

## BOOK REVIEW

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*Green Accounting: Tropical Experience* by Billah, AHM Mustain (Dhaka: Palok Publishers, 2003).

How do you assess the value of the Royal Bengal Tigers, the Sundarbans forest, the Tanguar Haor? Or, the rights and preferences of future generations? These are questions of unimaginable complexity and they have usually been ignored by conventional economics and ecology. But these are issues the experts around the world, with *differing frames of mind*, have been thinking in connection with the concepts of sustainable development and sustainability over the last decade, for obvious reasons.

Resource economists within the framework of Environmental Economics have been trying for years to devise ways to incorporate the 'real' costs of resources and pollution in the system of national income accounting to improve GNP estimates. The 50 year-old framework, standardized in the UN System of National Accounts (SNA) by the UN Statistical Office, completely ignored the crucial environmental changes of our times: the marked degradation of natural resources in much of the developing world and the growing pressures on global life-support systems, such as climate and biological diversity. By failing to recognize the asset value of natural resources, the conventional accounting framework that underlies the principal tools of economic analysis misrepresents the policy choices nations face.

Throughout the world, the rate of GDP growth is the primary measure of economic progress. The current system of national

accounts reflects the Keynesian macroeconomic model that was dominant when the system was developed. Keynes and his contemporaries were preoccupied with the Great Depression and the business cycle, and for the most part ignored the productive role of natural resources. So did the current system of national accounts.

In fact, scarcity of natural resources was of little concern in the 19<sup>th</sup> century classical economics, from which most contemporary economic theories are derived. As economist Repetto argues, the classical economists had regarded income as the return of *three* kinds of assets: natural resources, human resources and invested capital. Neoclassical economists virtually dropped natural resources from their model and concentrated on labor and invested capital. When these theories were applied after World war II to problems of economic development in the Third World, human resources were also left out on the grounds that labor was always 'surplus,' and development was seen almost entirely as a matter of savings and investment in physical capital.

As a result, a dangerous asymmetry pervaded in the way economists measured, and hence the way they thought about, the value of natural resources. Manufactured assets are valued as income-producing capital and their depreciation is written off as a charge against the value of production, in order to replenish them over time. However, the loss of natural resource assets, though they may lead to a significant decrease in future production, entailed no charge against current income. This approach of the conventional UN SNA was fundamentally wrong.

Logically, if a country's balance sheets at two different times indicate that an asset – say, a forest – has been depleted, then the income and product accounts for the intervening years should show a



charge for the depreciation. This follows from the most fundamental identity of accounting: the difference in stocks between two temporal points equals the net flow in the intervening period. For example, the difference between a person's net worth at the start and end of a year equals his/her net savings/dissavings during the year.

The UN SNA violates this basic identity with respect to natural resource assets. Ironically, low-income countries most dependent on these resources were instructed to use the SNA process that almost completely ignored their principal assets. One basic misunderstanding was that natural resources were 'free gifts of nature,' so that there was no investment cost to be written off. Codified in the UN SNA, this bias against natural resource assets gave wrong signals to policymakers. It reinforced the illusion of a dichotomy between the economy and the environment, and so led policymakers to ignore or destroy the latter in the name of economic growth. It confused the depletion of national capital with generation of income.

Actually, there is nothing wrong as such with drawing on natural resources to finance economic growth, especially in resource-dependent countries. The revenues derived from resource extraction can finance productive investments in industrial capacity building, education etc. But a reasonable accounting process should recognize that one kind of asset has been exchanged for another. Should a farmer cut and sell the timber in his woods to build a new barn, his private accounts would reflect the acquisition of a new income-producing asset, the barn, and the loss of an old one, the woodlot. He may think himself better off, as the barn is worth more to him than the timber. But, nowhere is the loss or a drawing down of a

valuable asset reflected. Even if the farmer's income is used to finance his vacation, national income would still register a gain.

