

Globalization, agricultural growth and the environment: consolidation and continuity of SANREM research in Southeast Asia

FY 2005 Bridging Proposals Program

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Abstract. During SANREM II, research conducted in the Philippines generated locally important findings, impacts and policy implications, and in addition supported the design of processes and methodologies of a more general nature. These were then used to initiate collaborative research on economic and social forces shaping SA and NRM in Vietnam, a country whose development and environment challenges bear a very strong resemblance to those of the Philippines. This proposal is for bridging activities that will bring to fruition several activities now close to completion, and provide continuity for ongoing initiatives in what has become a highly visible research program in the region. Three main activities are proposed: (1) continuation of empirical research focused on economic and environmental features of commercial tree crops, especially coffee, in Vietnam, and refinement of tools for SA and NRM policy analysis at landscape and national scales; (2) consolidation of research lessons from the Philippines into a new book; and (3) transfer to the ME of relevant metadata from SANREM SE Asia, particularly data from the Philippines. In addition, at the end of the bridging period we will hold a regional research workshop in cooperation with host country partners.

Keywords: Economic policy, globalization, land use, environmental management

Project period: January 1, 2005 to June 30, 2006

Project type: critical policy-impact research and publication

1. Justification

The countries of Southeast Asia have experienced very rapid growth since the mid-1990s. Many are moving toward greater international economic integration through more open trade with China and the United States.¹ Vietnam is typical of the pattern: steps toward globalization are proceeding together with major shifts in domestic development policy, with some significant policy authority now devolved to provincial, district and even commune levels. Although institutional and policy reforms implemented since the early 1980s have dramatically increased agricultural output and economic growth, during the early 1990s this growth became increasingly concentrated in urban areas (Dollar and Litvack 1998). World Bank estimates suggest that poverty has fallen from 58% in 1992-93 to 37% in 1998 and to 27% in 2002, showing that the poor have benefited greatly from economic growth. (World Bank 2004). The country faces a number of serious and growing environmental problems. These include high rates of forest loss and degradation of land and other natural resources (UNDP 2001). Vietnam has one of the highest rates of deforestation in Asia, and natural forests now cover less than 20% of the country, compared with 43% in 1943. Existing patterns of natural resource degradation constitute a significant depletion of the country's stocks of natural resource wealth and increase the exposure of Vietnam's population to risks from flooding, pollution, and the potential collapse of biotic systems (De Koninck 1999; World Bank 2003). These problems will become more serious as high population growth rates realized between 1975 and 1990 continue to expand the labor force and precipitate migration into marginal areas (Dollar and Litvack 1998). Providing opportunities to vulnerable groups and further integrating Vietnam into the global economy will stress many natural systems. As a result, achieving rapid, equitable, and sustainable growth is the most important challenge facing the country (Pepall 1995). The challenge, moreover, is typical for the region and much of the developing world (ADB 1999).

The Vietnamese government's National Socio-Economic Development Strategy 2001-10 articulates the desired approach to development as promoting "rapid and sustainable development by ensuring economic growth, accompanied by social equality and progress, and environmental protection" (CPVN 2002). Recent evidence points to considerable—even spectacular—progress on the first two of these goals. The effects of rapid growth on the environment are less clear, however, and there are many signs that the trade-off of resources and environmental quality for growth is a significant one. Can growth, equity and environmental protection be simultaneously achieved? What are the applicable lessons from the recent experience of similar developing countries? What methods are required to understand the challenge of sustainable development and to formulate and evaluate policy options?

In this activity we will build on several earlier SANREM initiatives and partnerships with the twin goals of investigating these questions and developing or adapting supporting methodologies. During SANREM Phase II research was undertaken to better understand the economic and social forces shaping agriculture and natural resource management in Vietnam, and to extend generalizable lessons learned in the Philippines to Vietnam. This bridging proposal seeks to consolidate several separate strands of effort that have begun to bear fruit, and to provide continuity for what has become a highly visible research program in the region.

2. Objectives

Our overarching goal is to construct and apply an integrated framework for analysis of environmental and economic dimensions of globalization and economic reform in Vietnam and

¹ Vietnam has stated an intention to join the World Trade Organization (WTO) in 2005.

other low-income countries of Southeast Asia. A further goal is to augment capacity for such integrated consideration of economic and environmental issues within the research and policy community. In pursuit of these goals we have formulated the following short-term objectives:

2.1 Policy-oriented research in Vietnam directed at contributing to knowledge regarding globalization, vulnerability, and risk. One focus of our effort is to build a framework for understanding economy-environment linkages at the level of the national economy. In working toward this we recognize that field-level, sectoral, spatial and regional issues are very important in the context of globalization. Accordingly, we propose to continue some highly focused empirical research on economic and environmental features of commercial tree crops, especially coffee (an important crop in Vietnam's ecologically fragile highland areas) while at the same time refining tools to build capacity for policy analysis at a landscape and national scale. In this area there are three major issues: on-site economic viability and environmental sustainability of commercial agricultural activities undertaken by poor farmers in ecologically fragile areas; off-site environmental and economic impacts of their decisions, especially with respect to land use, and the evolution of the broader market and policy setting which guides their decisions.

