Vietnam's Forestry Sector and Environmental Sustainability

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Maintaining and increasing forest coverage is identified as one aspect of ensuring sustainable development of Vietnam in the country's strategies. Vietnam has seen the reversed trend in forest coverage loss since 1995 after decades of war and timber extraction for economic purposes. While there's still controversy about quality of remaining and new forests, the statistical quantity of forest coverage looks promising (as described in the next section).

As with general perception, higher forest coverage means better natural environment. Nevertheless, to answer the question of how much forests and forestry sector actually contribute to environmental sustainability is not easy. Sustainability and sustainable development themselves do not bear clear meanings or are equipped with sets of concise measurements.

The current national Environmental Sustainability Index lists only seven main criteria, including two of those that can be directly attributed to forestry sector (criteria 1 and 2 in the table below).

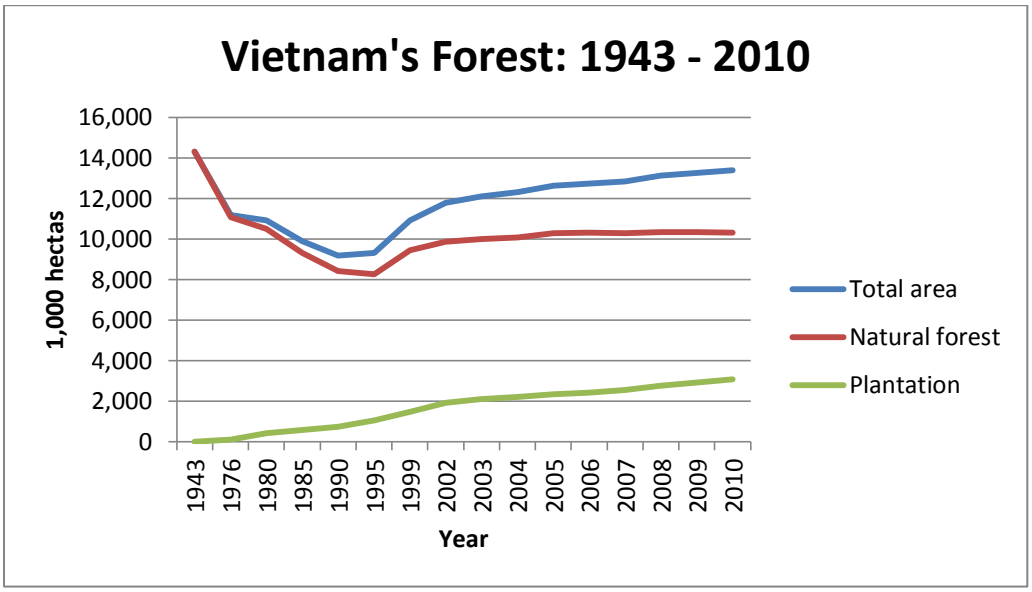
Table 1. Vietnam's Environmental Sustainability Index

No.	Criteria	Monitoring Agency	Start from	2010	2015	2020
1	Forest coverage (%)	MARD	2011	39.7	42-43	45
2	Soil and soil biodiversity protection (%)	MONRE	2011	7.6 (2.5 million ha)	-	-
3	Area of degraded soil (million hectares)	MONRE	2015	9.3	-	-
4	Decrease of ground and surface water (m^3/person/year)	MONRE	2011	2,098m^3/p/y	-	1,770 m^3/p/y
5	Days with hazardous air contents over allowed standards (%)	MONRE	2011	-	-	-
6	Urban areas, industrial zones, processing zones, industrial clusters having solid waste and sewage water treatment in accordance with existing standards (%)	MoC, MONRE, MoIC	2011	50	60	70
7	Solid waste collected and processed in accordance with existing standards (%)	MoC, MONRE	2011	83	85	90

Source: Vietnam's Sustainable Development Strategy for 2011 – 2020.

A Snapshot of Vietnam's Forests to Date

The Vietnam's forestry sector has been recovered since 1990s as results of afforestation and restoration of natural forests. During 1995 – 2009, the country increased its forested areas with 282,600 hectares on average, including 148,900 hectares of natural forests and 133,700 hectares of plantation (Vietnam Administration of Forestry, 2011). As end of 2010, Vietnam claims to have around 13.39 million hectares of forests, or 39.50% of forest coverage.



Data source: General Statistic Office of Vietnam.

The area of natural forests includes 1,922,465 hectares of special-use forest, 4,231,931 hectares of protection forest, and 4,097,041 hectares of production forest. In 2010, the trend shows some decrease of natural forests due to destructive activities, forest fire, and significantly the conversion of 46,519 hectares of forest to other land-use purposes (PanNature, 2011). This trend apparently has close link with recent development of hydropower and mining sectors, in addition to infrastructure development in upland areas. The area of natural forest with high biodiversity, or the primary forests, remains only about 0.5 million hectares scattered in the Northern Central, Southern East, and the Central Highland (Ngân hàng Thế giới, 2011). Most of old-growth mangrove forests along the coastal Vietnam have been cleared, leaving the remaining total of 60,023 hectares by end of 2010 (Ngân hàng Thế giới, 2011; PanNature, 2011).

Plantation forests contribute largely to the increase of forest coverage since mid-1990s (as in chart above), in addition to natural regeneration. The regrowth of Vietnam's forests is considered as a result of combination of economic and political responses to forest and land scarcity, economic growth, and market integration (Meyfroidt & Lambin, 2008). The new target set by the government plans to regrow 2.6 million hectares of forests by 2020, including 250,000 hectares

of special-use and protection forests, 1 million hectares of production forests, and 1.35 million hectares of forests after harvest[1].

