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Sustainability of Tourism: Issues in Statistics

by

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ABSTRACT

An understanding of the relevance of tourism in sustainable development requires reliable and quality measurement of a number of aspects of the sector. These include demand and market preference indicators (visitor arrivals and expenditures) and satisfaction surveys, supply indicators on infrastructure (transport and accommodation), economic impact (input-output analysis, tourism satellite accounts), social concerns (e.g. resident attitudes), environment-related issues (e.g. willingness to pay) and economic forecasting. The paper explores how the published statistics are being used for macroeconomic, destination and business planning. It also examines the issues related to the conduct of surveys and forecasting to support sustainable planning and development. It presents cases to illustrate the issues in statistical collection, processing and presentation and highlights the need to promote a culture for research in sustainable tourism and to disseminate information through a network of research institutions.

I. Introduction

The Philippine tourism industry is fast growing as evidenced by the double-digit growth in arrivals in the past three years, the expanding base of the domestic tourism market due to better and relatively cheaper transportation costs (e.g. Roll-Off-Roll-On Vessels, Airline Promo Fares) and the development and promotion of more destinations. The competition in the local air transport sector coupled with the rapid development of more regional low cost carriers can stimulate the greater mobility of tourists to the Philippines. The growing investments in infrastructure like roads, airports, highways, hotels, resorts, hospitals are strongly encouraged by the government in order to make the Philippines a competitive international tourism destination and to support the national agenda of poverty reduction. The target of 5 million international arrivals by 2010 presents positive opportunities for the Philippine tourism industry to reinforce the existing link between tourism and sustainable development and to establish the positive link where it still does not exist, that is, in new and emerging destinations. There are opportunities to learn from the experiences of local and international destinations that

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have suffered from the negative impacts of tourism on development. The Philippines should continue to capitalize on the growing acceptance among global, national and local leaders on how the world, nations and local communities can move towards more sustainable patterns of development through tourism, or more appropriately sustainable tourism. This paper aims to (a) examine the issues related to strengthening the role of statistics in the tourism-sustainable development link, (b) explore the role of economics as a discipline in sustainable tourism, and (c) reiterate the proposal for stronger partnership among local academic and research institutions and between government and these institutions in reinforcing tourism's role in sustainable development.

The paper is structured as follows. Section II reviews the pillars of sustainable development and tourism's interface or interaction with them. It identifies the theoretical aspects of sustainable development (and sustainable tourism development) in relation to the attempts to build indicators from both macroeconomic and microeconomic perspective. Finally Section III summarizes and addresses institutional issues to ensure sustainability of sustainable tourism indicators.

II. The Tourism-Sustainable Development Link: The Role of Statistics

• Tourism and Sustainable Development

There is a growing body of literature establishing the links between tourism and sustainable development, "one that meets our needs today without compromising the ability of people in the future to meet their needs."² When properly planned and managed, tourism can serve as vehicle for economies to create economic opportunities, reduce poverty and improve the overall welfare of societies in the future. The negative economic, social and environmental pressures created by tourism can motivate stakeholders to start protecting their natural and cultural resources today in order to reduce the inter-generational transfers of negative externalities. This therefore implies that tourism must be sustainable for it to contribute to sustainable development. Tourism stakeholders are therefore challenged (a) to develop sustainable tourism indicators that can evolve from the existing database and (b) to internalize and institutionalize the costs and mechanisms to collect, process, analyze and disseminate the indicators.

² Yunis, Eugenio, "Tourism and Poverty Alleviation," Chief Sustainable Development of Tourism, World Tourism Organization.

Worldwide, there have been a number of initiatives and indicators developed to monitor tourism's impact on sustainable development. The WTO published *A Practical Guide for the Development and Application of Indicators of Sustainable Tourism* in 1996, which identified a set of core indicators of sustainable tourism development. The set comprises of (1) site protection, (2) stress, (3) use intensity, (4) social impact, (5) development control, (6) waste management, (7) planning process, (8) critical ecosystems, (9) consumer satisfaction, and (10) local satisfaction. Some of the indicators are presented in Table 1.³ There is no doubt that indicators are means of quantifying and measuring a country's or a destination's success in making tourism more sustainable and therefore more relevant in the pursuit of sustainable development. The more relevant questions in the case of the Philippines are:

- (a) what will be the most appropriate indicators to prioritize given scarce resources?
- (b) who will fund and sustain the initiative at the national, regional and local levels?
- (c) what will be the best mechanism to implement and sustain this initiative (i.e. regularly review the indicators)? Will it start at the national level and then adopted at the local level? Or will the bottom-up approach be more appropriate given the devolved tourism functions in the country?

