

ENVIRONMENT ASSESSMENT (SUMMARY)¹

1. A key challenge for Viet Nam is to manage its rapid economic development in an environmentally sustainable manner, especially in regard to environmental degradation and climate change. Industrialization, urbanization, and agricultural intensification have degraded land and water, and far-reaching implications for the energy and transportation sectors mean increased greenhouse gas emissions and reduced resilience to climate change. Viet Nam is extremely vulnerable to climate change as it has extensive, low-lying coastal and delta areas, and its highlands have poor capacity to retain water and are susceptible to severe erosion. Reducing environmental degradation and improving sector resilience to climate change can have mutually reinforcing benefits for sustainability if effectively managed. Adaptation planning to improve sector resilience should contribute to ecological sustainability, acknowledging that long-term sector resilience is built on resilient natural systems and not on simply strengthening the capacity of infrastructure to withstand damage.

A. Issues and Challenges

2. **Industrialization.** Industrialization has intensified, since 1990 with strong economic growth fuelled by the intense exploitation of natural resources². In 2008, industry's share of gross domestic product reached 40%, while agriculture's share declined to 22%. Viet Nam's industrial growth has driven annual increases in energy consumption and corresponding increases in greenhouse gas emissions. In 2008, growth in energy consumption was 11.3%, a consistent trend over the previous decade.³ Energy comes primarily from oil and coal and amounts to 28,479 kilotons of oil equivalent. In contrast to the People's Republic of China, where energy intensity is decreasing, the energy intensity of Viet Nam's economy has risen 4% annually since 1990.⁴ The growth trend in total energy use and heavy dominance of fossil fuels prompts projections that national greenhouse gas emissions will triple by 2030 from 177 metric tons of carbon dioxide equivalent in 2005.⁵

3. **Urbanization.** Viet Nam is undergoing one of the fastest urban transitions in the world. It is the main driving force for economic growth. Viet Nam is home to 85 million people, 27% living in urban areas. That number is expected to increase to 45%, or 46 million people, by 2020 and to 50% by 2030. Cities already account for 70% of the gross national product. Aggregate population growth is not high, but people are moving rapidly into urban centers and leaving agriculture for industry and services.⁶ Urban sprawl for dwellings and industrial expansion covers lowland areas that are optimal for high-value agriculture. According to the Ministry of Agriculture and Rural Development (MARD), from 2001 to 2005 Viet Nam lost 336,000 hectares, or nearly 4% of total agricultural land affecting about 950,000 workers and about 2 million people.⁷

¹ This summary is based on *VIE: Environment and Climate Change Thematic Paper*. Available on request.

² Real GDP Growth in Viet Nam 1990-2010. <http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/weoselgr.aspx> IMF Website 13 June 2012.

³ Asia Pacific Energy Research Centre. 2011. *APEC Energy Overview 2010*. Tokyo.

⁴ ADB. 2009. *Country Strategy and Program Midterm Review: Viet Nam 2007–2010*. Manila.

⁵ World Bank. 2011. *Climate-Resilient Development in Viet Nam: Strategic Directions for the World Bank*. Washington, DC.

⁶ World Bank. 2011. *Natural Resources Management. Viet Nam Development Report 2011*. <http://siteresources.worldbank.org/INTVIETNAM/Resources/VDR2011EnglishSmall.pdf>

⁷ MARD. Report on Land Situation. 2007. *Impacts of the present land policy and management on rural development*. Ha Noi: Communist Review.

4. The rapid growth of industry and urban expansion has meant that the absolute levels of land, water, and air pollution are rapidly increasing. Untreated domestic, hospital, and industrial wastewater; poor urban drainage; and the expanded use of rivers, lakes, and ponds as dumping grounds for solid waste have seriously affected water quality, increasing the concentration, toxicity, and variety of pollutants.⁸ Air pollution is worsening, with increasing costs and harm to public health and the environment. Some 667,000 tons of sulfur oxides, 618,000 tons of nitrous oxides, and 6.8 million tons of carbon monoxide are generated annually in Viet Nam.⁹ There is a strong correlation between the sharp rise in absolute levels of nitrous and sulfur oxide emissions and increased gross domestic product. Airborne particulates are a problem affecting public health. An initiative grading Asian cities for air quality ranks the problem of particulates in Ha Noi as worse than in Bangkok but better than in Jakarta and Manila.¹⁰

