Vietnam	http://deltas.usgs.gov/rivers.aspx?river=mekong
Mekong Institute (MI)	Institute	Hosted at Khon Kaen University, Thailand. Inter-Governmental Organization of Cambodia, China, Laos, Myanmar, Thailand, Vietnam	www.mekonginstitute.org
Australian Mekong Resource Centre (AMRC)	Center	University of Sydney, Australia	www.usyd.edu.au/mekong
Mekong Sub-Region Social Research Center (MSSRC)	Center	Ubon Ratchatani University, Thailand	www.mssrc.la.ubu.ac.th
MekongInfo	Project	Hosted by the Mekong River Commission	www.mekonginfo.org

Table 2.3 Common freshwater fish species occurring in the Mekong Basin (Data provided by E. Capuli [Pers. Comm., WorldFish Center, Los Baños, Philippines] on March 1, 2010)

Country[a]	Myanmar	Thailand	Laos	Cambodia	Vietnam
China	12	79	104	64	45
Myanmar		30	26	19	20
Thailand			331	294	169
Laos				325	192
Cambodia					205

[a]Species identified for the Mekong basin ecosystem in each country

Identifying the commonality of Mekong biodiversity helps to prioritize research and management and save costs by countries using each other's knowledge and experiences. As these countries are highly biodiverse, it is unlikely that even the medium-term countries will have the human and financial resources to research every species and local ecosystem. Using credible international information systems like FishBase (www.fishbase.org) that are available to the public, allows countries to take advantage of global knowledge of local importance. The value of this is even more important when countries that share natural resources contribute information to such global information systems: When any country contributes, all countries benefit. The urgency and importance of keeping track of new knowledge to manage the Mekong basin is underscored by the pace of knowledge creation. In 2009, the Mekong River Commission reported 19 regional initiatives in climate change (MRC 2009); and since 1993, published literature on climate-change impacts on marine systems alone is reported to have increased exponentially (Harley et al. 2006).

The application of new knowledge and the identification of priority areas for advocacy, both in developing policy and in addressing on-the-ground environmental issues, should be a logical part of an NGO's program to make change happen. This is, however, only slowly developing in Vietnam. While demand to extend activities to advocacy may exist, with a survey showing 68.3% of organizations to be interested, the reasons offered for inaction include lack of training (70% of staff indicated not attending any course or training in advocacy) and the legal framework for NGOs to participate in policy-making not being clear (TAF 2008).

Most VNGOs still operate with a service-delivery orientation: With a site-specific and local focus, "advocacy" is not considered a main function and usually limited to recommendations to local authorities and communities (Norlund et al. 2006). Some VNGOs do contribute to consultations, drafting of national legislation, and communicating the opinions and experiences of local communities. There are, however, generally not active and dedicated investigative actions by civil-society organizations or VNGOs to hold individuals, institutions, or the private sector accountable. Serial investigative reporting does occur through a few Vietnamese newspapers on polluting enterprises, and illegal use of wildlife, contributing to building public and political pressure for enforcement (Mol 2008). A novel environmental initiative is the work of the VNGO "Environment for Nature" which established a "Wildlife Crime Unit" or a national telephone hotline and database to track occurrences of illegal wildlife use, consumption, and trade

(Sumrall 2009). The Vietnam Forum of Environmental Journalists (www.vfej.vn/en), founded in 1998 with a mission to "motivate and assist Vietnamese environmental journalists to actively contribute to environmental protection for sustainable development through journalism activities," is also an important organization in aggregating and sharing environmental information and impacts in Vietnam. In general, however, VNGOs have not used either the local or international media effectively in highlighting successful environmental interventions, situations needing attention, or in offering solutions. There does however seem to be a positive trend in some areas. For example, a 2006–2009 survey of print and broadcast media in Vietnam (Pham Huy Dung 2009) shows VNGOs to be an increasing source, as well as the second most important source of media information for climate change.

The limited access to local and international information, weak thrust in advocacy, and limited media use significantly limit the impact of VNGO work and represent a serious imbalance in VNGO activity and impact in Vietnam. Most effort continues to be limited to local fieldwork, with much less on using communication tools to spread success stories and solutions and to document practices that have not worked. Opportunities to provide guidance, inspire communities that have overcome environmental threats, motivate others that need similar benefits, and facilitate future collaboration are being lost.

2.9 Conclusion

Objective conditions require that environmental solutions in the Mekong delta incorporate international action. The driving forces include increasing foreign investment and markets for products that drive the delta's economy; legal obligations under international agreements on the environment; the presence of sites of international biodiversity significance in the delta; Vietnam's position downstream from riparian country use of the Mekong River; and the need for international technologies to restore the delta's environment. The situation Vietnam faces in the delta due to the changing global climate also requires international advocacy and diplomacy in order to secure support for a climate-change mitigation and adaptation campaign.

The rate of environmental change and the limited effectiveness of centralized and top-down restoration point to the need for new forms of collaboration and partnerships. Despite incomplete and variable information quality, there are enough indications in Vietnam of a trajectory of progress and the increasing potential of organized civil society to be effective and work with the government and private sector. VNGOs and local community organizations can lead, partner, and support actions to address environmental challenges in the Mekong delta. INGOs can continue to play important roles in bringing international linkages, perspective and advocacy; facilitating application of advances in science; and capacity building of individuals and organizations. At the same time, there is much work to be done in improving transparency, accountability, staff technical capacities, and the administrative framework under which VNGOs and INGOs operate. In terms of capacities,

there is a widening range of technical skills needed to match new forms of knowledge and technology, as well as soft skills in relationship building, communication, and advocacy. It is unlikely that any one organization will have all the skills, so the need for active networks, partnerships, and flexible use of services will increase.

Effective programs will need a combination of traditional tools and new approaches that match the scales and stresses, span governments and the international private sector, and are both voluntary and regulatory. Despite the progress and potential of VNGOs to participate effectively from the central government to the community household level, VNGOs have human, financial, and logistical limits. Goals need to be redefined so that communities are not permanently dependent on organizations based in the main urban areas and so that local communities can be guided to self-organize, learn from, and guide other communities. Lastly, "success" cannot be viewed as temporary environmental restoration in individual local sites, no matter how spectacular results may appear, but as permanent, environmental restoration embraced by affected communities across Vietnam and supported by institutional and management change and regulatory enforcement.

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