Environmental Sustainability in Forestry Sector

Sustainable forest management (SFM) is defined as the foundation for the development of the forestry sector of Vietnam (Thủ tướng Chính phủ, 2007). Generally accepted, SUF adopts well-established sustainability concept, which aims to include social, economic, and environmental dimension into the development of the forestry sector. Environmental dimension is considered as key to determine the sustainability within SFM framework.

Box: Forest protection, natural protection and biodiversity conservation are aimed to effectively contribute to watershed, coastal and urban protection, natural disaster mitigation, erosion control, protection of water sources and environmental protection, and to create income sources from environmental services (environmental fees, CO_2 market, ecotourism, etc.) for the national economy (*Vietnam Forestry Development Strategy for 2006 – 2020*.

During the implementation of the Forestry Development Strategy for 2006 – 2020 (VFDS), the Forest Sector Monitoring Information System (FOMIS) project has developed a set of monitoring indicators, including those to gauge the progress towards environmental objectives. These include: (i) number of forest fauna and flora species that are rare or endangered; (ii) rate of forest cover by elevation and slope; (iii) rate of crown cover and number of forest layers in protection forest; and (iv) area of forestland threatened by desertification. In addition, there is a separate set of indicators for forest protection, biodiversity conservation, and environmental services. This set includes eight indicators, which are (i) area of protection forests, (ii) area of special-use forests, (iii) area of forests under forest protection contracts, (iv) number of forest rangers working at commune level, (v) area of damaged forests, (vi) number of Forest Protection and Development Law violation cases, (vii) number of villages having forest protection conventions, and (viii) total values of environmental services of forests.

Assessment of VFDS implementation after four years (2006 – 2010) while recognizing the contribution of increased forest cover to the environmental protection objectives, states that the forestry sector has not brought much positive impacts for the environment. Moreover, challenges with natural forest still remain as biodiversity conservation and climate change impacts are not well addressed by existing interventions (MARD, 2010). Even the forest cover will still continue to increase in coming years, the challenges for environmental sustainability still remain when the trend of destruction of high-biodiversity primary forests and conversion of natural forests to economic land-use purposes still is not halted. Other external factors such as development of

[1] Decision No.57/QD/TTg of the Prime Minister on approval of the forest protection and development from 2011 – 2020, dated 9th January 2012.

market agriculture and high population densities in marginal mountainous areas could threaten the sustainability of the forestry sector (Meyfroidt & Lambin, 2008).

Nevertheless, the question of defining environmental sustainability in forestry is recognized as difficult due to different reasons (Smith & Mayfield, 2006). One is variation in scientific concepts, whether to look at ecological and environmental indicators or inclusion of emerging political-ecologist view-points. The traditional approach often looks at sustainability as sustainable yield to answer the question how much harvest can maintain the productivity of forest ecosystems. Secondly, while the existing technical solutions can provide meaningful tools to analyze chances of forests and environment, quality of data and statistics is questionable. For examples, there has been different critics on the statistical data of forest cover in Vietnam (Lang, 2001 cited in (Meyfroidt & Lambin, 2008)).

Measuring Environmental Sustainability of Forestry Sector

There have been many efforts to develop sustainability indicators for the forests. In a very recent study, Grainger summarizes nine criteria and indicator schemes being used in about 150 countries since 1990, with over 60 countries employing more than one scheme. However, these criteria and indicator schemes are not much useful to really describe the sustainability of forest management. The study finds only 29% of indicators in five schemes can be applied in practical monitoring (Grainger, 2012).

Another interesting approach developed by W. Maes and colleagues tries to design a framework to assess quantitatively the environmental aspects of sustainable forest management. Through a validation process, these authors design a new indicator framework that can better access the effects of forest management on forest composition, structure and functioning. The validation process, which involves expert panels, field cross-checks in forest stands, and cost calculation, helps reduce the number of indicators without losing significant information. While this study is specificly for forests in Flanders (Belgium), the authors claim that their approach can be applied to evaluate environmental aspects of forest management in other regions, provided that local target and worst indicator values are taken into account (Maes, Fontaine, Rongé, Hermy, & Muys, 2011).

Examples above demonstrate how existing systems of indicators for monitoring sustainability and environmental dimension in forestry have been evolved and improved.

Improving Environmental Sustainability Indicators

While the Vietnam Forestry Development Strategy recognizes environmental protection and provision of environmental services as one of key outcomes of the sector, the current set of monitoring and evaluation (M&E) criteria seems not having a strong emphasis on the environmental sustainability aspects. This is partly due to the fact that environmental sustainability criteria scatters among different categories within the M&E system.

When recognizing the importance of environmental dimension in sustainable forestry in Vietnam, there should be more focus on both actual interventions and monitoring efforts. If sustainability is the core of VFDS, it may be worth to reconsider current sets of indicators to better reflect this perspective. Building around sustainability concept, progress of forestry sector can be gauged through three main lenses: social – economic – environmental. The current monitoring framework may have overlapping areas if we look at environmental sustainability. Environmental objectives and forest protection, biodiversity conservation, and environmental services objectives can be potentially revised and combined.

Emerging dimension in forestry such as climate change and impacts; REDD[2], PES[3] and other forestry-related climate change initiatives should be also included in the monitoring framework, considering the fact that they can contribute to and have impacts on environmental sustainability.

On the other hand, forestry activities can also result in negative impacts on biodiversity and the environment. In short, impacts from forestry may include biodiversity loss, illegal hunting, illegal settlements, livelihoods of forest dwellers, and climate change (Secretariat of the Convention on Biological Diversity, 2009). This should also be adequately monitored and evaluated, not only focusing on the positive aspects of forestry sector only.

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[2] Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
[3] Payment for Environmental Services

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