The answer depends on the institutions, the system of incentive or disincentives in the industry, or the rules of the game. While the choice of indicators must give due consideration to the three principles or pillars of sustainability - economic, environmental, and socio-cultural, it is the institutional setting or the rules of the game that will make these indicators truly matter in the pursuit of sustainable development.

- **Economics, Statistics and Sustainable Tourism**

In this paper, I would like to examine the issues related to the development of sustainable economic indicators for tourism and how they interface with the other pillars of sustainability. A review of the literature on tourism's economic impact may lead one to conclude that there are already too many studies in this area. This is true if one considers the foreign literature and common approaches (such as the input-output methodology and econometric models) in the study of arrivals, receipts and tourist

³ Reil G. Cruz. *Towards Sustainable Tourism Development in the Philippines and Other Asean Countries*. 2003.

patterns or when one only values economics as a discipline at the macroeconomic level of tourism analysis. But I would tend to argue that the literature on economic impact analysis continues to evolve. Researchers continue to refine and develop measures that would best capture local economic impact in the absence of secondary data. They also seek ways to enhance the use of economic tools or techniques in addressing environmental and socio-cultural sustainability in tourism (i.e. entrance fee pricing in national and heritage parks, environmental tax). There is still a dearth of such studies or applications in the Philippine setting, particularly at the community levels. This can be partly attributed to the lack of interface among the disciplines and the researchers despite the fact that tourism is a multidisciplinary field of study.

Table 1. Selected Sustainable Tourism Indicators

Economic	Environment	Socio-Cultural	Institutional
<ul style="list-style-type: none"> • Tourism revenues • Average tourist expenditure • Taxes from tourism (direct and indirect taxes paid by business and workers in tourism) • Number of registered tourism-related business • Inflation/price index in tourist areas • Profitability of tourism establishment (occupancy rates of hotels and resorts, load factors of 	<ul style="list-style-type: none"> • Presence of infrastructure to manage and minimize solid and liquid wastes • Water quality index for fresh water and marine/beach water • Air quality index • Percent of population exposed to noise and light pollution • Percent of population exposed to foul odors • Amount of water consumed, and percentage of leakage 	<ul style="list-style-type: none"> • Number of tourism businesses operated and managed by local people's • cooperatives • Number of private tourism businesses employing local people • Poverty incidence and alleviation in tourist areas (calorie intake, income levels, number of 	<ul style="list-style-type: none"> • Presence of tourism master plans which incorporate sustainable principles • Number of sites with sustainable tourism master plans • Presence of inter-agency coordination and cooperation • Presence of land use and zoning plans • Percentage of establishments or LGUs

<p>transportation units)</p> <ul style="list-style-type: none"> • Stability and diversity of markets (international and domestic market demand for tourism; percentage of tourism in relation to other industries) • Tourism employment (direct and indirect) • Ratio of the average monthly wage of tourism industry workers and workers from other industries • Visitor satisfaction index provided by customer feedback 	<ul style="list-style-type: none"> • Amount of fossil fuels used • Speed of motor vehicles during rush hour • Amount of packaging purchased with supplies • Adherence to codes of behavior that respect natural heritage • Compliance with best practice guidelines in designing, planning and construction of buildings 	<p>children attending school in tourism destinations,</p> <ul style="list-style-type: none"> • Local linkages as indicated by percentage of inputs, including souvenirs and handicrafts, obtained from within the local economy or x distance from tourism project • Community's share of profits from tourism • Access to and provision of tourism facilities for disadvantaged groups, such as, the disabled, families • Percentage of goods, services, and labor procured from women, 	<p>adhering to EIA system</p> <ul style="list-style-type: none"> • EIAs and EMS required for all business registrations • Presence of protected areas management system • Laws protecting ancestral domains
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		indigenous people, and the handicapped	
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Source: Cruz (2003)

Planning and Forecasting. Given that tourism is a priority industry by the national government, there is a need to reduce the risk of decisions by stakeholders through more focused planning and investment decisions. Tourism business enterprises therefore depend on accurate tourism statistics in their research and business plans. This will further aid them in the appropriate design of promotion and marketing strategies and campaigns. From the government's perspective, the accurate forecasts will serve as important input in the determination of airline seat requirements for both tourists and the general traveling public. This exercise will provide support to international relations particularly in negotiating additional air traffic rights or seat entitlements from major markets that matter. Even local communities have to project their infrastructure needs - hotels, transport services, tour guides, bartenders, managers, tourism schools and courses and the like – to service the projected market demand. Project evaluations are facilitated when accurate data are accessible. The need to reduce risk is most important in tourism given that:

