CERDI, *Etudes et Documents*, E 2007.08

CENTRE D'ÉTUDES
ET DE RECHERCHES
SUR LE DÉVELOPPEMENT
INTERNATIONAL

**Document de travail de la série**
*Etudes et Documents*
**E 2007.08**

**Is the concept of sustainable tourism sustainable?
Developing the Sustainable Tourism Benchmarking Tool**

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28 p.

*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. A model development procedure is proposed: identification of the dimensions (economic, socio-ecologic, infrastructure) and indicators, method of scaling, chart representation and evaluation on three Asian countries. This application to three countries show us that a similar level of tourism activity might induce different sort of improvements to implement in the tourism activity and might have different consequences for the socio-ecological environment. The heterogeneity of developing countries exposed in the STBT is useful to detect the main problem of each country in their tourism activity.

# I  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 not ceased to increase.[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 such more specific area of research concentrates on the concept of sustainable tourism. As with other sub-field 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) reviewed around 100 books and more than 250 articles on sustainable tourism. Despite these sustained research efforts, and irrespective of the approach adopted, the merits and the usefulness of such analyses are not fully clarified yet and their findings remain underutilized. Firstly, the concept itself is far from being consistently used. The WTO 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 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 in views regarding 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, the current paper tries to 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 methodology developed in this paper (Sustainable Tourism Benchmarking Tool - STBT) 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.

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[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: the next section briefly reviews some of the relevant literature on indicators for sustainable tourism. The third section makes succinctly the case for a sustainable tourism benchmarking tool. The fourth section describes at length de 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.

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

Most studies assessing tourism activities deal often with one component of tourism. For instance, the economic impact of tourism activities is usually estimate based on 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 in national economies, some studies are specialized on tourism account methodology (Frechtling, 1999). Other studies have been interested in assessing the use tourism resources (natural, cultural, etc). However, a growing literature deals with the sustainability assessment, trying to develop indicators and to provide methodologies for sustainable tourism. For instance, Miller (2000) focuses on the development of indicators measuring tourism sustainability. Unlike many studies that cover only physical and human environment, Miller (2000) presents several indicators covering all aspects of the sustainability: environmental issue (physical and human), employment, financial leakages and customer's aspects (satisfaction and role). 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 8 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 in order to assess the sustainability of a tourist destination.

The current analysis 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 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 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 rage of tourism-related aspects: 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 include at this stage qualitative data (perception surveys, questionnaires, etc.). Also, another specificity of our approach is that the 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 users of the STBT to combine or separate the various sustainability dimensions in different ways.

## 2. 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 emerged as one of the world's major 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 percent of the world's gross domestic product (GDP), creating employment for about 212 million people and producing US$637 billion in government tax revenues.

Developing countries are receiving an increasing share 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 tourists arrivals[2] grew up from 28% in 1990 to 31% 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 percent (in some Caribbean countries). The arguments that suggest that primary products will enjoy a decreasing share of world income apply in reverse as increasing incomes and more leisure time raise tourist expenditures proportionally more than income. Moreover, even though the tourism sector has been severely hit by a number of crises (international terrorism, SARS, natural disasters), estimation of standard deviation of growth rates of 'export value' for several primary commodities and tourism show tourism revenue is less volatile than this commodity's revenues (Maloney and Montes Rojas, 2001). Finally, tourism activities bring much-needed foreign exchange by developing countries to finance the import of capital goods and raw materials required to 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

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

America have risen only of .51%[3] 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. Huge sustainability problems are appearing in some countries. Often in island, like Tahiti or Caribbean, where human presence creates pressures on sea food, and where local communities do not benefit of this activity but moreover have lodging problems because of the increase of lodgment cost with infrastructures for tourists. On average, 60 to 90 percent of the price that tourists pay for their holidays goes to the multinationals companies that own the airlines and runs the hotels.

This gap between 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.

## II Sustainable Tourism Benchmarking Tool (STBT)

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

To construct the STBT the following steps have been followed. Firstly, seven key dimensions have been singled out:
- tourism assets
- international tourism activity
- tourism-related linkages
- tourism-related leakages
- environmental and social sustainability
- overall infrastructure
- other attractive aspects (cheap price, human resources, risk;..)

Secondly, once the dimensions clarified, the next step is to find appropriate indicators that could capture the essential aspects of each dimension. Thirdly, the indicators are scaled to allow cross-country comparisons. Fourthly, the indicators are placed on a conceptual chart that frames the specific issues that the STBT can address.

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[3] Maloney and Montes Rojas (2001)

# 1. Dimensions

## 1.1. Economic sustainability

*Tourism asset*

It goes without saying that each country that is considering developing its tourism sector should carefully evaluate it 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 a particular area has potential for developing or expanding tourism, and if so, what type of tourism activities is the most appropriate to develop. 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 "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 thoroughly the supply side of tourism but that concerns only the producer of goods and services in tourism activity. In our methodology tourism assets are grouped into two categories: natural resources and cultural assets.

*International Tourism activity: Tourists frequenting and spending*

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 for international tourism. Therefore, a second dimension in our methodology measure tourism activity. There are several aspects that could be included in international tourism activity. One are of interest is the number of tourist and the revenue from tourism. Another important aspect of tourism activities is to assess the dynamism and the long-term potential.

*Linkages: Tourism revenue for the all economy*

On 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 sector including agriculture, fisheries, manufacturing, construction. If the tourism sector makes use of products and services produced within the economy the tourism will strengthen those sectors and provide additional income. The extent of integration of tourism in the national economy is captured by the multiplier effect.

*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 we must account to obtain a reliable approach of leakages effects. Internal leakages are losses due to tourism activities that originate in the economic space of the tourism service provider and are paid an

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, which make them more difficult to measure.

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

## 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 the destination resources.

The two components of this dimension are clearly connected with the linkages and leakages issue. The issues 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 benefit of this activity if the 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.

