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IS THE CONCEPT OF SUSTAINABLE TOURISM SUSTAINABLE?

DEVELOPING THE SUSTAINABLE TOURISM BENCHMARKING TOOL

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Preface

As the focal point of the United Nations for the integrated treatment of trade and development and interrelated issues, and in accordance with the São Paulo Consensus adopted at the eleventh session of UNCTAD, the UNCTAD secretariat supports member States in ensuring development gains from international trade, the trading system and trade negotiations, with a view to their beneficial and fuller integration into the world economy and to the achievement of the United Nations Millennium Development Goals. Through intergovernmental deliberations and consensus-building, policy research and analysis, and technical cooperation and capacity-building support, UNCTAD's work on trade negotiations and commercial diplomacy aims at enhancing human, institutional and regulatory capacities of developing countries to analyse, formulate and implement appropriate trade policies and strategies in multilateral, interregional and regional trade negotiations.

This paper is part of a new series on "Assuring Development Gains from the International Trading System and Trade Negotiations". It builds on the previous series on "Selected Issues in International Trade Negotiations". The targeted readership is government officials involved in trade negotiations, trade and trade-related policymakers, and other stakeholders involved in trade negotiations and policymaking, including non-governmental organizations, private sector representatives and the research community.

The objective of the series is to improve understanding and appreciation of key and emerging trade policy and negotiating issues facing developing countries in international trade, the trading system and trade negotiations. The series seeks to do so by providing a balanced, objective and sound analysis of technical issues involved, drawing implications for development and poverty reduction objectives, and exploring and assessing policy options and approaches to international trade negotiations in goods, services and trade-related issues. It seeks to contribute to international policy debate on innovative ideas in realizing development dimensions of the international trading system for the achievement of the Millennium Development Goals.

The series is produced by a team led by Mina Mashayekhi, Head, Trade Negotiations and Commercial Diplomacy Branch, DITC.

Abstract

Given the complexity of the issues surrounding the concept of sustainable tourism, the current paper tries to provide a unified methodology to assess tourism sustainability, based on a number of quantitative indicators. The proposed methodological framework (Sustainable Tourism Benchmarking Tool – STBT) will provide a number of benchmarks against which the sustainability of tourism activities in various countries can be assessed. The methodology used includes the following steps: identification of the dimensions (economic, socio-ecologic, infrastructure) and indicators, method of scaling, and chart representation. To illustrate the usefulness of the STBT, tourism sustainability is assessed in Indonesia, Malaysia and Thailand. The preliminary results show that a similar level of tourism activity across countries might induce different economic benefits and might have different consequences for the socio-ecological environment. Therefore, the STBT is a useful tool to assess the heterogeneity of developing countries and detect the main problems each country faces in their tourism development strategy.

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1. Sustainable tourism – the need for a comprehensive methodological framework

In recent years the list of international organizations, NGOs and academics tackling the concept of sustainable development has increased dramatically.[1] Such efforts range from grand theories focused on producing a generally accepted, "one-fits-all" conceptual framework for sustainable development to more modest attempts concentrated on specific issues or sectors. One of the specific area of research concentrates on the concept of sustainable tourism. As with other subfield of the sustainable development literature, sustainable tourism is an area where the list of existing analyses is long and impressive. In its 1999 annotated bibliography, the World Tourism Organization (WTO-OMT) reviewed about 100 books and more than 250 articles on sustainable tourism. Despite these sustained research efforts and irrespective of the approach adopted, the merits and usefulness of such analyses are not yet fully clear and their findings remain under-utilized. This is, in part, because the concept itself is far from being consistently used. The WTO-OMT defines sustainable tourism as follows:

> "Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems."

However, the definition is sufficiently flexible to allow a variety of approaches and interpretations of the concept. For instance, in the WTO-OMT annotated bibliography, within the "sustainable tourism" catchphrase are included issues connected to rural development, ecotourism, environmental impact, cultural and natural heritages, urban development, alternative tourism, indigenous people, wildlife, natural parks, etc. This diversity of views on sustainable tourism and the complexity of the concept has led some tourism academics and practitioners to even question its utility (e.g. Middleton and Hawkins, 1998).

Given the complexity of the issues surrounding the concept of sustainable tourism, this paper will provide a unified methodology to assess tourism sustainability, based on a number of quantitative indicators. The proposed methodological framework will provide a number of benchmarks against which the sustainability of tourism activities in various countries can be assessed. The STBT methodology developed in this paper relies on quantitative indicators that are policy-relevant and, as such, it is hoped that it will become a useful tool for decision makers, researchers and businesses involved in tourism activities in developing countries.

[1] Sustainability and sustainable development were given impetus and made popular by the World Commission on Environment and Development (1987). Sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Both an equity dimension (intra-generational and inter-generational) and a social/psychological dimension are clearly outlined by this definition.

The remainder of the paper is organized as follows: section two briefly reviews some of the literature on indicators for sustainable tourism. The third section makes a succinct case for a sustainable tourism benchmarking tool, while the fourth section describes the methodology used to construct the STBT. The fifth section exemplifies its usefulness using three case studies. The concluding section summarizes the main findings obtained based on the use of STBT and provides some policy recommendations.