5. **Agricultural intensification and encroachment.** Land use is intense, with yields above the Asian mean and an average of nearly two rice crops per year. Much of this intensity depends on the heavy application of agricultural inputs. Pressure to develop land and the conversion of marginal lands previously regarded as unsuitable for agriculture, with consequent deforestation and over-intensive land utilization, worsens soil erosion and reduces soil fertility. Heavy rainfall, suboptimal irrigation techniques, and the lack of incentives for farmers to adopt sustainable natural resource management cause extensive soil loss and pesticide and fertilizer runoff, reducing input productivity and contaminating groundwater and surface water. Pressure builds to further intensify agricultural practices as land available for agriculture shrinks. Industrialization, urbanization, and agricultural encroachment have reduced forest cover and quality as demand grows for timber and land. Viet Nam has seen a total transformation of the forest landscape since the economic restructuring initiated in 1986. Intense exploitation and conversion shrank forest cover from 43% in 1943 to 27% in 1990. Forest cover approached 40% in 2009, but this official figure reflects expanded plantation and poor-quality secondary forest. The loss of mangrove forests is particularly acute, slashed from 400,000 hectares in 1943 to less than 60,000 hectares in 2008 (footnote 5). Terrestrial and aquatic biodiversity continues to decline, hampering Viet Nam's options to maintain resilience under climate change.

6. **Climate change challenges.** Climate change is predicted to have significant impacts on all productive sectors in Vietnam. In agriculture, some 1.1 million hectares in coastal areas, or 70% of land under cultivation, is threatened by a sea level rise of 1 meter and resulting salt water intrusion, of which more than 930,000 hectares are in the Mekong Delta. Many of the implications of climate change, in particular the delicate relationship between energy and agriculture, require more thorough analysis. Climate scenarios preparation by the government advanced in their precision through applied downscaling of models to provide more specific regional and weather pattern information. However, a number of limitations in current analytical capacity must be addressed to promote low-carbon, climate-resilient growth: (i) improving cost-benefit analyses of adaptation and analysis to distinguish and assess impacts induced by climate change versus effects from other natural phenomena (e.g., El Niño, or the Southern Oscillation); (ii) improving development models and tools for cross-sector and interregional assessments; (iii) training technical experts capable of running studies on climate change impact assessment and adaptation strategies; and (iv) improving the current hydro-meteorological observation network to meet demand for climate monitoring and/or early disaster warning.

⁸ International Center for Environmental Management. 2007. A National Review of Water Pollution from the Manufacturing Sector in Viet Nam. *World Bank Technical Paper*. Ha Noi: World Bank.

⁹ Ministry of Environment. 2011. *Viet Nam Air Pollution Survey*. Pollution Control Department under the General Department for Environment and the Japan International Cooperation Agency, Ha Noi, Viet Nam. <http://www.cleanairinitiative.org/portal/node/7170>

¹⁰ Clean Air Initiative. 2010. *Air Quality in Asia: Status and Trends*. Manila.

7. **Transborder issues.** The following are among the transborder issues linked to environmental management and climate change:

- (i) **Management of the Mekong and Red rivers.** With water availability shrinking in line with shifting seasonal precipitation patterns and upstream hydropower, agricultural, and urban development, tensions between riparian countries may increase over water allocation, management, and quality. Forest and land degradation pressures will likely continue along Viet Nam's borders, as increased economic activity and demographic changes affect protected areas that cross borders into Cambodia and the Lao People's Democratic Republic.
- (ii) **Management of shared natural resources.** Transborder environmental concerns include water flow and quality, sediment transport, wildlife trade and biodiversity conservation, timber extraction, fisheries, and air pollution. A number of regional forums consider transborder natural resource and environmental issues, such as the Association of Southeast Asian Nations, the ADB Greater Mekong Subregion consultative planning forum, and the Mekong River Commission, but they have not achieved convincing or systematic influence, as countries are reluctant to compromise national sovereignty over development rights and controls.
- (iii) **Hydropower development.** The current conflict and negotiations over the proposed development of 12 hydropower projects on the mainstream Mekong River is the most important case to date. It tests arrangements for dialogue and agreement on shared resource use and management.
- (iv) **Transport.** Strategy planning and option assessment are inadequate regarding transport routes linking countries and transport mode options to minimize environmental damage, biodiversity loss, and greenhouse gas emissions.