But the true definition of income *a la* Hicks encompasses the notion of sustainability. It is close to the definition of sustainable development given by the World Commission on Environment and Development (WCED: development that which meets the needs of the present generation without sacrificing the welfare of the future. This income concept encompasses not only the current earnings, but also changes in asset positions; capital gains are equivalent to an increase in income, and capital losses are a reduction in income

Early works along this line were conducted by some OECD countries, notably France and Norway. Elsewhere, environmental and natural resource accounting frameworks have been developed, albeit piecemeal. Attempts to apply resource accounting in developing countries have been made by the UNEP, the UNSO, the World Bank and the World Resources Institute. These methods differ in both objectives and comprehensiveness, such as:

- 1) defensive expenditures against pollution and environmental degradation, as done in Germany and the USA;
- 2) accounting for the depletion of natural resources and applied to derive a measure of net income, as done in Costa Rica, Indonesia and some other countries;
- 3) physical accounting method used by France and Norway; and
- 4) finally, the more ambitious UNSO approach for compilation of a System of Environmental and Economic Accounts (SEEA), based on environmentally adjusted Net National Product (NNP). The SEEA calculates NNP/NDP, correcting

GDP for natural capital depletion and defensive expenditure. The World Bank-sponsored pilot studies of SEEA in Papua New Guinea and Mexico showed that after adjustments for environmental degradation and resource depletion caused by mining, oil, forest and ground water extraction, the NNP was down by 10% and 7% respectively in PNG and Mexico.

It is with the above *second approach* in environmental/green accounting, Dr. Mustain Billah has ventured into a commendable job of writing the book entitled *Green Accounting: Tropical Experience*. The book has been published by Palok Publishers several months ago. The book contains two parts, with 13 chapters: the first part, with 7 chapters, basically is the research work of the author in his Ph.D program in Malaysia; and the second part consists of several articles around the same concept of environmental/resource accounting in the context of Bangladesh, and applied to natural resources, such as Gas, Sundarban forest and non-timber forest products (NTFPs), fuel wood energy, green productivity and wetland management.

The first three chapters of the book focus on the conceptual framework of how natural resources should be valued from a temporal perspective. The author critically reviews some empirical studies in the field, which applied a range of resource valuation techniques, such as depreciation method, net price method, net present value method, marginal cost approach, replacement cost approach, marginal replacement cost approach, land value method and finally, user cost method. The chapters are replete with equations and formulas, understandable mostly by the practicing economists.



With a critical review of all methods and approaches, the author finally selects the method of 'user cost,' conceptualized first by Lord Keynes in the case of conservation of man-made capital. Later, El Serafy, formerly of the World Bank, applied this 'user cost' in the case of natural resources, defining it as the difference between total revenue and Hicksian income, which should remain non-declining over time. The author rightly interprets user cost as "that portion of current earnings that must be set aside for reinvestment in order to perpetually maintain an income stream which by virtue of natural erosion will no longer be available (p.62). The author justifies the user cost method as a better estimate of forest resources on the ground of relative ease to calculate it as the difference between the capitalized value of present vs. the following years. Also the UC is divided into two portions – one as Hotelling Rent for reinvestment and the other for consumption. This sounds rational while dealing with natural resources.

The author is right in arguing that depreciation of marketable natural resources makes sense especially in resource dependent developing countries, where resource problems are more important than other environmental issues (p.35). However, the author could discuss in more detail the role of discount rates in such depreciation, as the discount rate has been a long-disputed issue. Its use in investment decisions is based on the fact that humans value the present more over the future. This is true particularly for the poorer segments of the society, who do not have the options to think beyond today or immediate future for their basic survival. The problem is that in most cases, the rate of physical growth of biological resources cannot compete with the market-based interest rate. Here investment decisions in developing and sustaining natural resources get a brake! How to deal with this basic dilemma? The author in his study used a

6% discount rate, being the average economic growth rate of Malaysia.

As the study is very technical, there appear some confusions in places. For example, the definitions of net price (NP) method or user cost (UC). The UC in forestry is defined as the future benefits foregone by felling trees in the current period. On the other hand, the NP method takes into account the current benefits foregone due to resource depletion (p.101). Again, the author states that the UC takes into account the current benefits foregone or gained due to resource depletion (p.120). Also another observation of the author is confusing: the investment in reproducible capital as the Hotelling Rent should be at least as large as the capital value of resource depletion. Then, where is the consumption portion of the UC? (p.136).