2. Sustainable tourism indicators – what do we have so far?

Most studies assessing tourism activities often deal with one aspect of tourism. For instance, the economic impact of tourism activities is usually estimated on the basis of data on number of arrivals, receipt per tourist, average length of stay and other economic indicators. In order to correctly estimate tourism activity and tourism's impact on national economies, some studies have developed tourism account methodologies (e.g. Frechtling, 1999). Other studies have focused on the use of tourism resources (natural, cultural, etc). However, a growing literature deals with the sustainability assessment, trying to develop indicators and provide methodologies for sustainable tourism. For instance, Miller (2001) focuses on the development of indicators measuring tourism sustainability. Unlike many studies that cover only the physical and human environment, Miller (2000) presents several indicators covering all aspects of sustainability: environmental issues (physical and human), employment, financial leakages and customer's aspects (satisfaction levels, etc.).

Another notable attempt to create a comprehensive methodology to assess sustainable tourism is found in Ko (2004). After a review of the existing literature, he argues that "methods of systemic sustainability assessment are not currently used in tourism" (Ko 2004:4). He finds that most studies on sustainable tourism development are descriptive, based on qualitative data and subjective in their conclusions, thus lacking a rigorous methodology to assess sustainability issues in the tourism sector. After identifying this gap in the literature, he develops a conceptual framework for tourism sustainability assessment based on eight dimensions: political, economic, socio-cultural, production-related aspects, environmental impact, ecosystem quality, biodiversity and environmental policies. Each dimension is assessed on the basis of several quantitative and qualitative indicators which are scaled and clustered to assess the sustainability of a tourist destination.

The current analysis follows the same objective as Ko (2004), notably to develop a quantified methodology to assess tourism sustainability. However, the current paper departs in a number of respects from the methodology outlined in Ko (2004). Firstly, Ko (2004) argues that the issues and concerns related to sustainable tourism vary from one tourism destination to another. Hence, he suggests that dimensions, indicators and data gathering methods could vary from one tourist destination to another, in order to adapt the methodology to the specific conditions of each tourist destination. While this methodology has its merits, it limits the ability to compare results across tourist destinations. To address this gap, our methodology is intended to create sustainable tourism benchmarks based on a generally applicable and consistent methodology that allows comparability of results across tourist destinations. Secondly, Ko (2004) works with hypothetical data to give an illustration of his methodology. In the current paper, the STBT is tested using real data from three case studies. This allows us to show the usefulness of such an approach in identifying policy-relevant indicators and making policy recommendations to increase the sustainability of the tourism sector in developing countries. Thirdly, unlike previous studies, our methodology covers a wide range of tourism-related dimensions: economic sustainability (tourism assets, tourism activity, linkages and leakage effects), the role of overall infrastructure and environmental and social sustainability.

Our methodology has also several limitations. The STBT does not account for quality considerations, nor does it at this stage include any qualitative data (perception surveys, questionnaires, etc.). Also, another specificity of our approach is that economic sustainability is broken down into several dimensions whereas the environmental and social aspects are bundled together in socio-ecological sustainability. However, the fact that each detailed indicator has its own score allows the STBT users to combine or separate the various sustainability dimensions in different ways.

3. Why do we need a methodology?

The main reason for a comprehensive methodology aimed at improving the prospects for sustainable tourism in developing countries stems from the growing importance of tourism activity in developing countries. Tourism has already emerged as one of the world's most important socio-economic sectors, and has been steadily expanding at an average rate of about 4-5 per cent annually during the latter half of the 20th century. The combination of domestic and international tourism is now acknowledged as comprising the world's "largest industry". In 1995, tourism globally generated an estimated US$3.4 trillion in gross output, contributing 10.9 per cent of the world's gross domestic product (GDP), creating employment for about 212 million people and producing $637 billion in government tax revenues.

Developing countries are receiving an increasing number of international tourists as they improve transportation access, develop tourist attractions, facilities and services and become known as desirable tourist destinations. Their share in the international tourist arrivals[2] grew up from 28 per cent in 1990 to 31 per cent in 1997. Moreover for developing countries, this tourism activity constitutes a large fraction of total export receipts and the share in GDP can rise above 40 per cent in some Caribbean countries.

Moreover, unlike many primary products whose share in world consumption might decrease, in the case of tourism, there is a favourable income elasticity of demand. With increasing incomes, tourist expenditures increase at a faster rate than income. Moreover, even though the tourism sector has been severely hit by a number of crises (e.g. international terrorism, SARS, natural disasters), the standard deviation of growth rates of 'export value' for several primary commodities and tourism shows that tourism revenue is less volatile than commodity revenues (Maloney and Montes Rojas, 2001). Finally, tourism activities bring much-needed foreign exchange which allows developing countries to finance the import of capital goods and raw materials required for the economic development and diversification of their economies.

Despite such considerable potential, some economies have not been able to take advantage of the growth in tourism activity. For example, tourist expenditures in Latin America have risen by only 0.51 per cent annually for the last 20 years; the region has dramatically lost market shares and the apparent expenditure per visitor appears to be declining over time (Maloney and Montes Rojas, 2001). Huge sustainability problems have emerged in some other countries as well. Often, on islands such as Tahiti or in the Caribbean, increased tourist flows create shortages that have negative effects on the local population (e.g. increases in food prices, lodging problems, water supply, etc.). Moreover, the local population does not always benefit from tourism revenues. Previous research has shown that a large share of the price that tourists pay for their holidays goes to the multinational companies that own the airlines and run the hotels.

This gap between the realities and potential in sustainable tourism needs a methodology that could cover the complex issues described above. Moreover, such methodology would need to develop some benchmarks in order to allow developing countries that are dependent on the tourism to improve the sustainability of the sector.

