SECTOR ASSESSMENT (SUMMARY): AGRICULTURE, NATURAL RESOURCES, AND ENVIRONMENT[1]

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. Agriculture's share of gross domestic product (GDP) is declining (from 20% in 2010), although output is expanding and the sector remains a key contributor to exports (accounting for 25% of overall export value) and employment (70% of rural households). The sector continues to provide a safety net for rural residents, and rice dominates production. From 1990 to 2008, the area under rice cultivation increased by about 20%, but national production almost doubled. By 2008, in addition to 6.6 million hectares (ha) of rice, over 3 million ha were planted with perennial crops and over 2.1 million ha with annual crops.[2] Farm incomes, often supplemented by livestock production, often comprise a large part of household incomes. Forestry accounted for only 1% of GDP in 2008, but it has a crucial role in environmental stability and ecological sustainability. Fisheries constitute about 4% of GDP; aquaculture production by the private sector is growing rapidly. Commodities dominate growth in agriculture trade.

2. Regional diversity in the country's farming systems is significant. However, the resource-based challenges to production (including climate change) are numerous. Rapidly emerging environmental problems are highly complex. Lowland challenges include floods, droughts, and susceptibility to catastrophic weather events such as typhoons, while upland challenges include poor soil, difficult terrain, and high erosion. Conversion of land to urban and industrial uses reduces the already limited amount of arable land (28% of the total) and contributes to small average farm sizes. Groundwater is declining, and industrial contamination of land and water resources is increasing. Despite a strong reforestation program, the remaining natural forests are being degraded and lost at a steady rate. Viet Nam's high biodiversity is threatened, and consequently the survival of many species may increasingly be at risk. Anticipated climate change impacts include (i) flooding and salinity intrusion in the lowlands, and more frequent droughts during the dry season; (ii) higher temperatures, leading to increased water needs for agriculture; (iii) variable stream flows; (iv) greater incidence and prevalence of pests and disease; (v) changes in planting patterns and cultivation calendars; (vi) more forest fires; and (vii) rising sea level, which could reduce rice production by 7% and reduce mangrove areas.

3. Agriculture is the main production base available to the poor. Households headed by women are usually poorer than households headed by men, with the majority working as farmers as well as being responsible for most of the housework tasks. Women typically work 10–12 hours more per week than men. This phenomenon is more significant in rural than urban areas. The poorest tend to be (i) members of ethnic minorities, whose livelihoods depend on both subsistence agriculture and forest resources; (ii) people living in remote, often upland areas with increasingly degraded natural resources; (iii) people living in coastal areas, which are more prone to extreme climatic events; (iv) households headed by women or with disabled members; and (v) migrants or landless people without resources.

4. **Sector planning and technical administration.** Economic techniques are not adequately used to evaluate natural resource impacts. Systematic mechanisms for assessing the costs and benefits of new policies and regulations, and legislated reforms are often underutilized and underfunded. The capacity for legal drafting is weak, with lengthy delays in

[1] Asian Development Bank. 2012. *Country Partnership Strategy: Viet Nam, 2012–2015, Agriculture, Natural Resources and Environment Sector Assessment, Strategy and Road Map.* Manila.

[2] The main perennial crops are coffee, tea, rubber, cashews, sugarcane, cotton, and pepper; the main annual crops are maize, sweet potato, soybean, and peanuts; and the main commodities are rice, pepper, coffee, and aquaculture products.

issuing enabling legislation (e.g., a revised water resources law and forestry policy). Systemic problems remain in recruiting, retaining, and rewarding quality staff. The need to manage food and biosafety issues is increasingly urgent, given the growth in agriculture trade, intensifying transboundary risks to animal and human health, and rising sophistication of domestic consumers. Building on recent strengthening and modernizing of agriculture research and extension services will be important.