## 1.3. Infrastructure sustainability

Infrastructure may well be considered as a tourism asset. 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, infrastructure is depends much more on various other policies, and hence its high policy relevance further justifies its separate treatment. General infrastructure assets are key to sustainable tourism development since the accessibility to specific tourism assets depend on the quality of the overall infrastructure.

## 1.4. Attractiveness

Price competitiveness is usually regarded as one of the most important factors of competitiveness for a given destination so this could explain differences in economic activity between counties. Attractiveness could also depend on the degree of qualification of the population in several tasks and on safety in the country.

## 2. Indicators

The next phase in the construction of the STBT is the operationalization of these dimensions briefly outlined above. Each dimension is therefore broken into groups of variables. These variables are also broken into key indicators with several indicators (see Annex Table 1). Such indicators are constructed and compiled from different sort of statistic 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.

### 2.1 Tourism assets indicators

As previously mentioned, one major tourism asset is comprised of activities related to the natural environment. Such assets can provide opportunities for beach and marine tourism, hiking, snow skiing or mountaineering, ecotourism, wildlife viewing, controlled fishing and hunting. The methodology contains quantitative indicators for such natural tourism assets, selected based on data availability. We use the distance of coast line weighted by the distance to equator[4] , the number of scarce animal and vegetal species, the surface of forest and the number of national parks.  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 by their potential attractiveness for tourism; however we have not yet deal with this problem.

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 includes a number of other aspects 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, climate, environment, quality and infrastructure, more often than not, are not major determinants of tourism demands and, as mentioned before, in the context of this paper, tourism assets are considered the main determinants of tourism demand. Therefore these aspects have been accounted in the tourism-related infrastructure.

### 2.2 Tourism activity indicators

The main tourism activity indicators are number of tourist and the receipt from tourism. Such indicators should be further disaggregated by the sort of travel, trip and transport, country of origin and the 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

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[4] Since a coast line in Canada does not offer the same adavantage as a coast line in Indonesia.

also suggest ways in which the average expenditure per trip could be improved (e.g. raising the length of stay or the expenditure per day). We distinguish the "Flow" indicators, that are number of tourists arrivals and tourists receipt, from "Quality" indicators, that are the average length of stay and the receipt per tourist per day. We add indexes to measure the dynamism in international tourism, which are the part of international tourism revenue on national tourism revenue, the receipt from international tourism on exports and the openness index from WTCC[5].

## 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. WTO has played an instrumental role in improving the way in which tourism activity is statistically identified and measured. Despite that, difficulties remain in measuring linkages of tourism activity. A large part of the problem centers on the traditional method of defining an industry, which is from a supply or production perspective. The products they produce can readily identify industries such as agriculture or manufacturing, but most tourism-related businesses do not devote all of their production to tourism. Restaurants and retail stores 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, is an important technique to analyze 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 analyses 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 include the use the amount of indirect effect on other sectors. In comparing this amount to the tourist expenditure we find an indicator next to the multiplier effect.

The recent report from Satellite Account allows us to distinguish between a tourism industry[6] which satisfy visitor consumption and a tourism economy created by the tourism industry.
The tourism industry linkage index measures the indirect effect of tourism industry (e.g. tourism industry demand to other sectors). It is the indirect Gross Domestic Product associated with travel and tourism consumption. This is the upstream resident economy contribution which comes about from suppliers to the traditional travel and tourism industry. Establishments in this category include fuel and catering companies, laundry services, accounting firms, etc.

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[5] Openness Index shows the level of a country's openness towards international trade and international visitors. The Openness Index is an aggregate index combining the Visa Index, Tourism Openness Index, Trade Openness Index and Taxes on International Trade Index

[6] Direct Gross Domestic Product associated with Travel & Tourism Consumption. Establishments in this category include traditional Travel & Tourism providers such as airlines, hotels, car rental companies, etc.

The tourism economy linkage index measures the effect on GDP of the development of tourism industry. This is the broadest measure of travel and tourism's contribution to the resident economy. Establishments in this category include manufacturing, construction, government, etc that are associated with capital investment, government services and non-visitor exports.

## 2.4 Leakages indicators

As in the case of linkage effects, measuring economic leakages necessitates either satellite accounts or using input-output tables. The literature distinguishes two types of leakage effects: internal and external leakages. In principle import related internal leakages are highest where the local economies are poorly equipped to provide adequate inputs, 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 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 get distinction between tourism industry and tourism economy we can provide several index, one measured the part of import required by tourism industry, the other measure the part of import required by linkage to the economy, the last measure overall imports on overall tourism consumption.

However internal linkages are not only limited to imports, they also contain a financial component resulting from remunerations to foreign capital and labour that supplement the usually scarce local endowment. These remunerations result in the repatriation of salaries and interest paid of earning monies in the local tourism sector. To account for these leakages, Perez de Cuello (2001) proposes the following indicator:

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

F: Financial outflows
W: Foreign Employee remuneration repatriation
I: Interest paid to the rest of the world
D: Dividends repatriation
R: Tourism Income
For consistency with other indicators we will use a modified version of this indicator:

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

Since as Gollub and al. (2001) we consider dividends repatriation as external leakages since they are directly relied to the foreign share and capital participation on tourism.

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 detracts from the positive effect tourism can have on the

economy. We could measure that by the percentage of prearranged tourism booking prices received by local tour operators (Perez Ducy de Cuello, 2001).

The second effect is when leakages accrue to foreign investors financing developing country tourism infrastructure and facilities, through repatriated profits earnings and profits. Those leakages are often unavoidable and necessary in the near term in order to access sufficient sources of development finance. Those leakages are due to foreign direct investment in tourism activity. Concerning the profit, we just consider the repatriated profits as reinvested profits are goods for the national economic activity.

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

P: repatriated profits


## 2.5 Socio-ecological sustainability indicators

One broad indicator with relevance for socio-ecological sustainability is the number of tourists relatively to the local population.[7] For social sustainability, the set of indicators should capture the major benefit for local communities. Two useful indicators in this regard are the number of created employment relative to tourism revenues and 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 tourism sector and indirect employment, in other sectors. The second indicator assesses the extent to which tourism represents a high-value activity.[8]

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 development of infrastructure, 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.

