

2.1 THE ECONOMY— NATURE DISCONNECT

What's in this chapter

- The conceptual relationship between nature and the economy, including the economy's reliance on, and impacts upon, natural capital
- The concepts of natural capital, ecosystems goods and ecosystem services
- How conventional economic analysis overlooks the contributions of nature to economic activity
- Impact pathways of economies that do and do not value natural capital

People have long taken nature for granted, particularly the important role of ecosystem services in supporting economic development. While the role of nature as a provider of raw materials is more commonly recognized, the role of ecosystems in maintaining key services such as water purification, pest control, soil fertility and carbon sequestration remains largely unrecognized and unrewarded. Failing to account for the full value of nature has inevitable

long-term impacts, including resource depletion and environmental degradation, which themselves impact negatively on the economy. Figure 2.1 conceptualizes the relation between nature and the economy.

The circle on the left-hand side of the figure presents natural capital, representing all the aspects and components of nature that may be used to transform materials, or the spatial configuration of materials, in order to enhance the welfare of humans. Natural capital is thus indispensable to economic growth and human well-being. The term natural stocks refers to all the resources provided by nature, including forests, minerals, soil, water, etc. Natural stocks drive the flow of ecosystem goods and services. In this report, ecosystem goods are defined as tangible commodities directly obtained from ecosystems, e.g. timber, food and medicine². Ecosystem services refer here to the intangible benefits that people receive from the dynamics within an ecosystem, including so-called regulating (e.g. water purification), supporting (e.g. nutrient cycling) and cultural (e.g. aesthetic) services³.

The circle on the right-hand side of the figure shows the economy, comprising actors, production practices and economic instruments and institutions. Actors include households, enterprises, the government or any other entity that engages in economic activity, either through the provision or consumption of goods or services.

Production practices constitute the economic activities and technologies that lead to the provision of goods and services (for consumption). Finally, economic instruments and institutions are man-made interventions and regulations governing economic activity through the assignment of property rights, legal obligations, financial incentives and disincentives.

Interactions between natural capital and the economy—as depicted in the figure by arrows—represent the input and output flows of the economy. Inputs to the economy such as ecosystem goods and services flow from natural capital to the economy, while emissions and waste flow out from the economy back to nature.

Ensuring a continuing flow of goods and services from an ecosystem typically requires that biological and abiotic components remain relatively intact; the structure and diversity of the system are thus important features of natural capital. However, these features are often not captured when describing or disaggregating natural stocks. Moreover, some of these qualitative characteristics of ecosystems may be considered as what economists call public goods; they are to a large extent non-rival (use of the good by one does not prevent its simultaneous use by another), non-exclusive (it is not possible to prevent non-payers from using the good) and therefore not part of the market economy. Because these goods have no prices, they are rendered valueless by our economic system.

Most economic development plans and growth strategies fail to take full account of the fact that a good deal of economic growth takes place at the expense of excessive depletion and degradation of natural capital. As a result, these plans ignore the consequences of such growth for the quantity and quality of ecosystem goods and services that nature provides. These consequences ultimately affect both production

Conventional economic analysis has tended to overlook the contributions of nature to economic activity.

and consumption. Economic growth—to the extent that it depletes natural wealth—can impose significant economic and social costs on current generations while presenting important risks and challenges to future ones.

As in many economies around the world, nature's critical contribution to a resilient and growing economy has been largely ignored in Borneo. Forest clearance for commodities such as oil palm has resulted in loss of biodiversity and contributed to water supply problems downstream as a result of water use and fertilizer and pesticide application. Across the island, economic effort and capital have been misallocated to activities which decrease natural capital; natural capital has been lost as financial capital has poured into property, production and export of fossil fuels and other extractive resources, such as forestry and minerals. Price subsidies and other so-called perverse incentives have further helped to stimulate an unsustainable economic development path. Relatively little has been invested in renewable energy, energy efficiency, public transportation and infrastructure, land tenure security, improving social equity, sustainable agriculture, ecosystem and biodiversity protection and land and water conservation. Widespread unvalued and unmanaged negative externalities—the negative environmental side-effects imposed on third parties by economic activities—mean that there is little incentive for the business sector to opt for sustainability. As a result, negative impacts are imposed on HoB ecosystems, biodiversity and on the quality of individuals' health and life.