- (a) tourism products or services are highly perishable (as in the case of airline seats)
- (b) people cannot be separated from the production-consumption process (interaction of people as suppliers and consumers in hotels, entertainment places, restaurants, etc)
- (c) leisure tourism demand is extremely sensitive to natural and manmade disasters (e.g. crises such as wars, health scares, extreme weather conditions) and political risks in a country (e.g. terrorism threats) that contribute to image or perceptions about the destinations
- (d) tourism supply requires large, long lead-time investments in plant, equipment and infrastructure (e.g. in order to avoid the heavy costs of excess capacity or the opportunity costs of unfilled demand). Hence, future demand must be anticipated correctly.

Data Collection. The economic measures presented in Table 1 are already being monitored by the Department of Tourism and some local government units. But I would

like to mention that these indicators significantly impact on the economic, social and environmental aspects of development. Hence, monitoring these indicators is not enough. An analysis of the deeper and broader impact of these indicators must be considered. This is where academic and research institutions play an important role in providing support to the statistical and tourism agencies.

The international data are more regularly collected because of the relative ease of collection compared to domestic tourism data. Both domestic and international arrivals, however, are not yet accurately measured at the local destination levels. This can be addressed if resources are allocated for local tourism offices to perform their devolved tourism functions and if there is greater amount of trust between the private stakeholders and the tourism offices. Accreditation is voluntary so it will be very difficult on the part of the tourism offices to require non-accredited lodging facilities to submit occupancy reports. But even some accredited establishments do not submit reports. Those who submit may not necessarily reflect the true occupancy rate to justify their financial statements and tax files or simply to limit competition by showing there is excess capacity in the area. Government and business planners, for example, use the data on number of rooms and occupancy as inputs to projecting room and therefore investment requirements. Data on arrivals and accommodation are relevant in estimating the concentration and spatial distribution patterns of tourists relative to the local population (i.e. congestion patterns). The devolution of tourism functions provided the opportunity to strengthen planning, monitoring and implementation at the local level. But it also increased the transaction costs associated with planning for those who seek to secure the information from the central DOT office in Manila. The relatively more complete data at the municipal or provincial level are most of the times not submitted to the regional offices and eventually to the national office.

Economic Impact Analysis. There are existing approaches used to measure the economic impact of tourism. These models provide us with broader perspectives of the importance of tourism. The development of the Tourism Satellite Accounts (TSA), for example, already enables us to break down the contribution of tourism both on the demand-side and supply-side stories of growth. The TSA is a very powerful tool in understanding the cross-cutting impact of tourism on the economy particularly in generating income and employment. The input-output methodology, on the other hand,

seeks to establish the extent and scope of sectoral linkages (backward and forward), the magnitude of impact (via the direct, indirect and induced) multipliers. The Computable General Equilibrium (CGE) model is commonly used in analyzing multi-sectoral issues and is capable of quantifying the effects brought about by the policy changes (e.g. impact of deregulating the airline industry on passenger and visitor flows and the economy).

The relevance of these macroeconomic data and models may tend to diminish over time. The macro indicators continue to be collected and presented but the models such as I-O being produced by statistical agencies and tourism organizations are not regularly updated due to financial resource constraints. Tourism has to compete with other agencies and statistical requirements of other industries. As a result, given changes in economic structure over time particularly due to advances in technology, we are not able to adequately measure the current economic impact of the growth reflected in macroeconomic indicators. In the case of CGE modeling, it is rarely used to analyze tourism issues due to the lack of availability of relevant data. The same is true with analyzing the interdependence between tourism and the environment using the environmental input-output table.

From National to Local Applications. The models presented have their own weaknesses resulting from assumptions such as fixed prices, absence of resource constraints, no economies or diseconomies of scale as in the case of the I-O model. However, the major weakness of the models lies more in their limited applications at the community level due more to the lack of available data or the relatively huge funds required to develop the models. If the community is defined as regional, the I-O can be easily used to measure the economic impact. But what if the community is the province or municipality or barangay or specific destination? In fact most of the economic impact analyses still need to incorporate price changes. Price is a channel of tourism on poverty. The real value of household income tends to decrease with higher prices induced by higher tourism spending.

One approach is the Proportional Multiplier Analysis (PMA) that combines a Proportional Input-Output analysis and a Traditional Keynesian Multiplier. The PMA model incorporates survey data in the modified Input-Output table. One weakness,

however, is the static assumption that technical coefficients underpinning the interrelationships in an economy will likely be constant. Another is the failure to incorporate price changes.