B. Institutional Framework for Environment and Climate Change

8. The National Council of Sustainable Development was established in 2005 to steer the implementation of the Strategic Orientation for Sustainable Development in Viet Nam (Viet Nam Agenda 21). The council, chaired by the deputy prime minister, has about 50 members from line ministries, unions, and the private sector. The Ministry of Planning and Investment serves as the council secretariat.

9. Environment and climate change initiatives and responsibilities are spread across all ministries. The Prime Minister ultimately approves all climate change policy instruments, including the National Target Program to Respond to Climate Change. The prime minister heads the National Steering Committee on Climate Change, which comprises ministers for the Ministry of Natural Resources and Environment (MONRE), Ministry of Planning and Investment, Ministry of Finance, MARD, and Ministry of Foreign Affairs. MONRE is the national focal point implementing the United Nations Framework Convention on Climate Change and the Kyoto Protocol, as well as the national authority for the Clean Development Mechanism.

C. ADB's Support Program

10. **Environment support.** ADB has traditionally addressed environmental issues through technical assistance and the application of its system of environmental safeguards in its lending and technical assistance portfolio. In agriculture and natural resources, ADB has emphasized asset creation and access to markets and inputs in the poorest regions. ADB has looked to replicate small-scale planting innovations in forestry and bring them into mainstream forestry practice. In energy, ADB has supported technical assistance to address crosscutting

environmental issues and supported strategic environmental assessment to look at the effect of the Quang Nam Hydropower Plan on the Vu Gia–Thu Bon River Basin and to build capacity in the national Ministry of Industry and Trade and Electricity and the provincial Department of Agriculture and Rural Development and Department of Environment and Natural Resources to assess and manage schemes offering payment for forest ecosystem services. In the water sector, ADB supported the government policy of encouraging growth away from main cities and supported enhanced environmental services in the Central Region. ADB's Greater Mekong Subregion initiative includes a focus on transborder environmental issues. Its Core Environment Program includes pilot conservation activities that have been scaled up to a \$30 million loan for the Biodiversity Conservation Corridors Project, which includes a component on climate change impacts and adaptation responses. The project Forest Livelihood Improvement in the Central Highlands improves livelihoods and helps facilitate forest improvement and natural resource management.

11. **Climate change support.** ADB has supported a number of climate-related initiatives, including the first climate change impact and adaptation assessment for Ho Chi Minh City, which has influenced government policy and methods. ADB is conducting the larger Climate Change Impact and Adaptation Study in the Mekong Delta in collaboration with Australia. The delta region has been the target for ground-breaking infrastructure-focussed climate resilience studies, including one on a power plant complex in Can Tho and another, now underway, on two large bridges and connecting roads. Recent ADB work on the economics of climate change includes guiding the government on the likely financial implications of adaptation and mitigation costs. It helps other development partners consider financing options. Low-carbon development can reduce costs by reining in inefficient consumption subsidies, and ADB encourages Viet Nam to consider low-carbon development programs and seek internal ADB financing and global funding opportunities.

12. **ADB's strategic approach to environmental management and climate change.** ADB has set out five strategic priorities for addressing climate change:¹¹ (i) expanding the use of clean energy, (ii) sustainable urban and transport development, (iii) land use and forestry, (iv) building climate resilience, and (v) governance. It has developed an innovative approach to strategically addressing climate change and environmental issues that responds to ADB's strategic priorities and to the key focal sectors in its cooperative program with the government. Its so-called "three-pronged approach" includes (i) analytics and awareness, (ii) mainstreaming, and (iii) financing green growth and sustainable infrastructure.

13. **Development partners and major funding initiatives.** International bilateral and multilateral donors are actively implementing projects with a direct environment or climate change focus in Viet Nam. Funding pools available for climate change are the Support Program to Respond to Climate Change, Viet Nam's climate change budget support program, and smaller donor initiatives supporting improved environmental impact analysis and biodiversity projects. ADB is working with development partners to implement projects and combine resources, minimize overlap, and leverage comparative advantages. The International Support Groups of MONRE and MARD help coordinate international support to the sectors and include members from relevant line ministries. Key partnerships including the Aid Effectiveness Forum address environmental issues directly. ADB has increased involvement in knowledge partnerships, funding partnerships, and technical working groups to better coordinate responses to challenges in Viet Nam and the region related to the environment and climate change.

¹¹ <http://www.adb.org/Climate-Change/default.asp>