In previous SANREM work, Ha and Shively (2004) investigated smallholder response to declining coffee prices in Vietnam.² For three consecutive years beginning in late 1999, producer prices in Vietnam were insufficient for most farmers to cover their variable costs of coffee production (USDA FAS 2002; 2003). After nearly a decade of booming incomes, the coffee price collapse reversed the fortunes of many farmers. Although prices recovered modestly in the 2002-03 production year, many smallholders continue to struggle. Vietnam's on-going coffee crisis is widely acknowledged within and outside the country, and finding ways to improve outcomes for coffee farmers remains a key component of Vietnam's "globalization" strategy. Our findings to date indicate significant farm- and farmer-specific constraints on smallholders' ability to respond to declining prices. One of our main objectives going forward is to sharpen our analysis and to distill and disseminate these research findings among policy makers.

Vietnam's 1990s coffee boom saw a 100-fold increase in area planted. Most area is concentrated in a few Central Highlands provinces, and in those locations constitutes a very substantial land use change. With short, fast flowing rivers and generally highly erodible highland soils, watershed function in Central Vietnam is vulnerable to deforestation and land conversion. Evaluating the effects of major land use changes— a first step in the design of policy solutions— presumes an understanding of such off-site effects, which affect large populations in flood plains, estuaries and coastal areas. In the second strand of this activity, building on the site-specific work, we will work with existing SANREM II partners at Nong Lam University and Hue University to conduct one or more empirical exercises relating land use changes to downstream and coastal impacts. This will require a continuation of secondary data collection already under way in Hue, use of stylized watershed models already developed for the Philippine SANREM work, and analytical efforts to quantify environmental threats, assign valuations, and

² Between 1990 and 2000 Vietnamese farmers, approx. 80% of them smallholders (Greenfield 2002), planted more than a million hectares of Robusta coffee, enabling Vietnam to surpass Colombia as the world's second-largest coffee producer (ICO 2002). During the mid-1990s the economic benefits of Vietnam's "coffee boom" spread rapidly and were far reaching. By mid-decade more than one million Vietnamese were participating directly or indirectly in the country's coffee economy (Nhan 2002). But Vietnam's entry into the world coffee market, combined with rising stocks, inelastic demand and a shift toward low-cost Robusta for processing (Ponte 2002) helped to contribute to a precipitous decline in international coffee prices, to below 40 cents a pound in late 2001—a three-decade low in constant dollar terms (Brown et al. 2001).

conduct sensitivity analysis. This activity will require extensive local consultation and validation with researchers, scientists and policy agencies, mainly at provincial level.

The third strand of this work relates land use decisions to the globalization and growth of the Vietnamese economy. The coffee boom was a product of Vietnam's opening to the world economy in the late 1980s, and many more changes in policy and in global markets will bear strong influence on future land use decisions. Understanding how "globalization" (to use a catch-all term) affects land use and farm incomes, and their broader environmental and economic consequences requires a national-scale economy-environment predictive model. Such a model applied in the Philippines predicted local changes in land use and related responses to global market and national policy changes. These predictions then informed local research and policy initiatives, and more importantly, provided an information base on which to initiate *national* level policy discussions aimed ultimately at provoking actions to reduce contradictions in the overlapping mandates and activities of national policy-making and regulatory bodies (Rola et al. 2004). In Vietnam, this effort will complement existing models, which focus exclusively on either economy or environment, creating for the first time a tool for integrated, policy-oriented analysis of the environmental and economic consequences of global market shocks and domestic decisions, for example accession to the WTO.

2.2 Consolidation and dissemination of lessons from SANREM II research in the Philippines. A decade of SANREM research in the Philippines produced a rich set of findings on the causes and consequences of land use change, especially arising from decisions made by poor commercial farmers. Many of these lessons are immediately applicable to the Vietnamese case, both at the level of farm land use decisions and for understanding off-site impacts. Much more remains to be learned by continued analysis of the Philippine data, and the lessons learned can be very profitably disseminated through professional, academic and policy communities of which we are a part. During 2004 we completed a technical volume reviewing a decade of research in the SANREM II Philippine site, the Manupali River watershed (Coxhead and Shively, forthcoming). During the bridging period we intend to consolidate new and additional research lessons from Manupali into a new book, to be authored by Coxhead and Rola. This will serve as a non-technical complement to the Coxhead and Shively volume.