[2] The term 'tourists arrivals' refers to total international tourist trips made and not to the number of different tourists travelling. Some persons take more than one international trip per year.

4. The Sustainable Tourism Benchmarking Tool (STBT)

The objective of the STBT is two-fold. Firstly, this methodology should be able to detect the sustainability problems in a tourism destination. Secondly, using benchmarks and policy-relevant indicators, the methodology should enable policymakers to make informed decisions and improve the prospects for sustainable tourism development in their countries.

The following steps were followed to construct STBT. First, seven key dimensions were singled out, namely:

- tourism assets;
- tourism activity;
- tourism-related linkages;
- tourism-related leakages;
- environmental and social sustainability; and
- overall infrastructure
- attractiveness

Second, once these dimensions defined, the next step was to find appropriate indicators that could capture essential aspects of each dimension. Third, the indicators were scaled to allow cross-country comparisons. Fourth, the indicators were placed on a conceptual chart that frames the specific issues addressed by the STBT.

4.1. Dimensions

4.1.1. Economic sustainability

Tourism assets

It goes without saying that any country that is considering developing its tourism sector should carefully evaluate its tourism–related assets and resources. Tourism assets are essentially the main factors that motivate tourists in choosing a particular destination. Tourism assets need therefore to be carefully evaluated before deciding whether there is any potential for developing or expanding tourism in a given area, and if so, what type of tourism activities should be developed. In the literature, the relatively few studies concerned with the evaluation of tourism assets highlight the difficulties in interpreting various quantitative tourism asset indicators. The WTO's *Guide for local authorities on developing sustainable tourism* (WTO, 1998) provides a good description of the type of tourism resources that need to be considered and assessed. The Tourism Satellite Account, for instance, also analyses the supply side of tourism, but that only concerns the producer of goods and services in tourism activity.

In our methodology, we make a simple distinction between the various types of tourism assets. They are grouped into two categories: natural resources and cultural assets.

Tourism activity

While existing tourism assets give an indication of the potential for tourism development, it is also important to know how the country exploits these tourism assets.

Therefore, a second dimension in our methodology measures tourism activity. There are several aspects that could be included in tourism activity. The two main indicators that are normally used to assess this dimension are the number of tourists and tourism revenues. Another useful effort would be to develop indicators aimed at assessing the dynamism and long-term potential of tourism activities. However, such efforts go beyond the scope of our paper and are not captured in the STBT.

Linkages: Tourism revenue for the all economy

One of the best ways to enhance economic benefits is to integrate tourism into the national economy by establishing strong linkages between tourism and other economic sectors such as agriculture, fisheries, manufacturing and construction. If the tourism sector makes use of products and services produced within the economy, it will strengthen those sectors and provide additional income. The extent tourism is integrated in the national economy is captured by the multiplier effect of the tourism sector on the overall economy.

Leakages: missed opportunities

When linkages with the other sectors of the domestic economy cannot be built, a significant part of the development potential stemming from tourism activities is lost. Leakages are broadly defined as the loss of foreign exchange and other hidden costs deriving from tourism-related activities. Not all leakages are unnecessary, as some costs cover crucial input to the tourism sector not available in the local economy. Leakages include two main components that need to be taken into account to obtain a reliable approach on issues touching upon leakages effects. *Internal leakages* are losses due to tourism activities that originate in the economic space of the tourism service provider and are paid and accounted for domestically. It most generally refers to the "import coefficient" of tourism, or the proportion of imported goods needed to provide the service. *External leakages* are opportunity costs that originate outside the economic space of the tourism service provider and are not accounted for domestically.

In order to appropriately define a tourism development strategy for any developing countries, leakages indicators must be elaborated and policy options evaluated in the light of these factors.

4.1.2. Socio-ecological sustainability

Another aspect included in our methodology is the extent to which tourism activities benefit the community and the environment. The social dimension quantifies the involvement of local communities in various tourism activities. The environmental aspect included in our methodology assesses the implementation of environmental and quality standards agreed by relevant international organizations for tourism projects and allocation of tourism revenues to prevent degradation of resources in the destination country.

The two components of this dimension are clearly connected with the linkages and leakages issue and need to be analysed jointly. For instance, even though a tourist activity may have low leakage effects, this does not necessarily mean that the community will draw any benefits for this activity if local operators do not create

sufficient jobs for the community or if wages are very low. Moreover, the socio-ecological sustainability will not be assured if this activity is not properly taxed to provide resources for environment protection.

4.1.3. Infrastructure sustainability

Infrastructure may well be considered as a tourism asset. General infrastructure assets are key to sustainable tourism development since the accessibility to specific tourism assets depend on the quality of the overall infrastructure. However, given its general nature, we prefer to treat this field separately of the specific tourism assets that are natural and cultural resources. Furthermore, unlike natural and cultural resources, the quality of infrastructure depends much more on a host of other policies, rather than tourism promotion strategies alone. Hence, given its high policy relevance, this further justifies its separate treatment.

4.1.4. Attractiveness

Price competitiveness is usually regarded as one of the most important factors underpinning the competitiveness of a given destination so this could well explain the differences in economic activity between countries. Attractiveness could also depend on how well qualified the population is and on the general security situation in the country.

Based on these broad definitions, the next section will describe the indicators used to quantify and measure the impact of each dimension on the overall sustainability of the tourism sector.