Survey methods are commonly used as tools to determine the impact of tourism on poverty alleviation but survey methods alone are not capable of establishing relationships among variables. One problem with surveys is the recall bias or memory effects, a common problem faced by the examiners especially when tourists tend to forget how much they spent during the trip. The drawbacks are resolved when the survey sample is large enough to produce relatively accurate estimates of the total-expenditure-to-lodging-receipts ratio for individual areas (accuracy principle); survey procedures follow best practices in sample-survey conduct, and the response rate exceeds 70% to 80% (accuracy principle); survey-respondent recall bias does not distort this ratio (accuracy principle); the hotel room receipts data are accurate for a particular year and not distorted by payment of past taxes and penalties for previous periods or underreporting (accuracy principle); survey respondents only report what they spent in the area, rather than total trip expenditures or spending in other areas (relevance principle).⁴

There are however other local measures such as cluster analysis approach, shift-share analysis of lodging receipts and location quotients⁵ to examine the relative dependence of destinations on tourism.

It may sound ambitious for local government units to initiate the models themselves. This is an area where the private sector can contribute. At the minimum, the local government units can initiate the development of the basic indicators presented in Table 1. The initial list of indicators must be identified, validated and approved through stakeholders' consultations. These indicators will serve as the signals of tourism's impact on sustainable development. If the thrust of tourism development is

⁴ Douglas C. Frechtling, "Assessing the Economic Impacts of Travel and Tourism – Introduction to Travel Economic Impacts Estimation" John Wiley & Sons, New York, 1994.

⁵ LQs compare the proportion of a smaller area's economy (i.e. province) devoted to a particular sector (i.e., lodging) with the analogous portion for a larger geographic area (i.e., the region) of which the smaller area is a part. Thus, if a given province in the region had a lodging sales LQ of 1.0 with respect to the region, the proportion of the province's retail sales derived from lodging would be the same as for the region as a whole.

community-based and pro-poor, then it would help these communities if leakages are minimized. And most of the times, the stakeholders themselves do not have organized data to measure the amount of leakages from tourism. Such information can facilitate the development of tourism circuits or clusters either from the demand side or the supply chain.

Relevance of Economics on Environmental and Social Sustainability Interaction.

One common way to limit the impact of tourism on the fragile environmental and socio-cultural resources is to use price as the mechanism to achieve the balance between economic goals and the environmental and socio-cultural goals. Economics becomes relevant in estimating the willingness to pay (WTP) of tourists and residents for the visits to protected tourism sites or for the production of wastes in the area. Economic tools help establish relationships between the WTP and socio-economic variables (e.g. age, education, total expenditure, etc.) and the sensitivity of the tourists and residents to changes in the price (e.g. entrance fee) of the tourism site. The same relevance is evident when governments propose to impose environmental taxes on tourism business enterprises for the negative externalities like pollution created by their activities. The willingness of investors to infuse capital in tourism in certain areas is likewise influenced by the attitudes of residents for tourism development. Even local government units must be aware of the residents' perceptions and attitudes and satisfaction from tourism.

III. Areas for Public-Private Partnership

Indeed, the task of developing sustainable tourism indicators or measuring the contributions of tourism to sustainable development rests not just on the statistical agencies and the DOT. The previous discussion calls for (a) greater priority in developing basic tourism statistics and sustainable tourism indicators at the national and local levels and (b) greater involvement of the academic and research institutions in tourism research. In particular, the quantitative field of economics should play a greater role in expanding the body of knowledge on the role of tourism in sustainable development of the Philippines. One way to achieve this is by encouraging more students and researchers to pursue the field of economics and sustainable tourism development.

There are tourism research networks that can be used as models to support the cooperation among academic and research institutions nationwide and experts from various fields of discipline to initiative more works in the field of sustainable tourism development. The European Research Network on Events, Sports and Tourism was established in 2006 in by several researchers in the field of sports events. In 2006, the Scottish Executive established a Tourism Research Network, involving the industry, culture and heritage organisations, enterprise agencies, academics, local authorities and VisitScotland to ensure that appropriate research takes place, is disseminated appropriately and meaningfully to all stakeholders and is used to drive innovation and product enhancement. There is the widely-known Cooperative Research Center of Australia, a consortium of universities and research institutions providing support to the Australia Tourism Commission which in turn funds dissertations, theses and collaborative research efforts of multidisciplinary tourism experts from different universities. There are current opportunities in the Philippines where local researchers are able to share their works (e.g. heritage conference, National Statistics Convention) but there is not regular forum or venue to incentivize them to pursue research that will benefit larger segment of society and enable the industry to build up its body of knowledge.

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