Direct impacts of tourism activity on environment are 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 percentage of endangered species, $CO_2$ emissions per capita. Secondly, the regulatory framework is another important element for the preservation of environmental quality. For this, the number of environmental-related international agreement signed by a country may be a good indicator of the commitment for environmental protection. Lastly, the impact of tourism activity on environment needs to be assessed. One simple way to quantify this is to use the tourism density (the number of tourists per square km for instance). This requires weighting the number of arrivals during a certain period (e.g. a month) by the length of stay.

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[7] The indicator should be calculated as the average number of tourist present at one time, and not the overall arrivals. That necessitates weighting the number of arrivals during a month by the length of stay.

[8] 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.

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

## 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 production, sanitary and water access. The ICT infrastructure has become an important element in the tourists' choice, as a result of a need for rapid communication. This aspect is captured by several classical indicators, such as number of phone lines, mobile phone penetration, and Internet hosts. Tourism-related infrastructure comprises accommodations, restaurants and other tourist facilities. Entertainment infrastructures (such as cinema) are also an important elements, although not necessarily for all types of tourism (ecotourism, for instance). All this indicators are ratio report to the surface for transport infrastructure or to people.

## 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 (that mix hotel price index and purchasing power parity index), the index on human resources (mainly based on education index) and we add ICRG and Civil Liberties.

## 2.8 Scaling

Lee-Smith (1997) point out that in assessing sustainability, ordinal or interval scales are normally used, Prescott-Allen's Barometer of Sustainability uses an interval scale of 1-100 (Prescott and Alllen, 1997). The ordinal scale (bad-poor-medium-good) is useful especially where there is a lack of consensus as to what would constitute an adequate standard. However, as Ko(2004) ague, the degree of openness towards sustainability is unlikely to be recognized without any standards in the numerical sources. Even if the country should move from one qualitative category to another, it is difficult to clearly appreciate the extent to which a tourist destination is getting better or worse without numerical graduation. Here we choose to use an interval scale based on numerical scores.
The indicators included in the STBT range from 1 to 100. Since numerical standards are absents in the literature on sustainability, the score for each country is graduated relatively to the score of other countries. Therefore the scores are graduated in using a world medium standard.
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. Concerning all indicators, a high value means always a good performance in the area. The condition to have a relevant assess is to include enough country to be closed to the real rank of each country relatively to the present trend. We apply as in Gooroochurn and Sugiyarto (2005) the following formula:

$$\text{Normalisation} = \frac{\text{Actual value - Minimum value}}{\text{Maximum value - Minimum value}}$$

We apply this normalization for all the indicators (40) we use in this study, and we use it also for the composite themes indices: variables and dimensions (see Annex 1). Effectively, each composite theme index is the product of several indicators, and we normalize this value to scale it from 0 to 100.

## 3 The STBT chart: framing the issues

The STBT framework is based on several dimensions (assets, activity, linkages, leakages, sustainability, and infrastructure) and the complex interaction among them (see arrows A-F). Such a framework will allow not only create a descriptive map the score of the country 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 analyzing various linkages between specific areas.
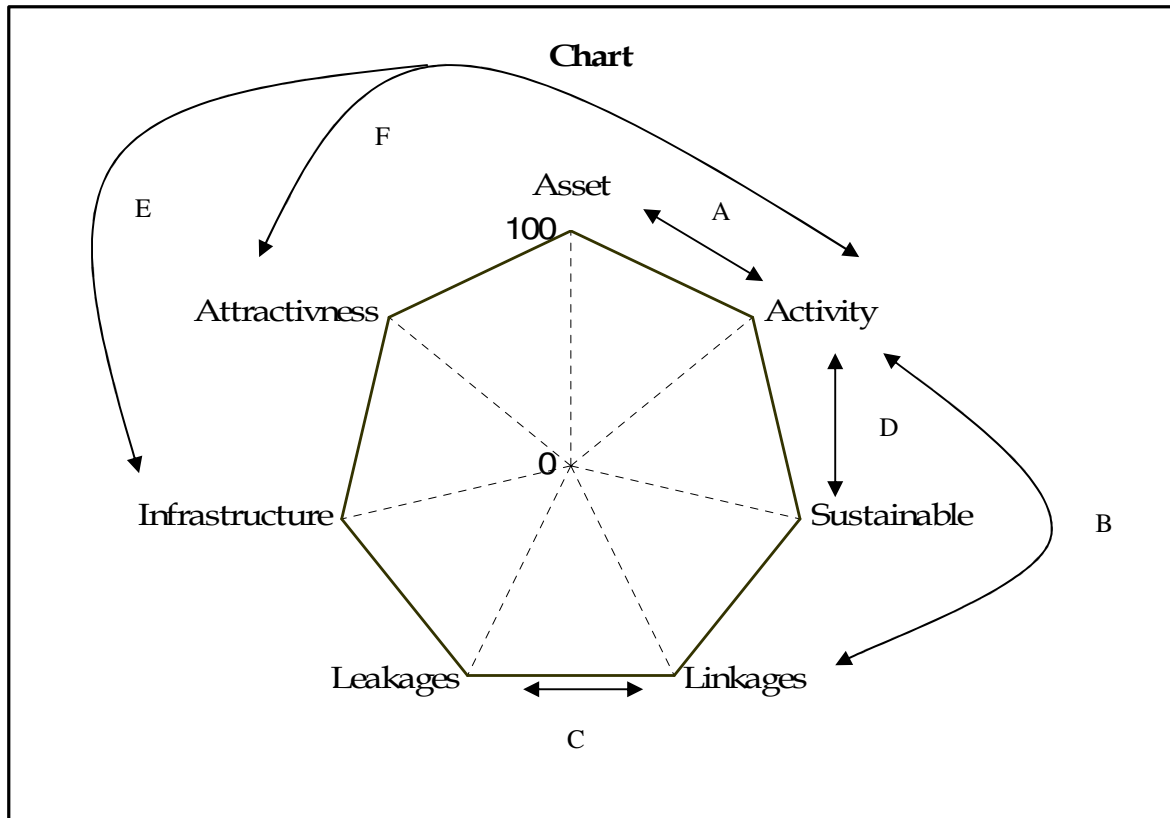
**Chart**