4.2. Indicators

The next phase in the construction of the STBT is the operationalization of the dimensions briefly outlined above. Each dimension is therefore broken into groups of variables. Such indicators are constructed and compiled from different statistical indicators: tourism assets (natural and cultural); tourism activity (frequenting and spending by characteristics of tourists); linkages with other sectors of the economy (that necessitate access to input-output matrix); tourism-related leakages (that necessitate input-output matrix and data on origin of tourism operators); and indicators for tourism-related infrastructure.

4.2.1 Tourism assets indicators

As previously mentioned, one major tourism asset is comprised of activities related to the natural environment and provide opportunities for beach and marine tourism, hiking, skiing or mountaineering, ecotourism, wildlife viewing, fishing and hunting. The methodology contains quantitative indicators for such natural tourism assets, selected on the basis of relevance and data availability.

The second type of tourism assets that has been accounted for in the STBT refers to cultural assets. Such assets are related to cultural heritage, museums, archaeological sites, architecture or crafts, major cultural and sports events, etc. In order to construct an indicator which aggregates all those aspects, we have to weight all these assets for their potential attractiveness for tourism.

The choice of tourism assets indicators is subject to interpretation. Several other variables and indicators could have been included. For instance, in its guidelines, WTO-OMT includes other dimensions in tourism assets: climate, environment quality, human resources development (qualification of employees), infrastructure (roads, rail, etc), tourism facilities (accommodation, restaurants, etc.) and evening entertainment (cinema, casino, etc). However, the climate, environment, quality of infrastructure and tourism assets are, more often than not, considered as the main determinants of tourism demand. Therefore these aspects have been accounted in the tourism-related infrastructure.

4.2.2 Tourism activity indicators

The main tourism activity indicators are the number of tourist and tourism receipts. Such indicators should be further disaggregated by type of travel, trip and transport, country of origin and purpose of visit. Such detailed statistics could shed some light on a number of specific characteristics of tourism, such as the extent to which a tourism destination is engaged in high-value tourism. Depending on the specific characteristics of a tourism destination, the tourism activity indicators could also suggest ways in which the average expenditure per trip could be increased (e.g. raising the length of stay or the expenditure per day).

4.2.3 Linkages indicators

Given the complexity of tourism activities, it is rather difficult to statistically distinguish tourism from other economic activities and to measure its contribution to the overall economy. The WTO-OMT has played an instrumental role in improving the way in which tourism activity is statistically identified and measured. Despite these efforts, difficulties remain in measuring linkages of tourism activity. A large part of the problem stems from the traditional method of defining an industry, i.e. from a supply or production perspective. However, many industries such as agriculture or manufacturing, as well as most tourism-related businesses do not devote all of their production to tourism. Restaurants and shops are examples of retail operations which rely on sales revenue generated by both visitors and non-visitors.

Setting up a tourism satellite account that disaggregates tourism as a sector in the national economic accounts, as has been recommended by the WTO-OMT, is an important technique to analyse the true economic contribution of tourism and input-output analysis will determine the extent to which tourism is linked to other sectors. One of the best tools for this analysis is to use input-output analysis. This kind of analysis helps to demonstrate how economic sectors are related, the number of linkages among them and the effect of these linkages. Input-output analysis is a mean of analysing inter-industry relationships by tracking the flow of goods and services across different sectors. That is why we use the amount of indirect effects on other sectors. In comparing this amount to tourist expenditure, we find an indicator that could proxy the tourism multiplier effect. The tourism industry linkage index measures the indirect effect of tourism industry on GDP (e.g. tourism industry demand to other sectors). The tourism economy linkage index measures the effect on GDP of the development of tourism industry (capital investment, government expenditure and non-visitor exports).

4.2.4 Leakages indicators

As in the case of linkage effects, measuring economic leakages necessitates either satellite accounts or using input-output tables. As mentioned previously, the literature distinguishes two types of leakage effects: *internal* and *external* leakages. Import-related internal leakages are, in principle, highest where the local economies are poorly equipped to provide adequate inputs, particularly in terms of quality of produced goods and services, to the tourism sector. Some studies have provided an interesting differentiation between competing imports and non-competing imports (UNESCAP, Malaysia, 1991). This allows for the differentiation of imports according to their unavailability or to factors relating to quality or tastes.

Using input-output tables would allow us to calculate several indicators. Firstly, the leakage effects can be assessed using the net balance of foreign exchange (which is the difference between earnings from tourist expenditure and the input imports for tourism), or the net foreign exchange earnings ratio for tourism. Secondly, another useful indicator is the import multiplier, which measures the amount of imported inputs required for every unit of output consumed by tourists. As we have already accounted for tourist expenditure, we only include the amount of imports induced by tourist expenditures.

Internal linkages are not only limited to imports, they also contain a financial component resulting from remunerations to foreign capital and labour that supplement (usually scarce) local endowment (see Annex for further details). However, due to lack of data, this aspect has not been included in the quantitative analysis below.

4.2.5 Socio-ecological sustainability indicators

One broad indicator with relevance for socio-ecological sustainability is the number of tourists relative to the local population.[3] For social sustainability, the set of indicators should capture the major benefit for local communities. Two useful indicators in this regard are: (i) the number of jobs created by the tourism sector; and (ii) the average wage in tourism relative to the average wage in the economy. The employment effects that we take in account are direct employment in the tourism sector and indirect employment in other sectors. The second indicator assesses the extent to which tourism represents a high-value activity.[4]

Another benefit for the community that needs to be taken into account is tax revenues. Tourism-related taxes can offer an important economic benefit to an area. These taxes can provide the financial resources for infrastructure development, public facilities and services that can improve the living standards of local communities. However, there is concern that undue or high levels of taxation will be a deterrent to developing tourism on an internationally competitive basis. Tourism-related taxes that are discriminatory or inequitable may distort the competitive position of the destination leading to decreasing tourist markets.