2.3 Provide SANREM SE Asia metadata to the ME. A natural and deliberate by-product of our work will be the accumulation of metadata for the SANREM III knowledge base. We will consolidate relevant metadata from SANREM II SE Asia, particularly data from the Philippines that are currently housed at the University of Wisconsin, and furnish this to the ME. We will also invest in creation and dissemination of equivalent metadata for Vietnam. The type of integrated work proposed for Vietnam has not previously been undertaken in that country, where researchers tend still to consider economics and the environment as somehow separable. We believe the data and metadata generation effort in Vietnam will contribute towards building capacity for informed SA and NRM decision-making by local, regional and national agencies.

3. Procedures

3.1 We have used data from 1999 and 2003 surveys of smallholder coffee farmers in Ea Tul catchment, in the province of Dak Lak in Vietnam's Central Highlands to study production practices (Rios and Shively, 2004) and how farmers coped with declining coffee prices (Ha and Shively, 2004). Our findings to date indicate heterogenous farmer responses to declining coffee

prices. Revealed patterns in the data suggest both farm- and farmer-specific constraints on smallholders' ability to respond to declining agricultural prices. We will undertake further analysis and write-up of these survey data at Purdue University and Nong Lam University.

For river-basin work we will characterize current land use and environmental processes (at a broad scale), and visualization of potential future land uses with input from the national model described above. In this time-bound exercise will build on existing work, such as land use surveys in Thua Thien Hue Province as well as secondary sources (district and provincial planning offices). We expect to be able to apply, with suitable modifications, a watershed-scale simulation model developed in the Philippines; this has already been partially adapted for a SANREM training workshop conducted at Nong Lam University in 2002. For the national model we are forming a partnership with an existing modeling team located at the National Economics University, Hanoi. We will transfer modeling technology, experience and insights from prior work (including Sanrem research) in the Philippines. We will use GEMPACK modeling software (the platform for the well-known GTAP global agricultural trade model) to construct a simulation model. Data for this will be based primarily on the current Social Accounting Matrix developed by the General Statistics Office, Hanoi, with additional land use and environmental data contributed from the other activities in this suite.

Each of the three activities is innovative in the Vietnamese context. National and local policy makers in Vietnam must grapple with poverty alleviation and environmental management issues in a fast-changing global and national policy setting. As a result there is substantial high-level demand for the type of work we propose.

3.2 The volume on Philippine upland development builds on a decade of data gathering and analysis in the SANREM project in the southern Philippines. Whereas the Shively-Coxhead volume generalizes from that experience to watershed issues, the Rola-Coxhead volume will present and analyze much more specific local data and cases, delving deeper into the institutional and local policy setting of the sustainable agricultural development issue— with special attention given on the vexed question of decentralization and natural resource management (for a recent journal article setting out the main arguments in this area, see Rola and Coxhead 2004).³ Most of the activity will be in data management, and analysis, which will be carried out both in Los Baños and Madison, though some amount of field-based updating and validation will also be necessary. This activity will add considerable value to the existing data-based analyses and will complement the more technical material in the Shively-Coxhead volume.

3.3 Collating, archiving and transferring metadata from UW to VPI and other end-users will be straightforward for the Philippine case, since most of what is required is already archived on CD and in the project web site. Configuring the data and metadata for specific purposes may require additional resources (mainly RA time). For Vietnam we will devote attention to a consistent method for collecting, organizing and archiving metadata as we proceed with research projects. Again, this will require some input from PIs and host country colleagues, and more from researchers or RAs working under their guidance. Our goal is to provide annotated, searchable databases of economic and environmental data, including the details of coverage, sampling and other methods used in collection, assessments of quality and generalizability, and other information for the use of researchers intending to aggregate or replicate the data.

³ A more detailed abstract can be found at <http://www.aae.wisc.edu/coxhead/papers/UVS-abstract.pdf>.

4. Timeline

Jan. 2005: Establish advisory committee and linkage to USAID mission in Vietnam;
Jan.-July 2005: Complete first draft of Rola-Coxhead book & submit to publisher;
Feb.-Dec. 2005: develop economic models; data gathering as needed;
Jan. 2006: Conduct research workshop in cooperation with partner institutions in Vietnam;
Jan. 2006: Seminars and policy briefing based on book research in Philippines;
June 2006: bridging activities completed.

5. Expected results and deliverables

As has been our practice in the past, we will ensure that generalizable lessons are communicated to broader audiences through peer-reviewed publications and other forms of research output as appropriate. We will develop several new policy working papers and a series of policy briefs (in English and Vietnamese) for distribution in Vietnam. Our track record for developing bi-lingual materials is proven, as we have produced case study materials for the ALO project in both English and Vietnamese. The Rola-Coxhead book is planned for submission to a major international publisher in 2005; in the course of producing the book we will also produce several working papers and policy briefs, as in the past, for Philippine and international audiences.