5. **Major rural infrastructure problems.** Only about 4.0 million ha of the 6.6 million ha under rice cultivation have functional irrigation facilities, and these are often operating at low efficiency. Most of the population lives along the coast and within the country's delta areas, which are subject to floods, inundation, dry season drought, and salinity intrusion, highlighting the infrastructure deficiencies. This constitutes both a major challenge and a major development opportunity—better water resource infrastructure will help intensify and diversify agricultural production, and in turn boost rural incomes and reduce poverty.

6. Many of the dams and water reservoirs are aging and are further stressed by climate change impacts. Some have failed with catastrophic results, and the stability of many others is of concern. The efficiency of many irrigation systems is low. Now that water resources are being stressed, upgrading these systems is essential. Better management and technology is needed based on research and evidence of successful operations in different environments. Only 28,000 kilometers (km) of approximately 104,000 km of rural roads are paved, and many of these roads are impassable at times during the rainy season, placing major constraints on the marketing of agriculture produce and on access to modern inputs and other rural social and economic opportunities. The funding gap for rural roads and irrigation is estimated to be over $2 billion for the duration of the Socio-Economic Development Plan, 2011–2015 (SEDP). A major requirement implicit in the upgrading of both water resource and rural transport infrastructure is efficient management of the expanding asset base.

7. **Major sources of opportunity**. Viet Nam has demonstrated commitment to economic reform. Government agencies concerned with agriculture, natural resources, and the environment (ANRE) have shown capacity to implement major sector investment programs and a willingness to pursue policy, institutional, and legal reforms. Demand for many commodities and higher value-added products that the sector can produce is strong. The country's transition to middle-income status will be accompanied by greater domestic demand for higher-value and more diversified products. Policymakers recognize, e.g., in the SEDP, the National Water Resources Strategy (NWRS), and the National Targeted Program for New Rural Development (NTPNRD), that environment issues need more attention, and that agriculture provides a route out of poverty for the rural poor. Greater agricultural production and value addition provides rural women with opportunities to improve their incomes, and better access to services, education, and health facilities.

2. Government's Sector Strategy

8. The SEDP envisages annual GDP growth of about 7.5% during 2011–2015. This is expected to result in increases of about 70% in per capita income and exports. Agriculture, forestry, and fisheries will contribute about 19% to GDP, and ANRE employment is anticipated to be 41% of the national total. The overall vision of the Ministry of Agriculture and Rural Development (MARD), in its 5-year plan for agriculture development (2011–2015), promotes a modernized, sustainable agriculture sector with a market orientation, supporting continuing structural transformation and international economic integration. Two of the plan's six main goals are poverty reduction in the poorest districts, and increases in rural incomes. MARD's NTPNRD is being implemented in conjunction with the 5-year plan. It aims to improve rural

physical infrastructure, social services, and production modes and circumstances, and thus provide much better rural living conditions.

9. The National Targeted Program to Respond to Climate Change, led by the Ministry of Natural Resources and Environment (MONRE), sets out policies to respond to climate change. MARD and other ministries are expected to develop legal instruments to support these policies, including (i) promoting sector development that is diverse and sustainable, quickly adapts to new sciences and technology, and is competitive in local and international markets; (ii) developing rural areas through modern infrastructure and agriculture industry services; and (iii) ensuring food security, ecological balance, and biodiversity.

3. ADB Sector Experience and Assistance Program

10. The country assistance program evaluation of the Asian Development Bank (ADB)[3] assessed ADB's contribution to ANRE development as substantial, stating that it had encouraged broad sector reform; targeted poor regions; emphasized building institutional capacity in MARD, MONRE, and their provincial agencies; encouraged reform and modernization of agriculture research and extension systems; improved productive rural infrastructure; and promoted community forestry. The impact of ADB's investment in the sector has been determined in significant part by the scale of the outputs, including (i) irrigation and drainage improvements on more than 900,000 ha, (ii) flood protection on 1 million ha, (iii) upgrading of 2,100 km of rural roads, (iv) better management of 500,000 ha of forest; and (v) support for policy and institutional reforms.