[3] The indicator should be calculated as the average number of tourists present at one time, and not the overall arrivals. This necessitates weighting the number of arrivals during a month by the length of stay.
[4] Several studies for developing countries often suggest comparable wages in tourism and non-tourism sectors. However, the official wage statistics usually do not include tips, which may increase the relative wage in the tourism sector.

The direct impact of tourism activity on the environment is difficult to estimate at a national level. However, several broad aspects can be incorporated in our framework. First, the actual environmental quality needs to be quantified, using several indicators such as the number of endangered species, CO_2 emissions, etc. Secondly, the regulatory framework is another important element for the preservation of environmental quality. For this, the number of environment-related international agreements signed by a country may be a good indicator of the commitment for environmental protection. Lastly, the impact of the actual level of tourism activity on environment needs to be assessed. One simple way to quantify this is to determine the tourism density (e.g. the number of tourists per square km). This requires weighting the number of arrivals during a certain period (e.g. a month) by the length of stay.

One could, of course, refine this analysis and include additional indicators or dimensions of environmental impact – if data were available. For instance, the existence of environmental review procedures for infrastructure management and sites development could also supplement information on regulatory frameworks. The number of protected area or the tourism-related tax revenues devoted to environment protection activity are also good indicators of environmental sustainability.

4.2.6 Infrastructure indicators

The development of travel services in developing countries obviously depends on the quality of overall and tourism-related infrastructure. Overall, infrastructure indicators refer to transport infrastructure, electricity and water access. ICT infrastructure has become an important element in the choice tourists make because of the need for rapid communication. This aspect is captured by several classic indicators such as number of phone lines, mobile phone penetration and Internet hosts.

Tourism-related infrastructure comprises accommodation, restaurants and other tourist facilities. Entertainment facilities are also an important element, although not necessarily for all types of tourism (ecotourism, for instance). Finally we add the government expenditure in tourism, as a proxy for investment in tourism-related infrastructure.

4.2.7 Attractiveness

This last field completes the endowment for tourism with infrastructure and asset fields. We construct it in choosing several aspects used in WTTC study on competitiveness. We select the index on price competitiveness (a mix of the hotel price index, the purchasing power parity index), the index on human resources (mainly based on the education index), and we add ICRG and civil liberties.

4.2.8 Scaling

Lee-Smith (1997) point out that in assessing sustainability, ordinal or interval scales are normally used; for example Prescott-Allen's Barometer of Sustainability uses an interval scale of 1-100 (Prescott-Allen, 1997). The ordinal scale (bad-poor-medium-good) is especially useful when there is a lack of consensus as to what would constitute an adequate standard. However, as Ko (2004) argues, numerical sustainability scales may be more appropriate than qualitative scales. Even if one tourist destination is

moved from one qualitative category to another, it would be difficult to appreciate the extent to which a tourist destination is getting better or worse without numerical scaling. We have therefore chosen to use an interval scale based on numerical scores.

The indicators included in the STBT range from 1 to 100. Since numerical standards are absent in the literature on sustainability, the score for each country is assessed against the relative score of other countries. The scores of each country could therefore be assessed against various benchmarks (global, regional, tailor-made country groupings such as small islands, LDCs, etc.).

These values are obtained through a 'normalization' technique, where each indicator has been assigned minimum and maximum values. Through a simple arithmetic average, the relevant normalized indicators are aggregated to give the value for each variable, and the relevant variables are aggregated to provide the value for each area. For all indicators, a high value indicates a good performance in their respective area.

In sum, the condition to obtain a relevant assessment using the STBT is to include enough countries in the database so as to have several relevant benchmarks against which the performance of individual countries could be assessed.

