Proposal for an evaluating framework of the sustainability of tourism activity[1]

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We have to start from the title of the working group: Measuring Sustainable Tourism. This leads to the fulfilment of at least two goals:

- Measuring tourism as an activity

- Have a clear idea of what "sustainable tourism" is.

From the beginning, it has to be underlined the lack of explicit reference to the destination as a unique place with specific economic, social and environmental characteristics and consequently different level of currying capacity to any development process. So, the same tourism development can be sustainable to a destination and no sustainable to another; the same stands for different policy measures. This lack has to be completed as the SDGs are directly referring to the destinations and consider sustainable activities (tourism included) as tools to fulfil them.

In order to fulfil these goals, there is a lot of research as well many articles and documents with definitions, principles and variables but without a clear and operational framework. The absence of such a framework cannot lead to the creation of a suitable statistical framework as the needs for quantitative information are not clearly defined. So the risk to create a "good" statistical framework that cannot respond to the needs is present. Nevertheless the efforts done from the different statistical bodies and researchers to combine economy and environment (as it is the work of SEEA) can give more ideas how to bridge between "frameworks of principles", "variables" and "data".
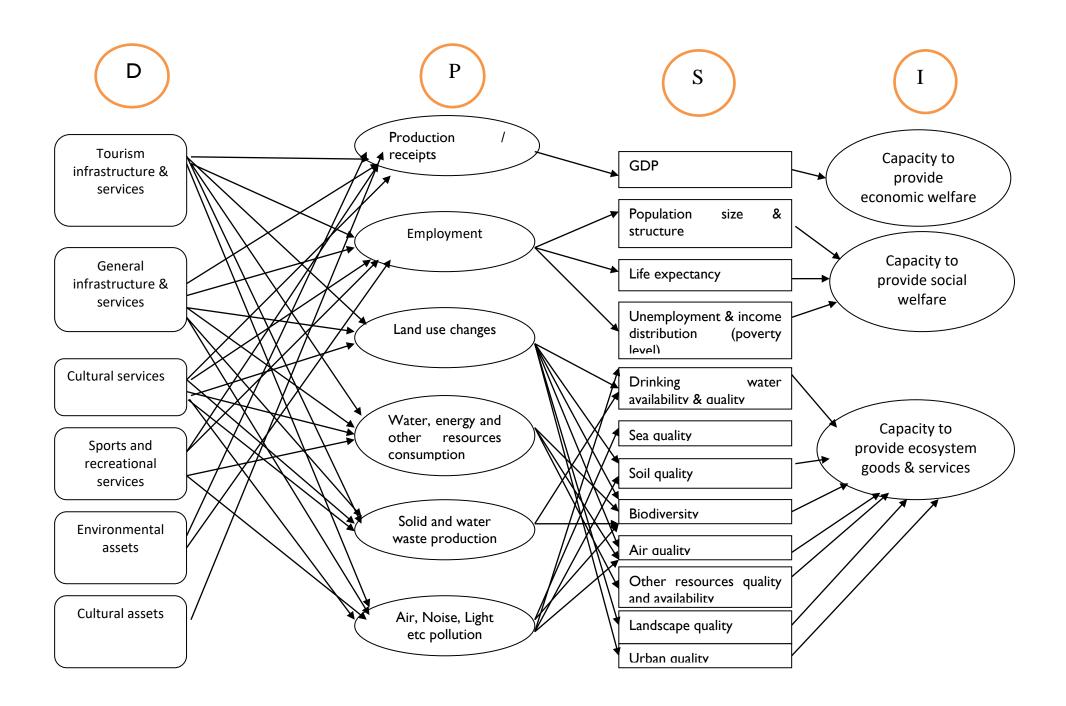
What are the needs for data?

- The need for analysis

- The need for policy making

These needs are interrelated but are not uniform.

The first goal is to create the framework and to clarify the principles before looking for the information needed. The use of an "extended DPSIR framework"[2] seems suitable for an analysis on four levels linked among them and leading directly to policy measures.

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[1] This note is based on a methodological framework prepared for a UNEP/MAP/Blue Plan's study (I.Spilanis et alli, 2009, Profile of Sustainability in some Mediterranean tourism destinations The evaluating framework of the tourism activity

[2] The idea of the "extended DPSIR framework" and a presentation of a first approach is presented in the attached document is the methodological framework elaborated for a comparative study in 10 Mediterranean destinations for UNEP/MAP/Blue Plan in 2009. A similar approach with a well-defined framework and data for Italy is presented by Anzalone M. 2014, Tourism and sustainability: macro-accounting approach for measuring the links between tourism and environment, 12th Global forum on tourism Statistics.