The man-made causes of environmental deterioration vary, but at a fundamental level they share a common root: the disconnect between economy and nature. The current economy fails to fully value the benefits that natural capital provides to society and to the economy.

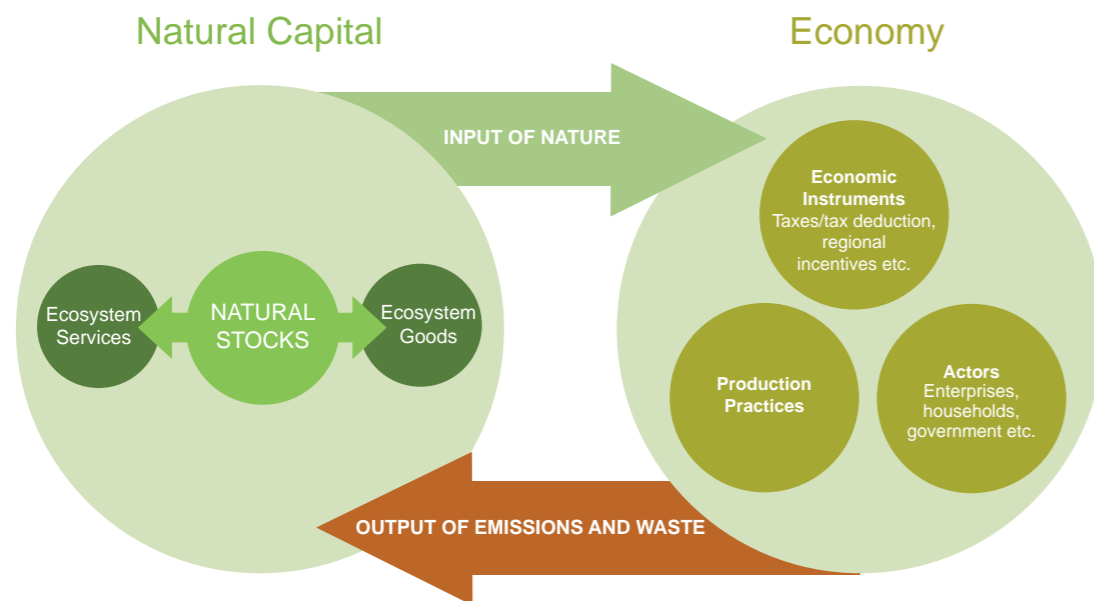


Figure 2.1: The conceptual relation between nature and economy¹

The Heart of Borneo Initiative is a prime example of a coordinated transboundary approach to conservation and sustainable development.

A key step in transforming this situation is to recognize explicitly nature's role in economic production, innovation, value creation, stability and prosperity. Ecosystem goods and services from the HoB are essential inputs to the economies of Brunei, Kalimantan, Sabah and Sarawak. If well managed, natural capital can increase sectoral productivity; on the other hand, productivity can decrease if natural capital is poorly managed. Likewise, the better the condition of natural stocks, the more these stocks can be relied upon to support long-term economic growth.

Of course, the value of nature is not defined simply in relation to our economic system. 'Value' can be thought of in different ways. Only a part of it can be captured in an economic assessment such as this and only some of that value can, or even should, be expressed in monetary terms. WWF⁴ recognizes that the natural environment has many different kinds of value, only some of which can be usefully measured in monetary terms. Different people value nature in different ways, and nature has an intrinsic value which goes beyond that attributed by humans. It is therefore necessary to employ a variety of methods to value ecosystems and biodiversity to ensure that these multiple aspects are taken into account in economic and government decision-making. For the purpose of this report, we have monetized where possible and appropriate in order to use economic modeling and to show the impact of incorporating some parts of the value of 'ecosystems' within the HoB economy.

Monetary valuation is therefore one of a range of tools used to demonstrate that conservation of ecosystems is essential to long-term economic security and human well being. However, it is important to recognize the limitations of quantifying ecosystems in this way and ensure that such results are not applied where inappropriate. Certain elements of economic value, as well as intrinsic, cultural and other values, will therefore not have been taken into account here because of the nature of the methodology

used. This study highlights these more intangible aspects, but subsequently narrows the scope to an analysis in which the economy is central and enables policy implications to be drawn. Further, more extensive research at a broader scale—supported by appropriate data collection and management—could be used in any follow up studies.