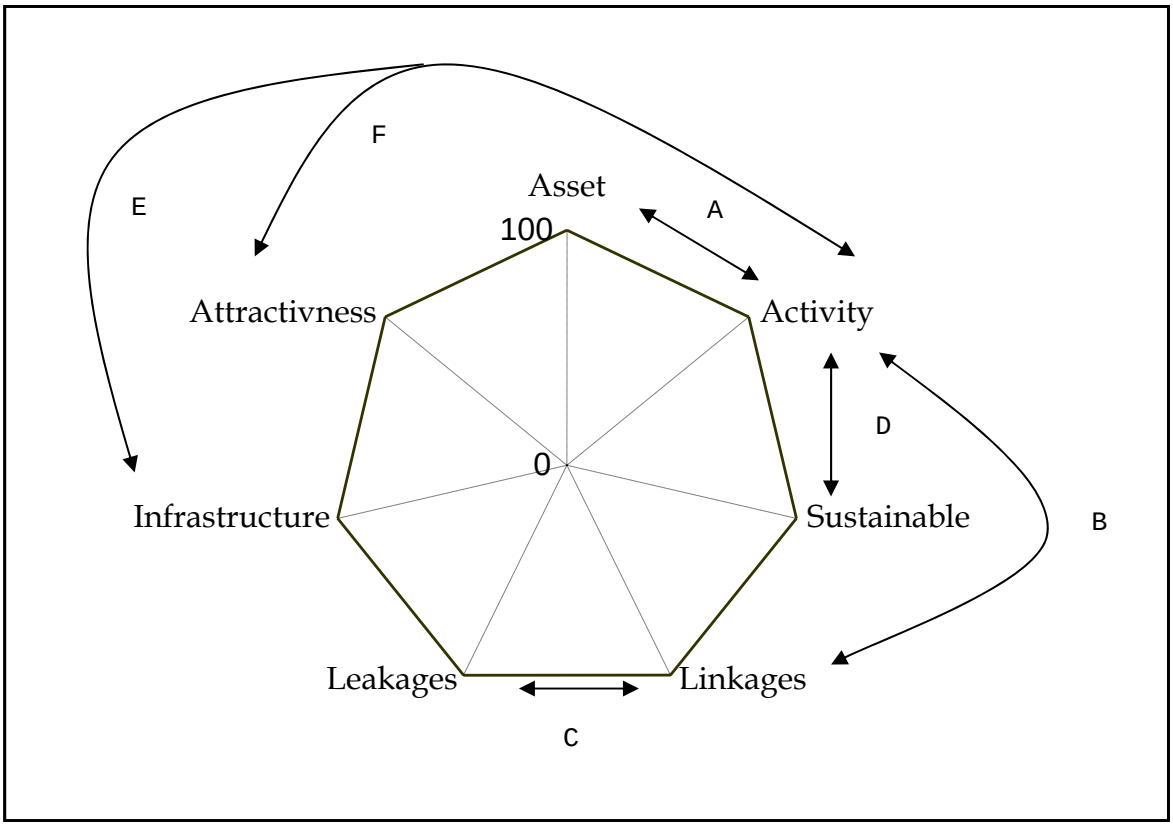
5. The STBT model - three case studies: Indonesia, Malaysia, Thailand

The STBT framework is based on several dimensions (assets, activity, linkages, leakages, sustainability and infrastructure) and the complex interaction between these interactions (see arrows A-E). Such a framework will make it possible to create a descriptive map of the score for individual countries on each dimension (assets, linkages, etc.), but will also allow a comparison of different countries in different areas. Moreover, the framework allows us to address specific tourism-related issues in developing countries by analysing various linkages between specific areas.

For instance, as Figure 1 shows, several key connected issues could be addressed using the STBT:

A: Assets-activity: Is the country able to increase the tourism value?
The link between assets and activity relates to a country's ability to exploit its tourism asset. If the tourism activity indicators show lower values than the ones for tourism assets, this could indicate that the country does not attract sufficient tourists or that expenditure per tourist is low.

Figure 1. The conceptual structure of the STBT



B: Activity-linkages: How are linkages with the all economy?
This connection assesses the capacity of the tourism sector to contribute to the activity of other economic sectors. It could also indicate if the action needs to be taken to promote increased positive spill-over effects to other domestic economic sectors.

C: Linkages-leakages: Could the tourism be more beneficial to the local economy?
By examining the interaction between linkages and leakages, the STBT could detect ways in which developing countries could not only identify leakages in tourism activity, which are generated by tour operators, hotels owners, other foreign economic actors, imported goods, but also ways to transform them into linkages with the local economies.

D: Activity-sustainability: Are tourism activities sustainable?
As mentioned above, this issue is related to the social and environmental capacity to develop tourism activity. For the environmental issue there are two aspects: the current state of the environment and the environmental impact of tourism activity. The social aspect captures the impact of tourism activity on employment, job quality and tax revenues for local communities.

E: Activity-infrastructure: Is the infrastructure sufficiently developed to support tourism development?
This issue is related to the ability of the existing infrastructure to respond to tourism demand. It concerns tourism-related infrastructures (hotels, restaurants, etc.), transport and communication infrastructures, as well as other basic infrastructures.

F: Attractiveness-Activity: Is the country sufficiently attractive to enhance tourism activity?
Atttractivenees of tourism destinations is a key factor in choosing a destination by tourists. Therefore, a higher attractiveness index would have a positive impact on tourism activity.

Case studies

We test our STBT methodology on three Asian developing countries: Indonesia, Malaysia and Thailand. The applied STBT methodology can be best presented as a multidimensional graph (see Figure 2). All indicators have been scaled from 0 to 100, with maximum values being desirable from a policy perspective.[5] Because of data constraints, we could not include all the indicators presented above in our methodology, especially those concerning the leakages field. The STBT allows us to analyse the issues raised above.

Assets-Activity issues

Indonesia has the highest score for tourist assets, whereas Malaysia and Thailand rank far below. However, despite lower scores for tourist assets, the scores for tourism activity are very close for all three countries. The STBT suggests that Malaysia and Thailand appear to be more efficient in exploiting their assets than Indonesia. A closer look at each of the indicators that were aggregated the STBT chart reveals other important findings.

