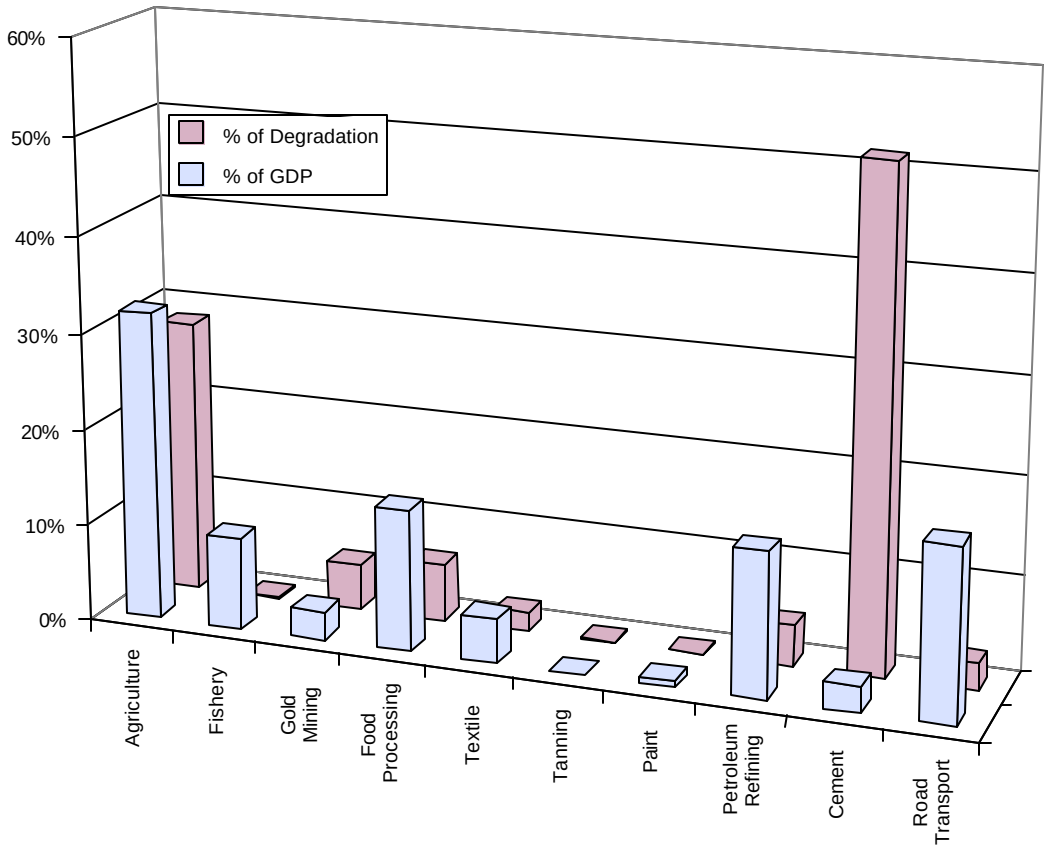
Figure 23. Economic contribution and environmental burden by industry in the Philippines, 1993



Note:

- Total value-added in the industries covered = 225,245 million pesos, or 15% of GDP
- Total cost of degradation = 6.2 million pesos

Source: (NSCB, 1999)

Strategic planning with the activity accounts

One of the most important applications of the activity accounts is for strategic planning, understanding what may happen in the future. How will the environmental situation change as population grows, and as the economy grows? How will levels of resource use and pollution be affected by changes in pricing policy, or the introduction of cleaner technology? What effect would changes in trade patterns or household consumption have? These are essential questions that policy-makers must answer. The PSEEA can provide a unique tool to assist in addressing these questions.

Most governments attempt to answer these questions through indicative planning based on multi-sectoral economic models, usually carried out by an economic planning authority or Ministry of Finance. Economy-wide modeling is used to examine policy issues which have far-reaching, economy-wide effects that can only be anticipated in a comprehensive modeling framework. Planning for *sustainable* development requires an integration of environmental and economic modeling. The advantage of integrated analysis is that it forces economists to recognize the links between the economy and the

environment, and to take into account potential tradeoffs between economic and environmental goals.

In the past, it was difficult to integrate environmental and economic planning because the underlying database for such models did not exist. Most environmental and economic analyses were carried out independently from each other. The contribution the PSEEA can make is to provide the economist with a consistent, comprehensive, and reliable set of accounts that are directly linked to the economic accounts. This provides the economist with a ready-made database about the environment and resource use - the difficult and time-consuming work of making different sets of information compatible has already been done.

Models built from environmental accounts have been used in a number of European countries to explore various policy options for addressing environmental problems, both nationally and regionally. Policy issues have included calculating the shadow-prices of pollutants, the economy-wide effects of a carbon tax, and the effect on economic growth of emission caps. A similar modeling approach has been used in South Africa to explore the economy-wide effects of a new water pricing policy, based on full-cost recovery (Hassan, 1998). Both the carbon tax and the water pricing examples illustrate the use of environmental accounts for specific policy issues which have far-reaching effects that can only be anticipated in a comprehensive modeling framework. The PSEEA can be used for such policy analysis, and can also be used for broader strategic analysis to explore issues such as:

- the effects of alternative development strategies on the environment
- the costs and benefits of alternative sectoral and macro-economic policies
- the effects of introducing clean technology

An example of the use of environmental accounts for strategic analysis is provided by the work undertaken for Indonesia's Ministry of Planning by myself and my colleagues in the early 1990's. In this project environmental accounts were constructed and incorporated as the environmental module in an environmental-economic model in order to project the demand on the natural resource base of Indonesia's Second Long Term Development Plan (1994-2018). The study represented the economy in terms of 30 industries and the environment in terms of three categories of land, soil erosion, water, three types of water pollution, energy and three types of air pollution. Several alternative scenarios were formulated based on different assumptions about environmental policies.

The Indonesian study considered issues such as continued food self-sufficiency, forest management and the development of the paper industry, the effects of urbanization on water and air quality. The analysis sought to anticipate emerging conflicts between economic development and sustainable resource management, and to identify the kinds of technological changes that might make it possible to achieve Indonesia's development objectives within the constraints posed by the natural resource base. A similar kind of analysis could be undertaken of the Medium-Term and Long Term Development Plans for the Philippines with the PSEEA.