Asset
100

Activity

A

F

E

Attractivness

D

0

Sustainable

B

Infrastructure

Leakages

Linkages

C

Figure 1. The STBT: the conceptual structure

The following paragraphs describe the main issues that can be addressed using the STBT:

*A: Assets-Activity: Is the country able to increase the tourism value?*
This issue is related to the ability for a country to exploit its tourism asset. If the indicators for tourism activity 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.

*B: Activity - Linkages: How are linkages with the all economy?*
This issue is related to the capacity of the tourism sector to contribute to the activity of other sectors in the economy. It could 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?*
In many developing countries there is a need to detect the leakages in the tourism activity, which are generated by tour operators, hotels owners, other foreign economic actors, imported goods, etc.

*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 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: Activity-Attractiveness: Is the country sufficiently attractive to enhance tourism development?*
This issue is related to the explanation of tourism activity score regarding to the attractiveness in the country.

The applied STBT methodology can be best presented as a multidimensional graph (see figure 2 in Annex). All indicators have been scaled from 0 to 100, with maximum values being desirable from a policy perspective[9]. Because of data constraints, we could not include all the indicators presented above in our methodology, especially those concerning the financial leakages field. The indicators used are presented in the Annex 1 by a bold slash. The STBT allows us to analyse the issues raised above.
We briefly see that Vietnam appears to have weak international tourism activity compared to the asset. It is maybe due to the lack of infrastructure. In contrast Dominican Republic and Egypt seems to relatively well exploit their asset for tourism. Vietnam presents a tourism activity that generates a great part of output for the other sectors, but it creates also a lot of imports. Once we did these global comments, we have to see more precisely the indicators that composed each field composite index. We apply this process in the part IV for case study on three Asian countries.

## III A Global approach

Here we can firstly adopt our method to provide a global analysis on the main characteristics for a country subject to high linkages or weak leakages in the tourism activity. We use a cluster analysis which aims to grouping countries based on the indicators (leakages or linkages), such that the groups exhibit high internal (within clusters) homogeneity and high external (between clusters) heterogeneity for those indicators.
Then we obtain four clusters grouping by their linkage level and four clusters grouping by their leakages level. So we can now study for each group their characteristics in terms of asset (sorts of asset), activity, infrastructure, sustainability and attractiveness to detect if one of this field seems correlate to the indicator level.

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[9] Therefore a high score in the leakage field means that the country has few leakages relatively to the tourism activity.

To obtain consistent clusters we need several countries, so we limit the number of indicators to get 75 countries in our sample, the indicators retained are in appendix 1 with a slash.

The results for the linkages clusters are given in table 1.1, they offer several interesting conclusions. First it does not seem that linkages were correlated to a specific sort of asset for tourism. Secondly, in this clusters presentation, it does not exist a clear relation between leakages and linkages (as we have measured them). Thirdly it seems that the more the international tourism activity is the less is the part of tourism industry which benefit to the other sectors.

The results for the leakages clusters are given in table 1.2. Here we show a clearest relationship between linkages and leakages since it seems that the countries which have the weakest indicators for leakages have the highest indicators for linkages. So a tourism activity which creates output for the all economy will also increase imports in the economy. Finally, it seems that countries that have a high indicator for international tourism activity have few leakages but also few linkages.

The main conclusion here is that an increase in international tourism activity is correlated with fewer leakages but also fewer linkages, not in absolute terms but in relative terms of course. The tourism sectors manage to become less dependent from other sectors and from other countries.

However the main use of the composite theme indices is to help us in country analysis, in comparing situation for each country on each theme relatively to the other.


## IV Country Case study

We test our STBT methodology on three developing countries from Asia: Indonesia, Malaysia and Thailand.