D	P	S	I
Tourism infrastructure & services	Production / receipts	GDP	Capacity to provide economic welfare
General infrastructure & services	Employment	Population size & structure	Capacity to provide social welfare
Cultural services	Land use changes	Life expectancy	
Sports and recreational services	Water, energy and other resources consumption	Unemployment & income distribution (poverty level)	Capacity to provide ecosystem goods & services
Environmental assets	Solid and water waste production	Drinking water availability & quality	
Cultural assets	Air, Noise, Light etc pollution	Sea quality	
		Soil quality	
		Biodiversity	
		Air quality	
		Other resources quality and availability	
		Landscape quality	
		Urban quality	

D (driving forces): in our case "tourism" is the driving force that has to be described as analytically as possible in order to include not only the activities that are within the classic economic circus (and the SNA) but also the ecosystem good and services that are part of tourism product.

P (pressure): calculation of the economic, social and environmental results of tourism activity that are pressing the whole system for changes. From this evaluation we can have total as well as per capita results (performance) that are useful for the evaluation of the sustainability of the activity and for temporal and spatial comparisons

S (state): evaluation of the changes that total results of tourism are causing to the destination's sustainability state

I (impact): estimation of the impacts provoked by the above changes to the long term sustainability of the system and particularly concerning the capacity of the economy to provide economic welfare, the capacity of the society to provide social welfare (community well-being) and the capacity of the ecosystem to provide goods and services necessary for the economic and social welfare.

R (response): elaboration of the policy measures that have to be adopted in order to prevent or/and to repair undesirable changes or "damages" within socio-economic structure and perspectives and environmental situation.

The above framework implies a need to reconsider the way that the "12 policy themes" and the "13 sustainable tourism indicators areas" (discussion paper 1, p. 7) are presented and used (table 1), as well other classifications (statistical domains of ETIS).

A clarification of their content is perhaps also necessary in order to investigate the suitable variable(s) for measuring it. So, we will try to classify Policy Themes and Indicator Areas within the extended DPSIR framework and group them, even if the content is no every time clear, it exist different classifications and some overlapping.

Table 1: Policy themes and Tourism Indicator areas

Policy Issues	DPSIR	Sustainable Tourism Indicator Areas	DPSIR
Cultural Richness	D	Sustaining cultural assets	R
Economic viability (of the company or the tourism activity)	P		
Employment quality	P	Health and Safety (of the employees)	P
Visitor Fulfillment	P	Tourist satisfaction	P
Resource efficiency	P		
Local prosperity	S, (I)	Community participation in tourism	R
Social equity	S, (I)	Sustainability of tourism operations and services	R
Community wellbeing	S, (I)	Well-being of host communities	S, (I)
Local control	S	Capturing economic benefits from tourism	S
Physical integrity	S	Managing scarce natural resources	R
Biological Diversity	S	Protection of valuable natural assets	R

Environmental purity	S	Limiting impact of tourism activity	R
		Controlling tourist activities and levels	R
		Destination planning and control	R
		Designing products and services	R

Source: Obst C, 2016, MST dp1, p. 7, author's adaptation

So, there is a necessity for clarifying the needs of the DPSIR framework step by step before looking for the information existing already in the different statistic frameworks; next step is to try to find ways to complete it with the help of different providers of information. The final goal would be to create the list of variables and indicators that can measure in the most appropriate manner the fulfilment of the SDGs in different countries and destinations and to "activate" the adequate policy measures if it is not the case.[3] **Consequently it has to be underlined that the all over goal is the sustainability of the destinations and the appropriate "use" of tourism activity (and the other activities) to fulfil this goal.**

The first step concerns the analysis of tourism activity as Driving Force (DF). Based on the definition of tourism characteristic consumption products and activities as included in TSA[4] we have the following analysis by NACE code except the two last categories that are providing services that are not subjected of transaction but are offered by the ecosystem; nevertheless these services are necessary for the tourism product as they consist an important part of tourism attractions, on which the image of the destination as well as a lot of natural and cultural activities are based.