11. Since the mid-1990s, ADB has played a key role in policy development, especially in water resources and irrigation, drainage and flood control policy, and capacity building. Key initiatives have been the (i) passage of the Law on Water Resources in 1998; (ii) establishment of MONRE in 2002; (iii) establishment of the National Water Resources Council; (iv) adoption of the NWRS in 2006; (v) funding and coordination of the Water Sector Review during 2007–2010, including the formulation of a national target program for water resources development; (vi) assistance to the strengthening and modernization of the Water Resources University; (vii) revision of the Law on Water Resources, adopted in 2012; (viii) field testing of participatory irrigation management in the Red River Delta; and (ix) implementation in the Central Region, under project conditions, of measures aimed at improving the functioning of water user organizations, and irrigation and drainage management companies, to increase the sustainability of irrigation and drainage infrastructure.

12. Lessons in the sector include (i) strategically selected, properly designed projects can have positive impacts on the economy, export earnings, employment, household incomes, nutrition, and poverty reduction; (ii) the government has shown capacity to take on challenging projects, although institutional and implementation inefficiencies remain; (iii) ownership of project interventions by government and the executing agencies concerned is critical to success; (iv) ANRE operations are complex, and require hands-on, day-to-day management; (v) policy, regulatory, and institutional shortcomings—particularly in provincial governments—need to be fully taken into account in investment design; and (vi) participation, governance, and monitoring need to be strengthened.

13. ADB's program will support the government's priorities of economic growth and poverty reduction within the context of the NTPNRD, the NWRS, and the operation and maintenance capacity-building measures already piloted and developed in earlier projects. Most new investments will continue established successes, such as water resource and rural accessibility infrastructure improvements. The policy dialogue for strengthening the sustainability of the

[3] ADB. 2009. *Viet Nam: Country Assistance Program Evaluation*. Manila.

current stock of productive rural infrastructure assets, and for developing new infrastructure, needs to continue. Technical and management options need to be developed, trialed, and adopted into mainstream practice.

14. ADB will continue to mainstream gender in the ANRE sector, promoting women's employment in civil works and participation in rural development management. The evolving program will be able to accommodate increasingly important initiatives, such as food safety and climate resilience. Future operations will be aligned in two interrelated directions: stronger rural productivity, and natural resource management and climate change resilience.

15. Rural productivity enhancement will be pursued by (i) improving productive infrastructure for water resources, and rural accessibility; and (ii) diversifying farming systems by using better technologies that lead to higher profits and nutritional yields, and greater export potential. These initiatives will be accompanied by capacity building to better implement institutional measures for operation and maintenance to ensure the sustainability of investments. They will incorporate a new element—ensuring the safety and maximizing the productive capacity of existing dams and reservoirs, many of which are dilapidated and in need of stabilization and upgrading.