*Assets-Activity issues*

Indonesia has the highest score for tourist assets, whereas Malaysia and Thailand rank far below (1st dimension in the STBT chart). However, despite lower scores for tourist assets, the scores for tourism activity are very close for all three countries (2nd dimension). The STBT suggests that Malaysia and Thailand appear to be more efficient in the exploitation of their assets than Indonesia. A closer look at each of the indicators that were aggregated in each dimension reveals other important findings (Annex Table 2). For instance, Malaysia is ranked first with regard to the number of tourists attracted. However Malaysia has a relatively low level of expenditure per tourist. In contrast, Thailand seems to be oriented towards high value tourism. Both Malaysia and Thailand have a low score on the length of stay of tourists. Finally, Indonesia does not have good score on the number of tourists but has a good score on the revenue per tourist, not necessarily due to high value tourism but due to a longer length of stay of tourists. These indicators suggest that Thailand needs to raise the expenditure per tourist not only in raising length of stay but maybe in developing attractions that attract special interest tourists to attain a more high value tourism. Similarly, the STBT framework suggests that Malaysia needs take actions 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 using more actively for instance, new marketing ways such as the internet.
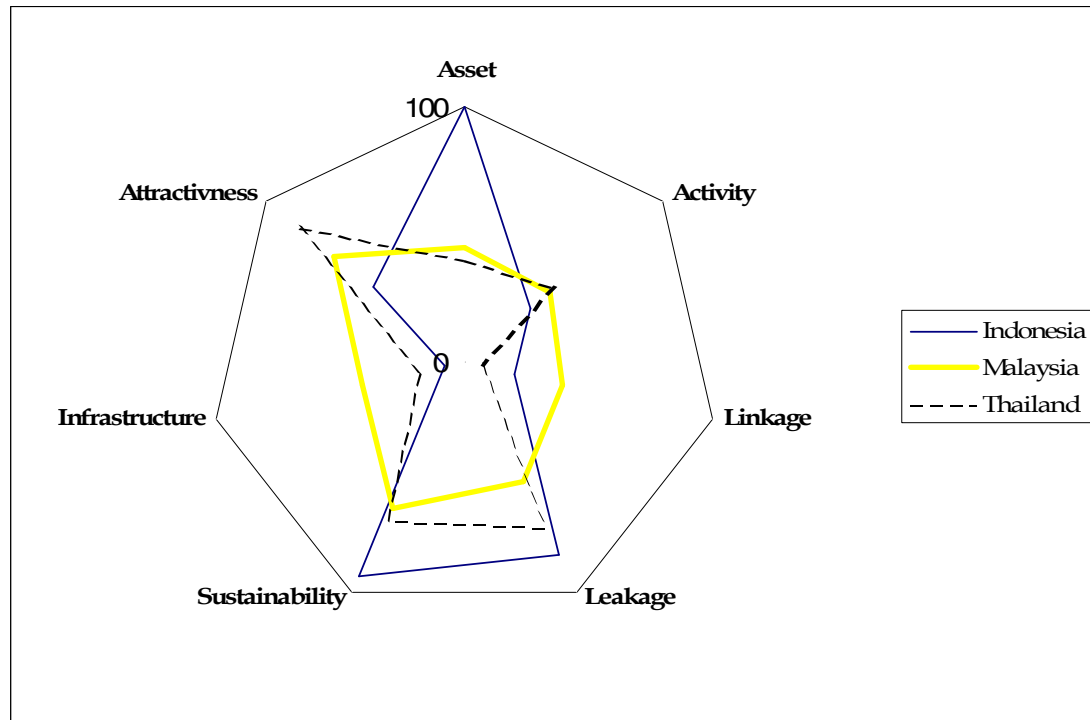


Figure 3. The STBT chart

*Activity - Linkages: How are linkages with the all 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 is in contrast to the Malaysian case, where the biggest score for linkages is recorded (3rd dimension). 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 and a steady source of supply ensured, transportation 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 the manufacturers to produce the items needed and standards adopted to ensure that the items are suitable for use in tourism. Craft production may require better organization, quality standards applied 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 (3rd dimension), has the worst score for leakages (4th dimension). 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 linkages (3rd dimension) but this activity is conducive to a large extent to linkages with the local economy (4th dimension). 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 higher management personnel could be reduced if such skills exist in the country. Policies should provide incentives to reinvest profits that otherwise would be 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 sorts of environmental actions: building institutional capacity; establishment of protected areas; investment in environmental projects (sanitation, water, waste management); and control of private actions (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 income for 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 programs.

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

Looking at the 6th dimension in the STBT chart, Indonesia and Thailand seems to be lagging behind in terms of infrastructure readiness. In terms of hotel rooms for

instance, the STBT framework suggests a considerable gap between the tourism activity and the number of tourists. These countries clearly need to improve their supply capacity of tourism services, mostly in terms of tourism infrastructure. Based on the STBT indicators, Malaysia seems to have adequate infrastructure to support tourism development.

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

The weak score for attractiveness (7th dimension) in Indonesia could explain the weak score in activity. This lack of attractiveness in Indonesia is mainly due to the lack of safety and civil liberties in the country.

# V Conclusion

The concept of sustainable tourism is still in its infancy, based on the extent to which it has been quantified and discussed in cross-country analyses. 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 allows to create a comprehensive database against which the sustainability of tourism activities in various countries can be assessed. The methodology developed in this paper (Sustainable Tourism Benchmarking Tool - STBT) 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 has been 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 policy makers involved the assessment and design of sustainable tourism strategies.

This illustration show us that an equal level of tourism activity might induce different sort of improvements and might have different consequences for the development. Therefore, some countries need to increase the number of tourists' arrivals when other have to perform in the length of stay or in the receipt per tourists. The tourism activity needs to be compared to the asset for tourism that we have divided in two groups the spot that will attract tourists and the infrastructure to receive them.

Once we control for those aspects we can extend our analyses to the other fields relied to tourism activity. Here, we have connected on the same analyse, the relation to the broader economy wide impact, and we have in this relation surrounded the leakages problem. When some countries have to increase the linkage of the tourism industry with the rest of the economy, other countries have to try that those linkages benefit to national sectors because of their large amount of leakages.

Finally, we rely this economic sustainability to the socio-ecological sustainability to detect the present or future main problems that appear with tourism development in developing country.

The main satisfaction in constructing this procedure, is that grouping many countries in one analyze is relevant and do not delete the heterogeneity aspect, contrary to

Ko(2004) argument. Effectively, the heterogeneity of developing countries is useful to detect the main problems of each country in their tourism activity. However, once the main problems are detected, we have to implement a country specific study to improve the tourism activity, but we needed a consistent methodology that allows comparability of results across tourist destinations.

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Table 1. STBT: dimensions, variables, indicators and units