Table 2: Tourism activity as a Driving Force

Category	Activities	Code
Tourism infrastructure & services	Accommodation	55
	Food and beverages	56 (besides 56.2)
	Real estate services	68
	Tourism agencies, TO, Tourism information, tourism guides	79
General infrastructure & services	Rail passenger services	49.1
	passenger services (taxi and inter-urban)	49.32 & 49.39
	Air passenger services	511
	Water transport equipment & services	50 (besides 50.4)
	Transport equipment & rental services	7711

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[3] Most of the baseline indicators of UNWTO and ETIS (Obst C., DP 1, annex 1) can be used; more indicators with environmental content can be found in the SEEA document. The use of geo-spatial technics to consider the connections between environmental, economic and social data for particular area or regions have be considered (SEEA Applications and extensions, p. 74-77). The choice of the core of indicators has to be done after the adoption of the theoretical framework.

[4] There is no possible to include the country specific tourism characteristic goods and services. The list can be longer if we have to work at the destination (local) level, where it is possible that even more goods and services could be considered as "tourism characteristic" ones.

Cultural services	Cultural industry, cultural production /creation	90
	Museums	9102
	Archeological and Historical sites	9103
	Botanical and zoological gardens and nature reserves	9104
Sports and recreational services	Rental of sport equipment (yachts)	7721
	Gambling	92
	Sport facilities	9311
	Other sport activities	9319
	Thematic parks, Recreational parks,	932
	Beach services, other recreational services	
Environmental assets	Landscape	
	Beaches & seas	
	Protected areas	
	Lakes, Rivers & wetlands	
	Biodiversity & rare species	
	Woods	
Cultural assets	Townscapes	
	Traditions	
	Social practices	

All the NACE variables have definitions and metrics; it is not the same with the two last categories that have to be described and measured. All the above variables have to be considered as capital (physical and natural) stocks necessary for the production of tourism activity[5].

The presentation of tourism activity as DF will be incomplete if we don't add tourists' (and excursionists') numbers (arrivals and night spent) for the description of the effective production of the activity in physical flows. The way that they move is also a very important information (used frequently in order to have a better estimation of arrivals but also for consider pressures) that we have to be linked with the tourist flows "activating" the demand for transport activities that are already included in the DF group of parameters. Theses flows allow creating the link with the second step that is the evaluation of the results of tourism activity, the tourism pressure[6].

The second step consists of the evaluation of tourism results necessary to estimate tourism Pressure (P) for changes to the whole system. Tourism pressure is composed from different flows, economic, social and environmental as it is shown at the DPSI(R) table. The flows coming

[5] At the above table there is not included the construction sector as is not considered as a characteristic activity as it is not related directly with the tourism consumption as it is part of the fix capital formation section. Nevertheless it is impossible to not take under consideration this sector as it is a prerequisite for the existence of tourism activity and it is also linked with a lot of the policy themes listed above as "physical integrity, biological integrity, environmental purity and so on; more, in same destinations construction sector fulfil the requirements to be considered as "characteristic activity" as the demand of tourism sector is the biggest part for the total demand for the sector.

[6] The basis of measurement in tourism activity is proposed to be on the basis on physical stocks and flow accounts as is beds and night spent; nevertheless the economic stocks and accounts have to be in monetary accounts.

out from tourism travel and night spent, linked to tourism activities' operation (input and output), are:

- Economic, linked to economic viability: tourism expenditure.

- Social, linked to social viability: tourism employment.

- Environment, liked to environmental viability: resource consumption (as land, water, energy etc) and waste production (solid waste, sewages, air pollution, noise pollution, light pollution)[7].

These are the basic variables to be considered; nevertheless there are more information that is needed in order to analyze more in depth the results of tourism and their impact to the destination: expenditure per branch (accommodation, food and beverage, transport, sports, culture, shopping etc), the qualitative features of employees (level of education, training and qualification, sex, age, salary etc) and the level of their satisfaction, the satisfaction level of tourist that affects their length of stay, the level of expenditure, the evaluation for the services consumed and the destination as a whole, the seasonality of the activity, the resource consumption and waste production from the different activities and enterprises, the percentage of enterprises having adopted a quality or environmental management label by increasing environmental expenditure for implement energy efficiency investments, composting activities, recycling of waste water for adequate uses, renewable energy investments etc.

All the above information is crucial in order to evaluate the sustainability of the activity: the economic one concerning the economic viability of different activities, the social one concerning the employees satisfaction (including work health and safety) the environmental one, concerning the pressure on the environmental resources. The evaluation can be based on 3 distinct indexes (economic, social and environmental) constructed on the base of information availability.

The third step is to estimate how the flows coming out of the tourism activity are influencing the sustainability state of the destination.