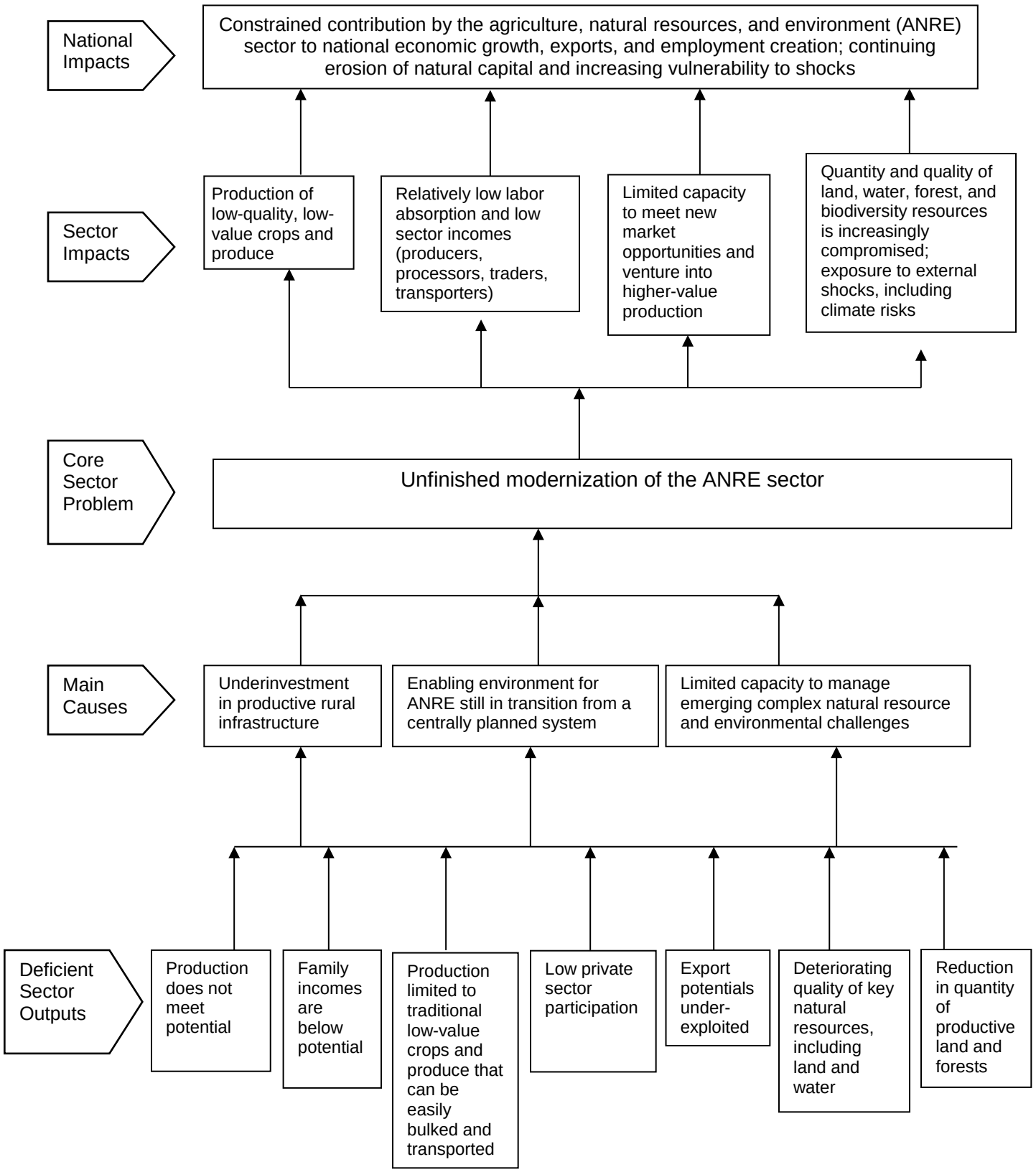
16. Rural women will benefit through greater participation in project development, implementation, and returns on agricultural efforts. Climate-resiliency measures will be increasingly important for sustainable rural infrastructure. Past and ongoing water resource improvement projects provide a foundation for future investments, with proven outputs and outcomes, as well as improved institutional capabilities, and have helped government personnel gain knowledge of ADB procedures and develop the necessary implementation capacity. Program-related momentum will be maintained through projects that focus on irrigation and drainage improvements and flood protection, both nationally and in coordination with neighboring Greater Mekong Subregion (GMS) countries.

17. Rural accessibility initiatives have successfully focused on improving rural roads. Provincial development plans prioritize the need to connect the provincial and commune road networks. The impacts of these investments have a direct bearing on poverty reduction and socioeconomic development. They are given high priority by both central and provincial governments, including in the NTPNRD; increase access to markets for produce, inputs, and information; and enable more private sector participation in rural areas. ADB will continue to support rural accessibility and will target areas with high poverty, which will also help ethnic minorities. For long-term sustainability, the ANRE work will increasingly be coordinated and rationalized into the overall transport program, as supported by ADB and other development partners.