| Dimensions | Variables | Indicators | Unity Measure | |
|---|---|---|---|---|
| Asset | Beach asset | | | ✔ |
| | | Coast Line | Km (Source: CIA fact book) | ✔ |
| | | Latitude | Position to equator (Source: WDI) | |
| | Natural asset | | | |
| | | Marine environment | | |
| | | Deserts | Squared km | |
| | | Forests | Squared km (Source: WDI) | ✔ |
| | | Waterfalls, Lakes, Caves | | |
| | | Wildlife | Species Number   (Source: CITES) | ✔ |
| | | National Park | Squared km/ number (Source: UNESCO) | ✔ |
| | Cultural asset | | | |
| | | Listed sites and monuments | Number (Source: UNESCO) | ✔ |
| | | Museums | Number (Source: UNESCO) | |
| | | Folklore festivals | Number | |
| Activity | Flow | | | |
| | | Expenditure | Billion $ (Source: WTO or WDI) | ✔ |
| | | Arrivals | Million (WTO or WDI) | ✔ |
| | Value | | | |
| | | Exp/Tourist | Million $ (Source: WTO or WDI) | ✔ |
| | | Length of stay | Days    (Source: WTO) | |
| | | Expenditure/day | Million $  (Source: WTO) | ✓ |
| | | Lodging occupancy | Percentage  (Source: WTO) | ✓ |
| Linkages | Tourism industry | | | |
| | | Indirect effect | Million $ per Tourism income (Source: TSA) | ✔ |
| | Tourism economy | | | |
| | | Indirect effect | Million $ per Tourism income (Source:: TSA) | ✔ |
| Leakages | Internal | | | |
| | Imports | | | |
| | | Competing tourism imports | Million $ per Tourism income (Source: TSA) | ✔ |
| | | Non competing tourism imports | Million $ per Tourism income | |
| | Factors | | | |
| | | L: Employee remuneration repatriations | Million $ per Tourism income (Source:: National Accounts) | |
| | External | K: Interest paid to the ROW from loans | Million $ per Tourism income (Source:: National Accounts) | |
| | Intermediaries | | | |
| | | | Percentage | |
| | | | Percentage | |
| | Foreign Investors | Tourists using local operator | | |

| | | Foreign operator price received by destination | Million $ per Tourism income (Source:: National Accounts) Million $ per Tourism income (Source:: National Accounts) | |
| | | Dividend repatriations Repatriated profits from IDE | | |
| Sustainability | Environment | | | |
| | | Environmental Agreements | Number of environment international agreement (Source: CIA factbook) | ✔ |
| | | Critical ecosystem | Percentage of endangered species (Source: CITES) | ✔ |
| | | Pollution | CO2 emissions, tones million per capita (Source: WDI) | ✔ |
| | | Intensity of use | Tourists/hectare (Sources: author's calculation) | ✔ |
| | | Environmental benefice | Tax revenue from tourism allowed to environment protection activity (Source: TSA) | |
| | | Developing control | Existence of environmental review procedure over development of site | |
| | Human | | | |
| | | Pressure impact | Ratio of tourism to locals (Sources: author's calculation) | ✔ |
| | | Employment impact | Employs required to Tourism output (Source: TSA) | ✔ |
| | | Quality of employment | Average wages in tourism sector/ Average wage (Source: ILO) | |
| | | Tax revenue from tourism | Value of direct and indirect tax (Source: TSA) | |
| Infrastructure | Basic | | | |
| | | Roads networks | Km per surface (Source: WDI) | ✔ |
| | | Rails networks density | Km rail per surface (Source: WDI) | |
| | | Sanitation access | Percentage (Source: WDI) | ✔ |
| | | Electricity Production | Kwh per capita (Source: WDI) | ✔ |
| | | Water access | Percentage (Source: WDI) | ✔ |
| | ICT | | | |
| | | Internet | Hosts number per 10000 people (Source: WDI) | ✔ |
| | | Telephone mainlines | Number per 1000 people (Source: WDI) | ✔ |
| | | Mobile phones | Number per 1000 people (Source: WDI) | ✔ |
| | Tourism | | | |
| | | Restaurant | Number (Source: WTO) | |
| | | Lodging | Beds number(Source: WTO) | ✔ |
| | | Entertainment | Cinema number (Source: UNESCO) | |
| Attractiveness | Price Competitiveness | | | |
| | | Hotel prices | In US$ (Source: WTCC) | ✔ |
| | | Power Parity Purchase | US$ required to purchase same amount as 1US$ in United States (Source: WTCC) | ✔ |
| | Human Resources | | | |
| | | Adult Literacy Rate | Percentage (Source: WTCC) | ✔ |
| | | Enrolment | Combined for primary, secondary and tertiary education enrolment (Source: WTCC) | ✔ |
| | Safety | | | |
| | | ICRG index | | ✔ |
| | | Civil Liberties index | | ✔ |