The tourism expenditure is activating different economic branches creating multiplier effects; these effects are higher if the local economy can supply tourism activity and lower if tourism expenditure is satisfied by imports. The ownership of the local industry is also affecting multiplier effects as part of the income can be also "leave" the local economic circuit in order to be invested, consumed and/or saved "abroad". In short term the level of the GDP (stock) is going to change in a rate depending from the importance of tourism within the local economy and in more medium and long term the structure of the economy too as some activities are going to be created in order to supply tourism and/or some other are going to stop operating. Other change that has to be consider is the stock of fixed capital (productive investments and infrastructure) as well the changes in the structure of GDP creation, as tourism changes the production and consumption patterns, the consumption and the saving rate of the economic actors, the need for government expenditure etc. Local prosperity and local control (UNWTO themes) can be included as parameters for the description of the economic sustainability.

The tourism employment is activating changes in the local demography but also in the social equity considered as stocks. If the employment increase is high, in parallel with low seasonality and "good" salaries, they can have as result an increase in demography (positive net migration and natural movement, an improvement of the stock of knowledge and skills and a decrease of unemployment,

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[7] The above analysis has a lot of common points with the analysis done by SEEA Applications and extensions, p. 87

inequalities, poverty etc. Changes to life expectancy (through changes to health conditions, health care system and environmental conditions), to crime and safety can also be considered as part of social welfare.

The tourism consumption of resources and production of wastes is threatening physical integrity, biological diversity and environmental purity as they affecting the stock of resources in a good condition as drinking water, sea water, air, and soil but also the landscape, the urban quality, the quality of cultural resources etc.

In order to proceed to temporal and spatial comparisons, a composite index is might be necessary; economic viability, social equity and environmental quality could be the three indicators to be considered within the rational of information pyramid (SEEA – Applications and Extensions, p.8). If quantitative data is not available or possible, it can be replaced by qualitative ones based on experts' appreciation.[8] As the whole approach is based on physical terms "harmonization" technics has to be used for aggregations and the creation of composite indexes.

A part of the information necessary to measure the above variables can come from traditional SNA (GDP evolution and structure), other from traditional statistics (demography evolution and structure, income distribution, unemployment …), but most of environmental information needs "new resources" and "technics" as natural stocks are not available.

The forth step of the analysis concern the estimation of the impacts provoked by the changes to the state of sustainability of destination's system in the med and long term sustainability and global attractiveness of the area; the attractiveness for tourism is included. It concerns:

- the capacity of the economy to provide at least the same level of sustainable economic welfare or not. This assumes that the state of the economy, the society and the environment is such that can attract activities (including tourism) capable to ameliorate the economic situation and to contribute to the overall sustainability of the system[9].

- the capacity of the society sustained by the economic and the environmental sub-system to provide at least the same level of sustainable social welfare (community well-being)[10] or not and

- the capacity of the ecosystem to provide goods and services (flows) necessary for the sustainable economic and social welfare but also for tourism sustainability (i.e the climate change as it changes the capacity of the ecosystem to provide services is a factor of tourism un-sustainability; the same can be said for the destruction of a beach, of a biotope or of monument.

Policy measures can be considered as the 5ᵗʰ and final step of the process, after the completion of the analysis, the identification of problems and of the factors causing them. Even if the analysis proposed has the same framework and steps, it is normal that the destinations face different problems and in different intensity as development paths diverge and characteristics differentiate.

Nevertheless policy measures can be grouped into two main categories:

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[9] The capacity for agricultural production depends on the quality of the soil, the water availability, the climate conditions, the skills of the human capital etc

[10] i.e the life expectancy depends mainly to the quality of the environment, the level of the income and the health policy.

- Policies of private companies focusing in the amelioration of their production performance for a more sustainable outputs (products and services) taking into account the three pillars of the sustainability aiming mainly to the viability of companies, higher employment levels in better conditions and higher environmental efficiency.

- Policies of public bodies focusing of the sustainability of the destinations in short and long term through actions producing or promoting the production of more sustainable goods and services through planning and management actions.

There are also actions inducing tourists to have a more sustainable consumption and more globally a responsible behavior in order to contribute to the global goals.

Even if there is no easy to disconnect totally the two categories of policy measures, it is clear the different level of action that is needed. The above policy paths are covering the three targets adopted in the UN 2030 Agenda of Development and the associated SDGs. From the above analysis and from the lists of variables included in the Annex 1 of the discussion paper 1 it is possible to determine the variables and the indicators for measuring progress towards these goals and feasible the creation of composite index concerning "sustainable tourism" and "sustainable destination".