6. Student support and training activities

One female graduate student is currently involved in SANREM III activities in the Department of Agricultural Economics at Purdue University (Priya Bhagowalia, from India). Tran Nam Anh from Hanoi Agricultural University in Vietnam will attend Purdue University starting in 2005 and will be involved in further analysis of coffee data. He is a citizen of Vietnam. At the University of Wisconsin, the project will employ Diep Ngoc Phan, a third-year graduate student in agricultural and applied economics, who has been working on SANREM project activities since beginning her graduate studies. She is a citizen of Vietnam.

7. Cooperating agencies and host country partners

Based on our previous work (both with SANREM II and ALO) we already have a network of active partners in Vietnam. To illustrate, Shively is in the process of completing a 2-year curriculum development project (funded by USAID-ALO) in cooperation with colleagues at Nong Lam University, and Coxhead is engaged in ongoing collaborative research with environment and development specialists at Hue University. These and other existing partnerships provide useful conduits through which to articulate research findings to the university and research community. For Shively's ongoing ALO project, an advisory committee was formed with representatives from USAID, the Ministry of Agriculture and Rural Development, and an international NGO. During the bridging period we intend to rely on this advisory committee for oversight and to disseminate findings through these and new channels, including Hue University Department of Economics and Development (Hue City, Vietnam) and the National Economics University, Hanoi, Vietnam. As a result of ALO activities we have a solid working relationship with USAID mission staff in Hanoi and will introduce these bridging activities to the staff during a meeting to be held at the embassy on January 24, 2005.

8. Budget

We propose a budget of \$80,000, with \$20,000 to be allocated directly to host-country partners. See the attached budget materials for details.

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EDUCATION

1990 Ph.D. Econ., Australian National University

1984 M. Agr. Dev. Econ., Australian National University

1981 B.A. Honors Class I, History, University of New South Wales, Sydney, Australia

EMPLOYMENT

1991– Assistant, Associate (1997), Full (2003) Professor, Department of Agricultural and Applied Economics, University of Wisconsin-Madison

2002– Director, Center for Southeast Asian Studies, University of Wisconsin-Madison

1990 Postdoctoral Fellow, Department of Economics, RSPAS, Australian National University

RECENT HONORARY POSITIONS AND AWARDS

2004-06 Vilas Associate Award, University of Wisconsin-Madison

1998– Editorial Board, *Land Economics* (since 2003); Editorial Board, *Australian J. Agricultural and Resource Economics* (since 1998); Guest Editor, *Philippine J. Development* (2002)

2001–02 Visiting Fellow, Division of Economics, RSPAS, Australian National University

SELECTED AND RELEVANT RECENT PUBLICATIONS

Coxhead, I. (2004). “Interactions between economic policies and institutions in water allocation and use: theory and evidence from a Philippine watershed”, in A.C. Rola, H.A Francisco and J.P.T. Liguton (eds). *Winning the Water War: Watersheds, Water Policies and Water Institutions*. Makati, Philippines: PIDS/PCARRD, pp. 153-78.

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SELECTED RECENT RESEARCH GRANTS

- 1998–2003 US Agency for International Development. SANREM CRSP-Southeast Asia Phase II (Regional Program Director and PI).
- 2002 University of Wisconsin-Madison, International Institute. Innovation Fund grant for teaching and research on international economics of developing countries (Co-I)
- 2001 Australian National University, Division of Economics. Visiting Fellowship grant (PI)
U. Wisconsin Graduate School. "Decentralization and the environment" (PI)
Ford Foundation. Markets, policies and the environment in Thai agriculture (PI)
- 1994–1998 US Agency for International Development. SANREM CRSP-Southeast Asia Phase I (PI and Co-I, several successive grants).

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PROFESSIONAL EXPERIENCE

1991– Assistant, Associate (2000), Full (2004) Professor, Department of Agricultural Economics, Purdue University. Teach undergraduate and graduate students in the areas of environmental and natural resource economics, economic development, and dynamic optimization. Advise undergraduate and graduate students and conduct externally funded research program on topics related to international aspects of the environment, including poverty, economic development, tropical deforestation, and local and global environmental impacts of economic policies.

2003-04 *Honorary Fellow*, Department of Economics and Asian Economics Centre, University of Melbourne, Victoria, Australia. Conduct research on topics related to economic development and the environment in Southeast Asia.

SELECTED AND RECENT RELEVANT PUBLICATIONS

Mahmoud, Chowdhury and Gerald E. Shively. 2004. "Agricultural diversification and integrated pest management in Bangladesh." *Agricultural Economics* **30**(3):187-194.

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