From different discount rate scenarios (Tables 7 & 8), the author observed that the lower the discount rates, the higher the depletion of resources over the years (p.120). This looks a bit counterintuitive, as the normal wisdom is that higher the discount rate, lower is the longevity of the resources! Another interesting finding, but ostensibly counter-intuitive again, of the author is that overall the trends of aggregate adjusted GDP increased over time, indicating the sustainability of the Malaysian economy! (p.133), while studies on Thai and Equadorian forestry done by others show their AGDP significantly lower than the GDP. In case of Malaysia this was possible perhaps because it had invested more over the years in reproducible capital (p.140). This allowed the peninsular Malaysia to pass the weak sustainability test, based on Pearce and Atkinson measure of investment.



The author has taken an environmental economics perspective, within the basic neoclassical framework. So his attention was devoted to income and consumption categories, not on conservation of natural capital per se. This was stated by the author himself that substantial non-timber forest products (NTFPs), non-market forest products (NMFPs) and other important environmental services of forests remained outside the scope of his study. Can the world economy sustain an exponential growth, while operating within this neoclassical framework alone?

Here is how another group of experts called "ecological economists" respond to this question. They start with the premise that there are limits to economic growth, and some think the limits have already been reached, as manifest by global environmental problems. There is no getting around the First and Second laws of Thermodynamics; since energy/matter can't be created or destroyed, resources are finite; and that once dissipated, they can't be reused (entropy law). Most do not believe new technologies will be sufficient to avert major human and ecological disasters if current trends of exponential growth continue. They see no alternative to slowing population growth and the 'throughput' (inputs to production process) of environmental goods and services at the global level. Herman Daly, a former World Bank economist, argues that there is no point of contact between the conventional macroeconomics and the environment. As an example, he cites the fact that standard textbooks on economics do not even contain entries on such topics as natural resources, pollution and depletion; that's because most economists treat environmental functions as 'externalities.' Daly argues with the analogy of the goose that laid the golden eggs: at some point, the assessed future value of the egg flow gets close to zero, and the 'efficient' course is to kill the goose



for its meat! Though economists like Hartwick, Solow or El Serafy are right in assuming that depletion of natural resources can be offset by improvements in technology and investments in physical capital, there is the question of the degree of *substitutability* between man-made and natural capital, particularly the life-support services of the environment. Can the latter be substituted by man-made capital ad infinitum?

So this group attempts to ground economics to the finite nature of physical and biological realities of Nature. When there is an emerging consensus about the limits to waste/pollution absorbing capacity of Nature, is it feasible to continue unlimited, exponential growth at the global scale, as prescribed even by the Brundtland Commission's Report *Our Common Future*? With an skeptic answer, the ecological economists prescribe for a "qualitative growth" for the industrial economies, without increasing their aggregate scale, while a qualitatively-different "quantitative growth" for the developing economies, because their basic needs are not yet satisfied. This approach appears more in line with the precepts of a real sustainable development at global scale, as well as in line with the criteria of 'strong sustainability,' discussed in details by the author.

Will the politicians in the industrial world agree to such limits in physical expansion of their economies? President Bush certainly does not. On the other hand, green accounting exercises in select developing countries already show that they obviously lower the conventionally calculated economic growth rates, cited by the author of this study. In a world environment, where economic growth rates, actual or inflated, serve as the currency of image-building and mobilizing external resources including the FDI, is it *politically*

*correct* for resource-dependent developing countries to initiate green accounting, whatever its long-term merits are? Hope the experts including this author will ponder over this cardinal question in their future intellectual pursuits.

Finally, the articles by the author, particularly the ones on Bangladesh, are pioneering efforts in the field. He deserves a big applause and welcome, and we are hopeful that, as a civil servant and insider of the policy process, he will undertake more substantive works in the area of green accounting, as applicable for a natural resource-poor country like Bangladesh.

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