Figure 2: STBT application
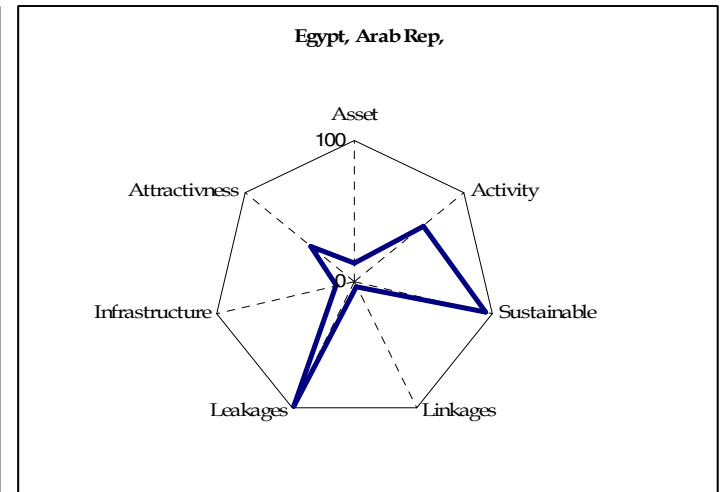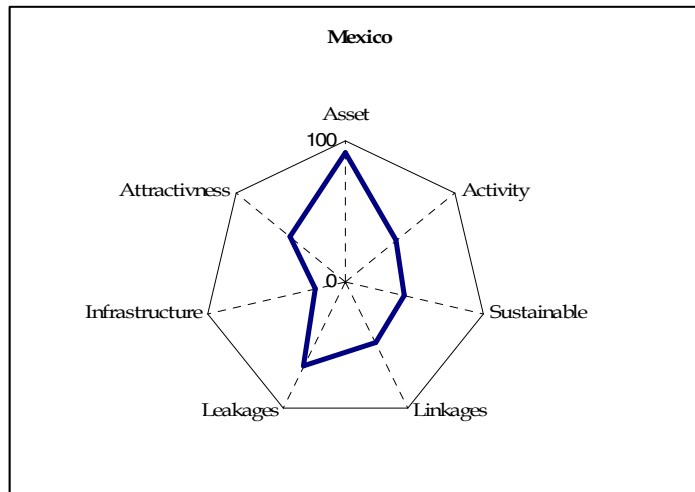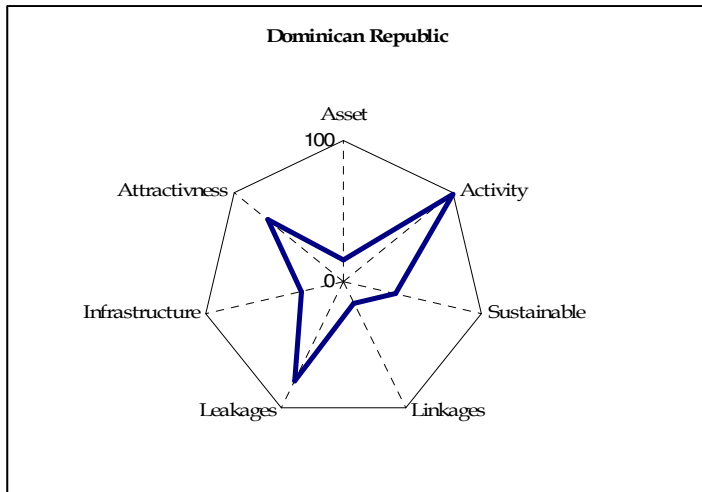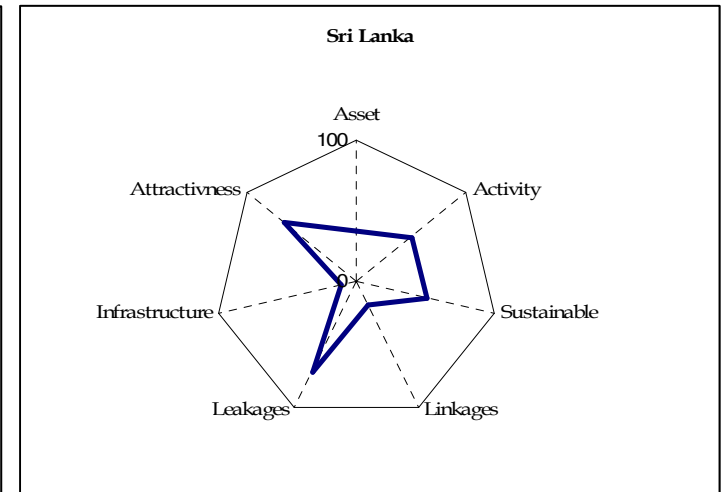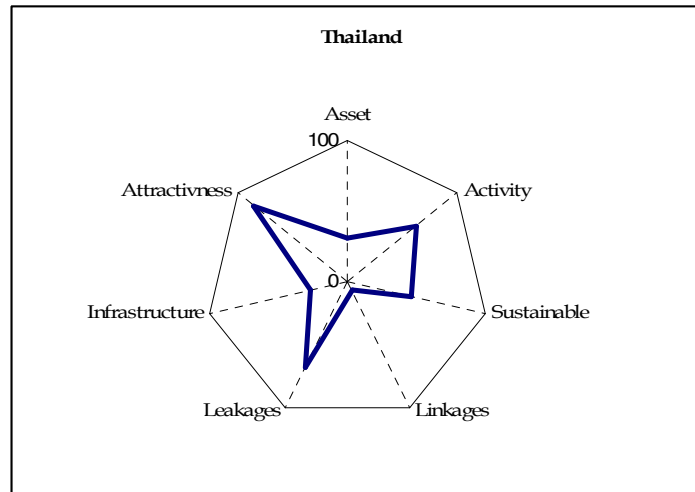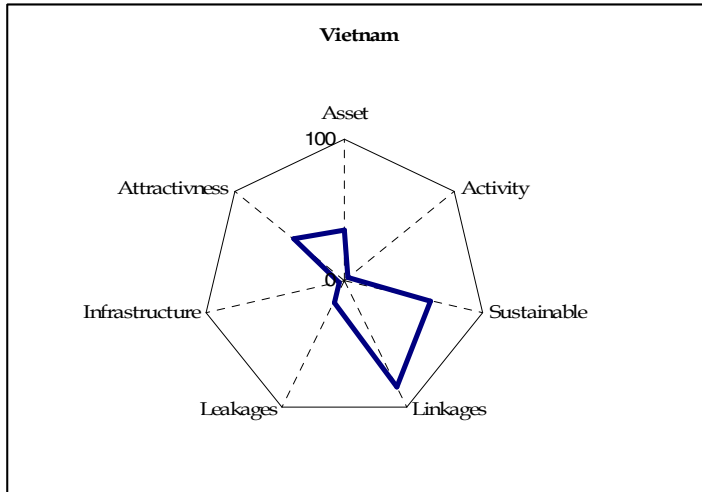
Table 1.1: Clusters analysis by linkages groups

| | Linkages | Leakages | Asset | beach | natural | cultural | Activity | flow | quality | International | Sustain | Hum | Env | Infra | Attractive |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 | 11 | 77 | 30 | 31 | 29 | 21 | 41 | 14 | 26 | 41 | 63 | 41 | 73 | 29 | 67 |
| Group 2 | 27 | 51 | 24 | 31 | 23 | 14 | 31 | 7 | 26 | 31 | 64 | 41 | 74 | 39 | 72 |
| Group 3 | 40 | 62 | 27 | 28 | 33 | 12 | 27 | 7 | 14 | 35 | 64 | 41 | 74 | 21 | 64 |
| Group 4 | 75 | 47 | 28 | 33 | 28 | 14 | 21 | 8 | 14 | 25 | 52 | 40 | 58 | 26 | 55 |