Figure 2.2 below compares the impact of an economy which does not value natural capital with one that does. Poor landscape management is commonplace in the current economy (left hand side), which to a large extent is driven by deforestation and environmental degradation from unsustainable timber harvesting, clearing of natural forests for palm oil cultivation and irresponsible mining. Uncertainty in land tenure, overlapping concessions (i.e., overlapping claims on holdings due to issuance of multiple licenses at the same location), poor planning and weak enforcement are additional drivers causing deterioration of ecosystem services. Fire and haze are further results of poor landscape management, which cause further impacts on ecosystem services and have important socio-economic consequences. Poor landscape management results in costs which burden society, particularly forest-dependent communities; considerable investments may be required to offset the losses incurred. Many of these factors are characterized by an unequal distribution of the monetary benefits from nature as well as an unfair distribution of the costs of degradation and resource depletion.

In the HoB, many of the socio-economic impacts on the left side of the figure, e.g. loss/availability of water, may in the short term impact only selected industries, such as drinking water utilities and sectors which use river transportation. However, in the longer term, depletion of forest, soil and water resources and their essential services will significantly impact natural capital, eroding its capacity to sustainably provide many of these ecosystem goods and services. These impacts feed back to the sectors themselves—causing parallel erosion of their long-term economic prospects and viability. Such mismanagement of natural capital leads to lower economic value and higher costs.

This vicious cycle can become virtuous by following the pathway shown on the right-hand side of Figure 2.2⁵. Conservation and sustainable management in the HoB can increase the production and overall value of ecosystem goods, while avoiding damages to ecosystem services and their resulting costs.



