

# Green GDP Accounting

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As set forth in the Chinese 21<sup>st</sup> Century Agenda: researches and experiments should be conducted in the accounting system with natural resources and environmental factors taken into consideration so as to make the relevant statistic indexes and the market price precisely reflect the changes of resources and environment caused by the economic activity. It is essential to make amendments in the traditional GDP indexes to constitute the needed Green GDP (GGDP) Indexes of the development strategy suitable for the sustainable development.

## **1. SNA Framework, GDP Accounting Method and its Existing Deficiencies**

There are some deficiencies in the 1993 Version of the UN SNA System and the relevant accounting indexes. These deficiencies are manifested in: (1). Overlooking the scarcity of natural resources we are facing which endangers the capability of sustainable economic productivity. (2). The overlooking of the environmental pollution caused the degrading of the environment quality. (3). In SNA, the cost of preventing the environmental degrading and retrograde, or the cost for diminishing the impact after the degrading (i.e. the increase of the Medicare cost caused by the environmental pollution and so on) are counted into GDP, and was mistaken as the increase of welfare, which apparently contradicts the definition of welfare. (4). The manmade capital (factories, machines and roads, etc.) should draw the depreciation to compensate its loss of value during the process of using, and the depreciation thus goes to the GDP. Whereas, many natural resources (i.e. forest, land, the underground coal resources) have been consumed completely without leading to depreciation, and thus the depreciation of the natural environmental assets is not shown in the GDP.

## **2. “Greenize” the GDP—the Green GDP Accounting**

### **(1). The Green GDP—GDP indexes adjusted by the ecological environmental assets.**

The green GDP = traditional GDP - environmental /ecological cost.

The environmental /ecological cost includes four aspects: A. the defensive expenditure in the environmental damage. B. the loss in resources environment. C. the expenditure expenses of the restoration of the resources environment. D. the expenses of maintaining resources environment.

### **(2). The Green GDP Accounting based on that of the Input and Output**

From the perspective of the input, irrational production activity can lead to wearing out of the resource and environment pollution, while the draining of the natural resources and environmental pollution directly affects the GDP. Meanwhile, the damage to the environment caused by the final use should also be regarded as the cost of that through GDP distribution, and redistribution and should be compensated by the GDP. The increased value created by the environmental protection organizations (resources recovery organizations and pollution treatment organizations) should be deemed as the newly increased portion of the GDP. Also, the necessary input in the resources and environment in carrying out the environmental protection activities (resources recovery and pollution treatment)

by the environmental organizations should also be deducted from traditional GDP. Hence, the calculating formula of the related “ Green GDP”:

Green GDP = Total new value created by traditional industrial sector- total input in resources and environment (including the input from traditional industrial sector and environmental protection organizations) - environmental damage caused by final use of the resources / total cost + total new value created by environmental protection organizations.

From the perspective of the output, the traditional GDP is calculated on the basis of the total volume of the products produced by the traditional industrial sector, and the final products (output) equals the total output minus the cost. But in the process of production, various traditional industrial sectors produce a large quantity of products —goods and services, which meet the demands of their own and the society. They are the positive output, which at the same time, also damages the living environment (the drainage of the resources and the environmental pollution) owing to the outer uneconomical production activities. Additionally the increase value created by environmental protection organizations (resources recovery and pollution treatment organizations) should be regarded as newly additional part of the output, thus from the point of the output, the formula of the Green GDP should be:

Green GDP = Final total output of traditional industrial sectors - damage to the resources and environment / total cost (created by the traditional industrial sector, environmental protection organizations and the final using sectors) + total new value created by environmental protection organizations.