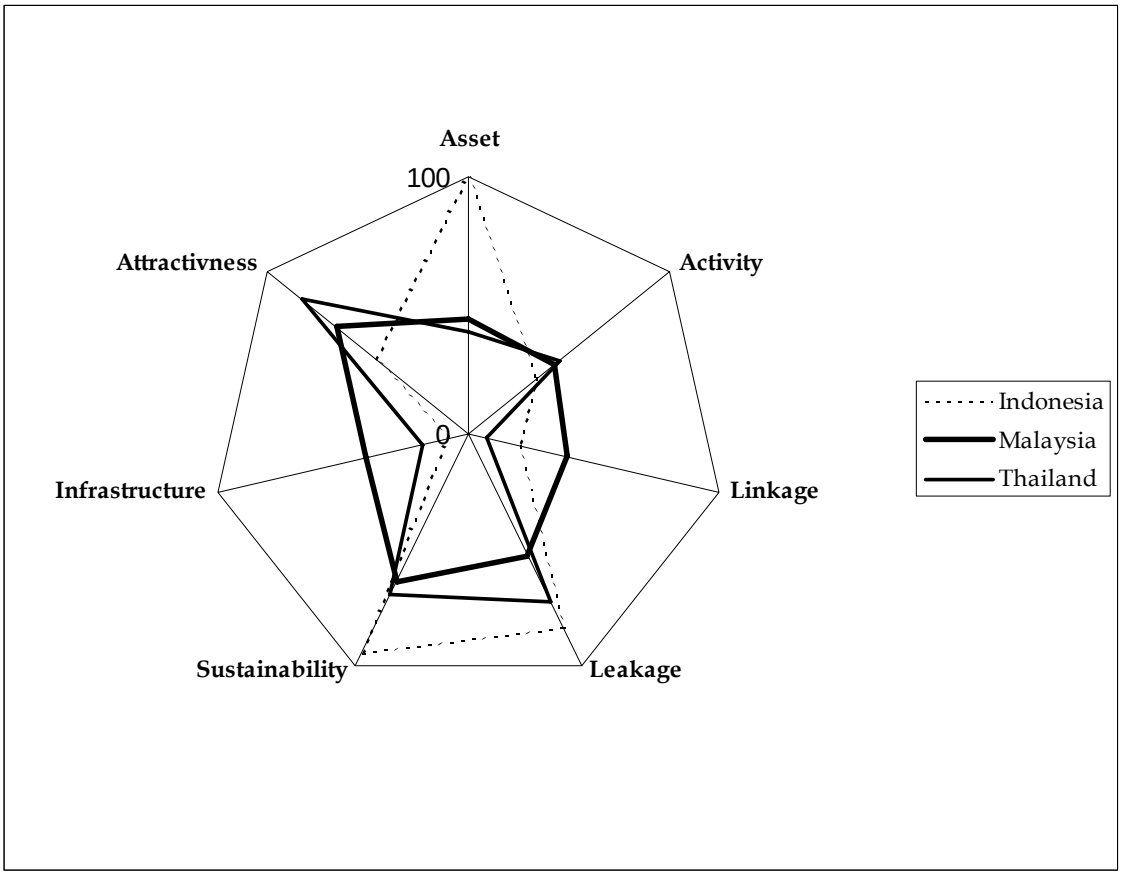
For instance, Malaysia attracted the largest number of tourists but spends relatively little per tourist. In contrast, Thailand seems to be oriented towards high value tourism. Both

[5] A high score in the leakage field means that the country has few leakages relatively to the tourism activity.

Malaysia and Thailand score low on the length of time tourists spend in these countries. Finally, Indonesia does not have good score on the number of tourists but achieves a good score on revenues per tourist, not necessarily due to high value tourism but because tourists tend to stay longer in the country.

These indicators suggest that Malaysia needs to raise expenditure per tourist and length of stay, as well as develop tourist assets that attract special interest tourists, leading to a higher value-added tourism. Similarly, the STBT framework suggests that Thailand needs to take action aimed at raising the length of stay of tourists by providing for instance new attractions or special events as part of tourist packages. On the other hand, Indonesia would need to improve its score on the number of tourists, by more actively using new marketing techniques such as the Internet.

Figure 2. The STBT chart



Activity-linkages: What are the linkages with the overall economy?

The STBT framework suggests that tourism in Indonesia and Thailand creates fewer linkages in the economy relatively to the amount of expenses by tourists. This stands in contrast to the Malaysian case, where despite the lowest score for tourism activity, the biggest score for linkages is recorded. A more detailed analysis could indicate which sectors need to be encouraged to expand or create new products. Establishing stronger inter-sector linkages will typically require special analysis and specific programmes. When the potential linkages are identified, specific programmes to strengthen linkages can be formulated and applied. For example, certain food items of interest to the

tourism sector may exist in the country but production may need to be expanded to ensure a steady source of supply, transport from the production area to the tourism enterprises improved and marketing mechanisms adopted. Some types of food items may need to be improved or modified before they are acceptable for use by tourism enterprises. Farmers may require technical and financial assistance to improve and expand their production. For manufactured items, incentives may need to be provided to manufacturers to produce needed items and standards adopted to ensure that the items are suitable for use in tourism. Craft production may require better organization and the implementation of quality standards and marketing facilities.

Linkages-leakages: Could the tourism be more beneficial to the local economy?

The STBT framework pointed out some interesting cross-country comparisons with regard to linkages and leakages generated by the tourism sector. Malaysia, which had the best score for linkages, has the worst score for leakages. This apparent paradox may be explained by the fact that a large part of the tourism-related activities generated in other sectors needs to import most of their input to supply the required products by the tourism sector. On the contrary, tourism in Indonesia provides “relatively” less leakages but this activity is conducive to a large extent to linkages with the local economy. Several policy recommendations to contain leakages could be advanced. To reduce leakages generated by imports of goods and services, developing countries need to encourage investment by local entrepreneurs to improve their existing products and to diversify into new products. To reduce internal financial leakages, the country can impose a limitation of foreign capital for some tourism-related projects and activities where financial leakages are important. Similarly, leakages generated by foreign management personnel could be reduced if such skills already exist in the country. Policies should also aim to provide incentives to re-invest profits that otherwise would be repatriated or invested abroad.