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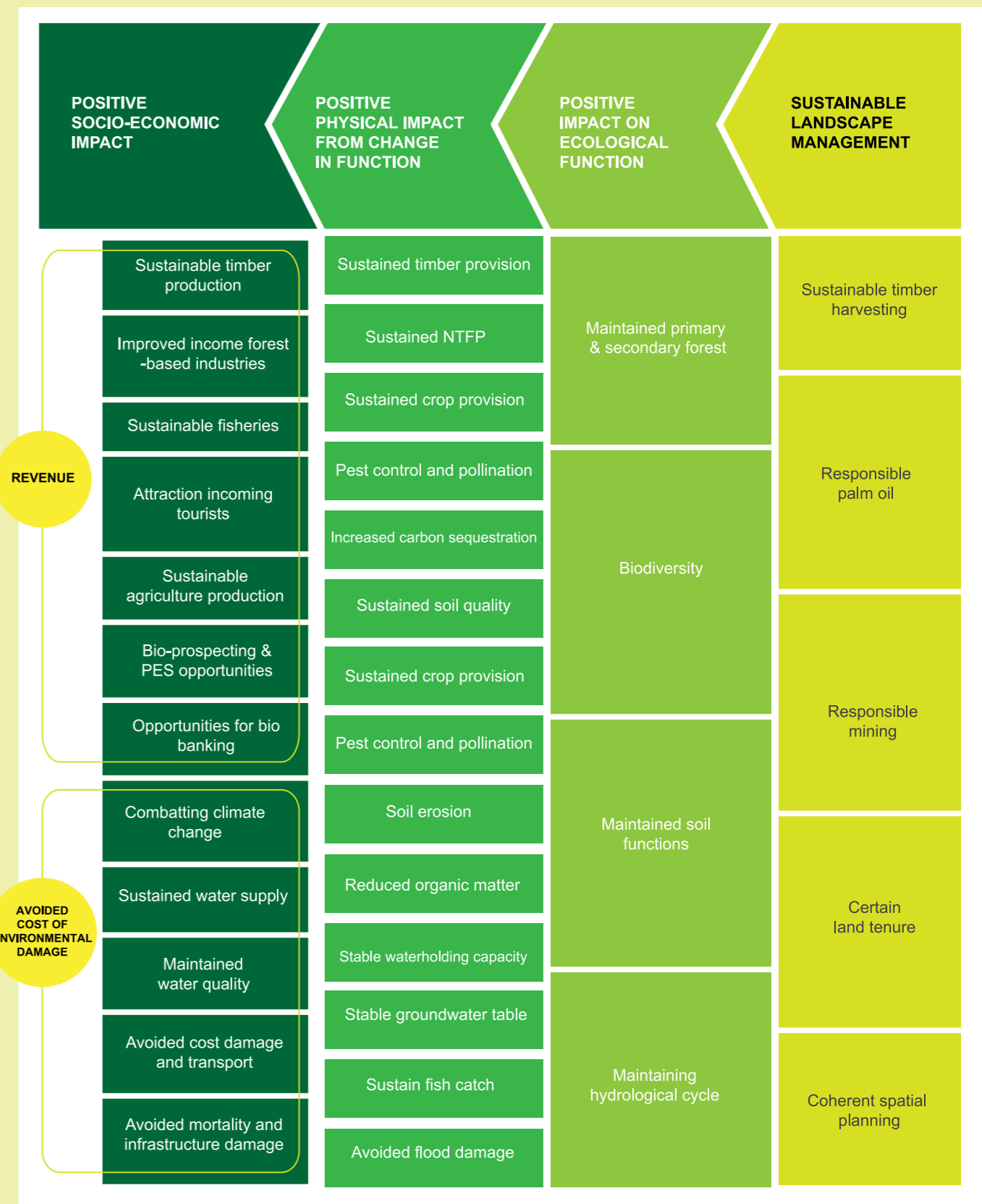
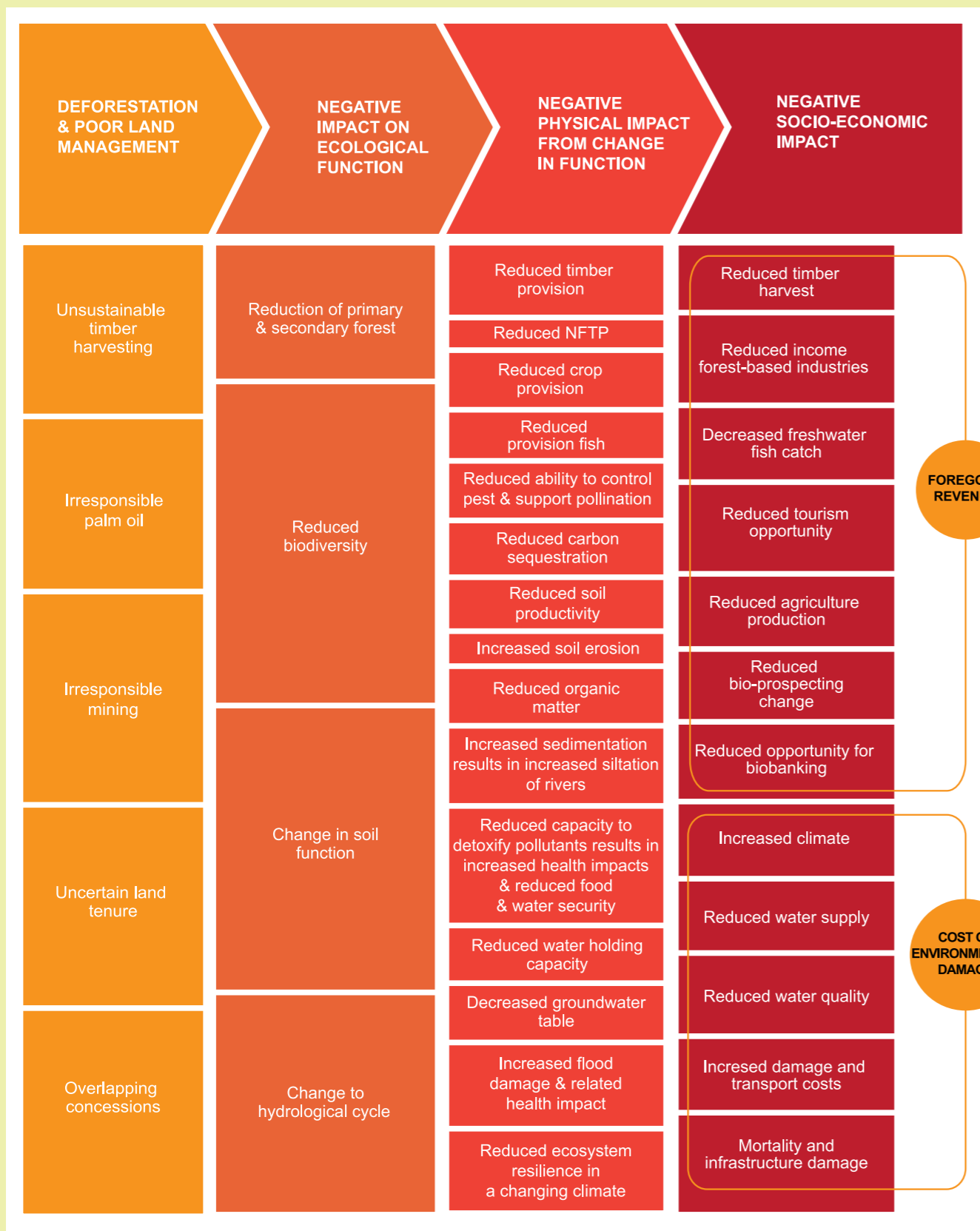