18. To improve decision making, ADB will continue to support academic and training institutions in the development of gender-sensitive knowledge and practice bases, and support the transfer of these to farmers and agricultural businesses, especially women. ADB will focus on three areas: food quality, appropriate technologies, and climate change. Concerns about food security, quality, and nutritional standards must be solved to enable higher agriculture production, secondary food processing, and exports.

19. ADB will continue to support natural resource management and climate change resilience. This will involve both conservation and the sustainable use of natural resources within the context of climate change impacts. ADB has established a leadership role in water resource management, and will continue its policy work.

Problem Tree for Agriculture, Natural Resources, and Environment



Sector Results Framework (Agriculture and Natural Resources Sector, 2011–2015)

Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	**Indicators with Targets and Baselines**	**Outputs with ADB Contribution**	**Indicators with Incremental Targets**	**Planned and Ongoing ADB Interventions**	**Main Outputs Expected from ADB Interventions**
Sustained agricultural productivity growth; and natural resources sustainably managed, with climate change resilience enhanced	Forested ground cover increases from 40% of total land area in 2011 to 42.5% by 2015 Agriculture-related growth increases by 2.6% annually from 20% in 2010	Increased area of managed and protected forest; and increased area with irrigation, drainage, and flood control, along with improved all-weather rural access and enhanced skills	Forested ground cover increased by 1 million ha by 2015 Irrigated land area increased by 410,000 ha by 2015 Drainage area increased by 200,000 ha by 2015 17,700 km of rural roads paved by 2015	**Planned key activity areas** (% of funds): Irrigation systems management and drainage improvement (62%) Rural infrastructure (18%) Agriculture sector development and policies (11%) Livelihood programs and employment generation (6%) Sustainable land management (3%) **Pipeline projects with estimated amounts:** GMS Flood and Drought Risk Management and Mitigation (2012, $45 million) Low-Carbon Agriculture Support (2012, $84 million) Productive Rural Infrastructure Sector Project in the Central Highlands (2013, $90 million) Water Resources Development in the Mid- and Northeast Red River Delta (2013, $80 million) GMS Climate-Friendly Value Chain Development (2013, $35 million) Integrated Rural Development Sector in the Central Provinces (additional financing) (2014, $75 million) **Ongoing projects with approved amounts:** Phuoc Hoa Water Resources ($150.0 million) Agriculture Science and Technology ($30.0 million) Forests for Livelihood Improvement in the Central Highlands ($53.0 million) Central Region Water Resources ($74.3 million) Integrated Rural Development Sector Project in the Central Provinces ($90.0 million) Quality and Safety Enhancement of Agriculture Products and Biogas Development ($104.0 million) Strengthening Water Management and Irrigation Systems Rehabilitation ($100.0 million) Biodiversity Conservation Corridors Initiative ($34.1 million) Sustainable Rural Infrastructure Development in the Northern Mountain Provinces ($108.0 million) Development of Irrigation Canal System of the Northern Chu and Southern Ma Rivers ($100.0 million)	**Planned key activity areas:** About 50,000 ha of improved irrigation and drainage, along with increased proportion of women in local water user groups About 300 km of rural roads improved **Pipeline projects:** About 60,000 ha of improved irrigation and drainage, along with increased proportion of women in local water user groups About 40,000 household biogas units established About 400 km of rural roads improved **Ongoing projects:** About 80,000 ha of improved irrigation and drainage, along with increased proportion of women in local water user groups About 500 km of rural roads improved Water Resources University enrollments increase by 7% per annum, along with 10% increase in relevant (water resources engineering) postgraduate qualifications (with specific targets for women) About 260,000 ha of forest land improved

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, ha = hectare, km = kilometer.
Sources: Ministry of Planning and Investment, Government of Viet Nam. 2011. Socio-Economic Development Plan, 2011–2015. Hanoi; Ministry of Agriculture and Rural Development.