Activity-sustainability: Are tourism activities sustainable?

With regard to tourism sustainability, Thailand and Malaysia present the most problematic situation, the former on the human component, and the latter in the environmental component. The good score for Indonesia in the sustainability segment confirms that an increase in the number of tourists would not be detrimental to tourism sustainability. Improvements in tourism sustainability can be achieved through a number of specific actions. Puppim de Oliveira (2003) presents four types of environmental actions: building institutional capacity; establishment of protected areas; investment in environmental projects (sanitation, water, waste management); and control of private actions (e.g. land mostly owned by the state, control number of tourists and new tourism investments). Strategies for managing those impacts are also discussed in detail by WTO (1997). At the policy level, development plans, which include tourism and which set out zones for tourist use, should determine rights of access to areas and consider what sort of activities are suitable for the area. Economic mechanisms such as subsidies could be used to encourage more sustainable practices and provide incomes to protect conservation of the environment. For the development of infrastructures, projects should use minimal impact construction techniques, native species for landscaping and appropriate architecture styles. Infrastructure development should also take into account recycling, waste minimization and energy efficiency programmes.

Activity-Infrastructure: Is the infrastructure sufficiently developed to support tourism development?

Looking at the infrastructure in the STBT chart, Indonesia seems to be lagging behind in terms of infrastructure potential. In terms of hotel rooms for instance, the STBT framework suggests a considerable gap between tourism activity and the number of tourists. Thailand also needs to improve its supply capacity of tourism services, mostly in terms of tourism infrastructure. Based on the STBT indicators, Malaysia seems to have more adequate infrastructure to support tourism development than Indonesia and Thailand.

Activity-Attractiveness: Is the country sufficiently attractive to enhance tourism development?

The most attractive destination among the three countries examined is Thailand. The low score for attractiveness in Indonesia could explain the weaker score in activity. This lack of attractiveness in Indonesia, and to a lesser extent in Malaysia, is mainly due to the lower score levels on safety and civil liberties indicators. Furthermore, in Indonesia a detrimental factor for tourism attractiveness is the weaker score on quality of governance.

6. Conclusion

Based on the extent to which it has been quantified and discussed in cross-country analyses, the concept of sustainable tourism is still considered to be in its infancy. The current paper tried to fill this gap by providing a simple methodology to assess tourism sustainability, based on a number of quantitative indicators. The proposed methodological framework would allow the creation of a comprehensive database against which the sustainability of tourism activities in various countries can be assessed. The STBT methodology developed in this paper relies on quantitative indicators that are policy-relevant and, as such, it is hoped that it will become a useful tool for decision-makers, researchers and businesses involved in tourism activities in developing countries.

The usefulness of the STBT methodology is illustrated by using three case studies: Indonesia, Malaysia and Thailand. While the STBT methodology used in this paper may need further refinement and elaboration, the results and findings obtained suggest that the STBT can become a valuable tool for researchers and policymakers involved the assessment and design of sustainable tourism strategies. This illustration shows us that an equal level of tourism activity might induce different sorts of improvements and might have different consequences on development. Some countries therefore need to increase the number of tourists' arrivals, while others have to extend length of stay or receipts per tourists. Furthermore, the STBT can be extended to other fields linked to tourism activity, in particular by expanding the analysis of leakages.

The main advantage in following this methodology is that grouping many countries into one analytical toolbox is relevant and does not remove the heterogeneity aspect, contrary to Ko (2004) argument. Indeed, the heterogeneity of developing countries is useful to detect the main problems of each country in their tourism activity. Therefore, The STBT could form a solid basis for a rigorous analysis that could shed further light on the main problems detected by conducting country specific studies by following a consistent methodology that allows comparability of results across tourist destinations.

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Annex: Measuring tourism-related leakages

To account for tourism-related leakages, Perez de Cuello (2001) proposes the following indicator:

$$F = (W + I + D)/R$$

Where:
F – financial outflows
W – foreign employee remuneration repatriation
I – interest paid to the rest of the world
D – dividends repatriated
R – tourism income

These remunerations result in the repatriation of salaries and interest paid in connection to the activities carried out in the local tourism sector. Gollub and al. (2001) consider dividends repatriation as external leakages since they are directly linked to the foreign share and capital participation on tourism. Based on this approach, another modified version of internal leakages is:

$$F = (W + I)/R$$

In addition, external leakages occur for instance when revenues are retained by external tour operator, booking intermediaries, foreign airlines, cruise ships or other forms of foreign-owned transportation. The loss of potential income due to sales contracted by agents abroad, of which only a margin is paid to the domestic tourism service providers is a cost that reduces the positive effect tourism can have on the local economy. This could be measured by the percentage of prearranged tourism booking prices received by local tour operators (Perez-Ducy de Cuello, 2001).

Furthermore, leakages can occur when foreign investors financing developing country tourism infrastructure and facilities, repatriate profits earnings. Those leakages are often unavoidable and necessary in the near term in order to access sufficient sources of development finance. In this case, only repatriated profits are considered as leakages since locally reinvested profits are considered to promote the host economy. In this case, the formula becomes:

$$F = (D + P)/R$$

P: repatriated profits, not invested in the host economy.

Overall, a consolidated formula for financial leakages could be the following:

$$F = (W + I + D + P)/R$$

If the relevant data is available, such financial losses could then easily be incorporated in the STBT.