Table 1.2: Clusters analysis by leakages groups

| | Leakages | Linkages | Asset | beach | natural | cultural | Activity | flow | quality | International | Sustain | Hum | Env | Infra | Attractive |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 | 19 | 45 | 27 | 46 | 24 | 3 | 23 | 2 | 13 | 34 | 69 | 52 | 70 | 19 | 50 |
| Group 2 | 55 | 38 | 23 | 29 | 24 | 14 | 29 | 7 | 23 | 30 | 58 | 35 | 70 | 31 | 67 |
| Group 3 | 78 | 18 | 32 | 30 | 31 | 22 | 40 | 13 | 24 | 43 | 67 | 45 | 74 | 29 | 70 |
| Group 4 | 96 | 8 | 38 | 32 | 34 | 29 | 44 | 26 | 25 | 35 | 60 | 42 | 67 | 30 | 57 |

Table 2. STBT: disaggregated scores

| Benchmarks | M[1] | T[2] | I[3] | | M[1] | T[2] | I[3] | | M[1] | T[2] | I[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Tourism Asset | 45 | 40 | 100 | | | | | | | | |
| | | | | Beach | 55 | 44 | 100 | | | | |
| | | | | | | | | Coast | 9 | 6 | 100 |
| | | | | | | | | Latitude | 95 | 77 | 89 |
| | | | | Natural | 45 | 40 | 100 | | | | |
| | | | | | | | | Forest | 50 | 50 | 68 |
| | | | | | | | | Wild | 40 | 25 | 75 |
| | | | | | | | | Park | 20 | 33 | 40 |
| | | | | Cultural | 0 | 8 | 8 | | | | |
| | | | | | | | | Sites | 0 | 8 | 8 |
| | | | | | | | | Museums | .. | .. | .. |
| Tourism activity | 43 | 45 | 33 | | | | | | | | |
| | | | | Flow | 18 | 17 | 8 | | | | |
| | | | | | | | | Number | 17 | 14 | 6 |
| | | | | | | | | Revenue | 10 | 12 | 6 |
| | | | | Quality | | | | | | | |
| | | | | | 30 | 33 | 34 | Exp/Tour/Day | 20 | 21 | 21 |
| | | | | | | | | Exp/Tour | 17 | 24 | 29 |
| | | | | | | | | Occupancy | 65 | 62 | 52 |
| | | | | | | | | Length of stay | 17 | 27 | 33 |
| | | | | International open | 52 | 48 | 24 | | | | |
| | | | | | | | | Intern/National | 40 | 27 | 11 |
| | | | | | | | | WTCC Open | 62 | 61 | 32 |
| | | | | | | | | Intern /Exports | 11 | 18 | 12 |
| Linkages | 39 | 7 | 20 | | | | | | | | |
| | | | | Tourism industry | 40 | 13 | 22 | | | | |
| | | | | | | | | Impact on GDP | 40 | 13 | 22 |
| | | | | Tourism economy | 21 | 7 | 15 | | | | |
| | | | | | | | | Impact on GDP | 21 | 7 | 15 |
| Leakages | 52 | 72 | 84 | | | | | | | | |
| | | | | Internal | 52 | 72 | 84 | | | | |
| | | | | | | | | Import in industry | 46 | 72 | 79 |
| | | | | | | | | Import in economy | 44 | 65 | 74 |
| | | | | | | | | Factor | .. | .. | .. |
| | | | | External | | | | | | | |
| | | | | | | | | Intermediaries | .. | .. | .. |
| | | | | | | | | Foreign investors | .. | .. | .. |
| Sustainability | 64 | 69 | 94 | | | | | | | | |
| | | | | Environment | 73 | 70 | 90 | | | | |
| | | | | | | | | Pressure | 81 | 85 | 97 |
| | | | | | | | | Charts | 42 | 35 | 32 |
| | | | | | | | | End Spec | 79 | 58 | 62 |
| | | | | | | | | Energy | 95 | 81 | 66 |
| | | | | | | | | CO2 per capita | 69 | 84 | 94 |
| | | | | Community | 42 | 53 | 69 | | | | |
| | | | | | | | | Pressure | 25 | 65 | 92 |
| | | | | | | | | Employ Tour. Ind. | 10 | 16 | 41 |
| | | | | | | | | Wage | 20 | 31 | 35 |
| Infrastructure | 41 | 18 | 8 | | | | | | | | |
| | | | | Basic | 60 | 45 | 34 | | | | |
| | | | | | | | | Road | 4 | 2 | 3 |
| | | | | | | | | Rail | 6 | 4 | 2 |
| | | | | | | | | Water access | 90 | 80 | 75 |
| | | | | | | | | Electricity | 12 | 6 | 2 |
| | | | | | | | | Sanitation access | 95 | 95 | 46 |
| | | | | Tourism | 15 | 15 | 8 | | | | |
| | | | | | | | | Rooms | 9 | 11 | 2 |
| | | | | | | | | Cinema | 3 | 2 | 2 |
| | | | | ICT | 69 | 32 | 14 | | | | |
| | | | | | | | | Lines | 25 | 14 | 5 |
| | | | | | | | | Mobiles | 39 | 27 | 6 |
| | | | | | | | | Internet | 2 | 1 | 1 |
| Attractiveness | 66 | 83 | 46 | | | | | | | | |
| | | | | Price Comp. | 87 | 82 | 82 | | | | |
| | | | | | | | | Hotel Price | 100 | 95 | 85 |
| | | | | | | | | PPP | 74 | 83 | 82 |
| | | | | Human | 83 | 86 | 80 | | | | |
| | | | | | | | | Adult Literacy rate | 89 | 93 | 88 |
| | | | | | | | | Enrolment | 70 | 73 | 65 |
| | | | | Safety | 50 | 85 | 30 | | | | |
| | | | | | | | | ICRG index | 74 | 72 | 39 |
| | | | | | | | | Civil Liberties | 33 | 63 | 37 |

[1]Malaysia; [2]Thailand; [3]Indonnesia