Figure 2.2: Impact pathway of an economy that does not value natural capital (left) and an economy that does value natural capital (right)

As we have seen, the economy relies on natural capital as a source of production inputs. In turn, production processes impact natural capital. As the negative impacts of economic activity cause natural capital stocks to decline, ecosystem services are degraded and there is less potential to generate revenue. With reduced natural stocks, and the added costs associated with the loss of ecosystem services, economic activity is adversely impacted.

sustainability of economic activity are avoided and growth may be enhanced. Figure 2.3 below illustrates how changes in natural capital stocks can be felt across economic sectors through changes in inputs and services provided. The circular shape of this diagram implies the possibility of an economy and natural capital providing goods and services to one another on a sustainable basis.

On the other hand, where economic activity does not degrade natural stocks, or even enhances them, e.g. through investment in natural capital, negative consequences on the

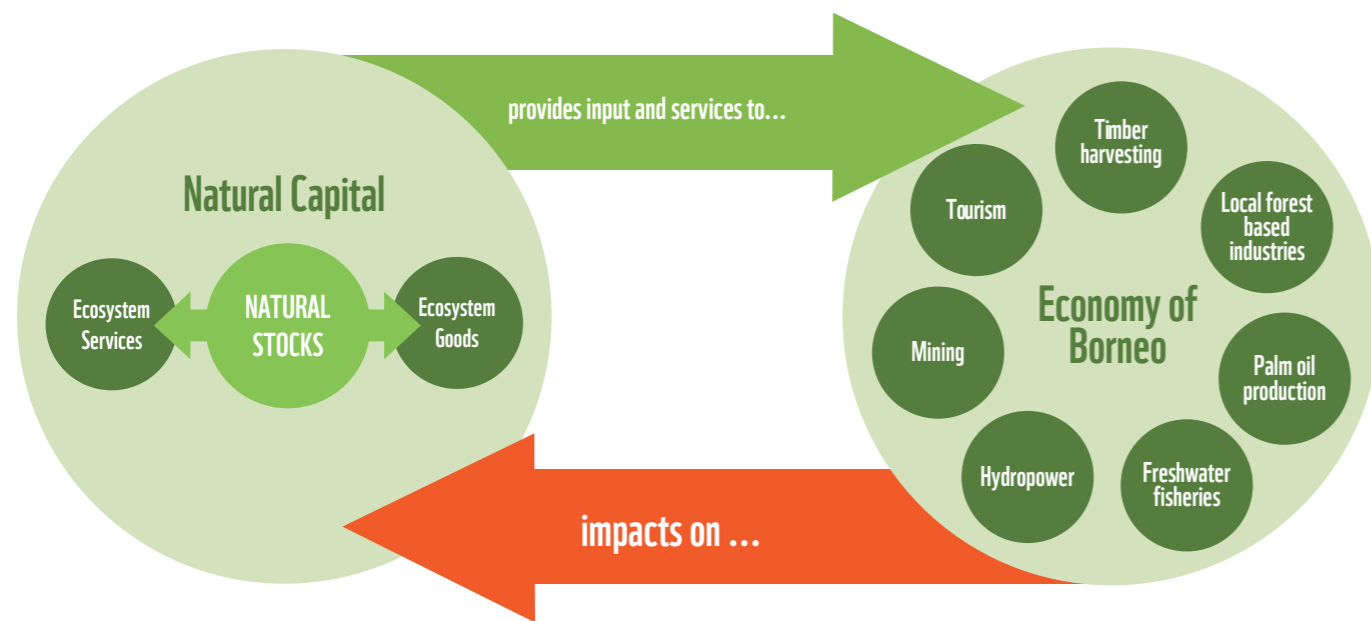
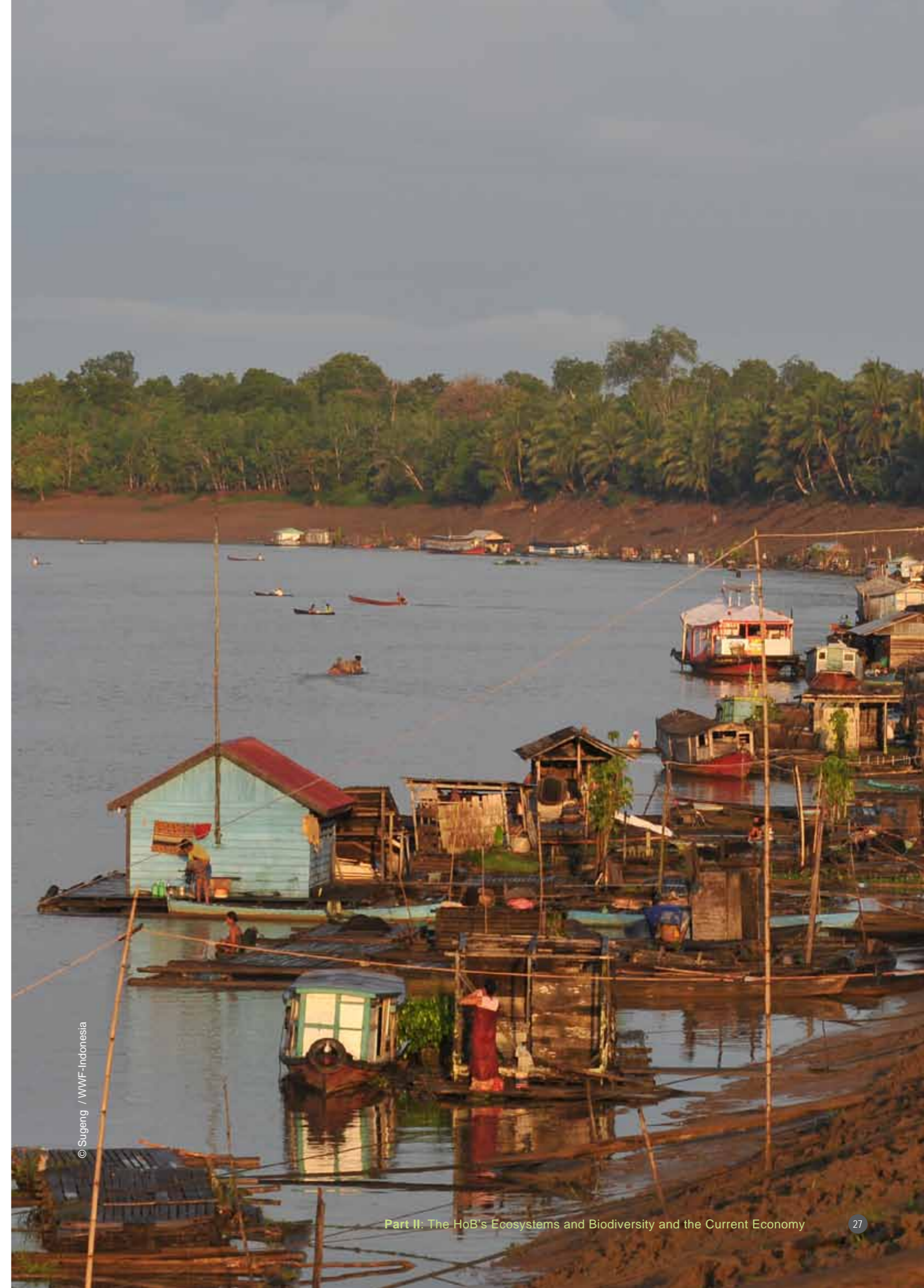


Figure 2.3: Dependence and impact of sectors on natural capital



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