An Empirical Analysis of Environmental Consequences of Economic Growth in Asia

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ABSTRACT

This thesis aims to understand the development path that the countries in Asia have been following from 1970 to 2010. In doing so, this thesis intends to identify the factors, which drive the demand for the natural capital of the Asian countries, which affect the sustainability of these countries. The study used Adjusted Net Savings (ANS) as an indicator of weak sustainability and Ecological Footprint (EF) as an indicator of strong sustainability. The thesis taking a few selected emerging Asian economies and using time-series data for four decades (1970 – 2010), tried to answer the following research questions:

(i) Is the present pattern of economic growth in the developing countries can be called a Sustainable Development path?

(ii) What are the underlying factors determining the path of development in the selected countries?

(iii) What role mainstreaming of natural capital can play in defining the path of development?

To get an in-depth understanding of the development path followed by Asia, ten countries were chosen for this study to fulfill the research objectives. The selection was based on their per capita income, GDP growth rate, population (more than 1 million), the rate of urbanization and the status of the environment. The selected countries are – Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Republic of Korea, Singapore, and Thailand. Again, as the selected Asian countries are in differential stages of their development in terms of per capita income, economic growth, urbanization and environmental degradation, they were further classified into three income groups-high, upper-middle and lower-middle based on the World Bank classification. The study used two

methods; a time series trend analysis to know the status of natural capital and a panel data analysis to examine the driving factors leading to demand nature.

Using the time series trend analysis, the first step of the thesis was to understand if the present pattern of economic growth of the selected countries can be called sustainable. The findings of this empirical analysis showed that in all the selected Asian countries, since the mid-1970s, the human demand has overshot the available domestic resources and led to an environmental degradation. This overshoot since then has been growing and the countries continue to follow a weak sustainability path by replacing natural capital by man-made capital. Hence, to see which are the factors that have an impact on the continuously increasing demand for nature, a panel data model has been used with additional socio-economic variables to study their influence on the demand for nature for all the 10 countries, based on their income groups. The panel data results found that there is a significant and positive relationship between economic growth and pressure on natural capital, yet the effect is much stronger in upper middle-income countries than in high and lower middle-income countries. While population growth rate and urbanization have little evidence of having significant pressure on nature in all the income groups, richness in natural capital help the middle income countries to extract more from nature. The study found that high income urbanized nations have higher levels of consumption based impacts which drive the ecological footprint. The middle and lower-income groups are also following the same pattern of growth but there is huge inequity in the access to and benefits from the economic growth that they have achieved. They are thus confronted with the dual challenge of achieving ecological as well as the socio-economic dimension of sustainable development.

Thus, the study has empirically established that economic growth is the major contributing factor in increasing human's demand for natural capital. This has led the Asian countries to the path of weak sustainability, which allows them to replace natural capital by man-made capital and is also easy to follow compared to strong sustainability path. The study further finds that impact of population growth rate and urbanization is not homogenous in all the countries, but varies across income levels. The nexus between ecological footprint and social sustainability is also discussed by considering various indicators like HDI, multidimensional poverty, Gini index, gender equality and education. The discussion supports the view that to

bring intra and intergenerational equity, some of the selected Asian countries, which are rich in biocapacity, like India, Indonesia, and Bangladesh, have to increase their per capita ecological footprint so that social sustainability can be achieved. But since some of the services of nature are non-substitutable, mainstreaming natural capital into the decision-making process can help countries to achieve sustainable development goal in all the three dimensions - economy, ecology, and society. So the growth strategies are to be revised in such a manner that natural capital can be integrated into development and financial planning.