



Republic of the Philippines  
**Philippine Statistics Authority**

# **Experimental Measurement of Sustainable Tourism Indicators**

## **Using the Input-Output Tables: *The Philippine Experience***

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PHILIPPINES

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UNWTO Headquarters, Madrid Spain



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## **Outline**

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- II. Scope of MST**
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## Background

- The Philippine Statistics Authority (PSA) releases the Philippine Tourism Satellite Accounts (PTSA) on an annual basis
- The PTSA aims to highlights the economic importance of tourism



## Background

### Tourism shared 8.6% to the Philippine economy in 2016.

Tourism Direct Gross Value Added (TDGVA) and total GDP  
 (at current prices) in million pesos

	TDGVA	% growth	Total GDP	% growth	Share of TDGVA to GDP in %
2006	396,449		6,271,157		6.3
2007	440,952	11.2	6,892,721	9.9	6.4
2008	435,861	(1.2)	7,720,903	12.0	5.6
2009	466,109	6.9	8,026,143	4.0	5.8
2010	558,578	19.8	9,003,480	12.2	6.2
2011	660,096	18.2	9,708,332	7.8	6.8
2012	744,056	12.7	10,567,336	8.8	7.0
2013	834,151	12.1	11,538,410	9.2	7.2
2014	952,201	14.2	12,634,187	9.5	7.5
2015	1,093,433	14.8	13,322,041	5.4	8.2
2016	1,243,474	13.7	14,480,720	8.7	8.6



Size of tourism in the Philippines was valued at PhP 1.243 trillion in 2016, up by 13.7% from 2015.



## Background

- While tourism as an economic activity contributes to the growth of an economy, it also contributes “to irreversible damage to the environment” (IRTS, 2008)
- There is a need to develop indicators to keep track of the pressures being exerted by tourism activities on the environment



Source: <http://plastic-pollution.org/>

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## Background

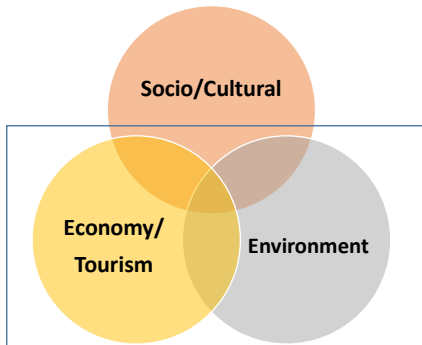
- The objectives of this exercise are:
  - Identify the pressures being exerted by tourism activities on the environment
  - Measure the magnitude to environmental pressures
  - Track the movement of environmental pressures over time



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## Scope of the MST

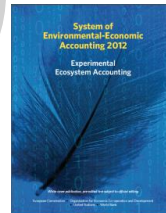
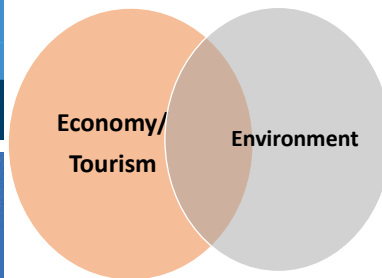
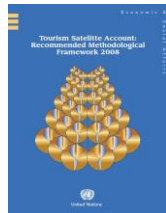
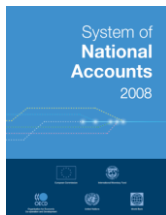


Source: UN World Tourism Organization, 2016

- Focus on the linkages between the economic aspect of tourism and the environment
- Environmental pressures include:
  - Water use
  - Energy Use
  - Greenhouse Gas Emissions
  - Waste



## Scope of the MST





## Data and Data Sources

### Philippine Tourism Satellite Accounts, PSA

- Inbound Tourism Expenditures
- Domestic Tourism Expenditures
- Internal Tourism Expenditures

### 2012 Input-Output Tables, PSA

- Technical Coefficients for Tourism Industries

### National Accounts of the Philippines, PSA

- Gross Value Added for electricity, petroleum products, and water supply
- Gross Output and intermediate consumption

### Administrative data from the Department of Tourism

- Visitor Arrivals Statistics
- Distribution of Regional Travelers



## Interim Methodology: Energy

- To derive the energy expenditures of tourism industries
- Total Expenditures of Industry A \* Technical Coefficient of Electricity & Petroleum in the IO Table
- Convert to physical terms (GWh, Liters) using appropriate prices





## Interim Methodology: Water

- To derive the water use of tourism industries
- Total Expenditures of Industry A \* Technical Coefficient of Water Supply in the IO Table
- Convert to physical terms (cubic meters) using appropriate prices



## Key Assumptions:

- Share of inputs of tourism industries does not vary substantially over time
- The rate of energy use and water use are the same in both tourism and non-tourism industries





## Experimental Results: Energy

Energy Consumption of Internal Tourism, 2012-2016  
in KTOE

Products	2012	2013	2014	2015	2016
<b>A. Consumption Products</b>					
A.1 Tourism characteristic products	4,130.0	4,739.5	5,608.2	6,436.2	7,582.6
1-2 Accommodation services for visitors and food and beverage serving services	1,240.3	1,472.8	1,776.9	2,258.1	2,692.2
3-Transport services	2,528.6	2,876.3	3,360.9	3,576.2	4,154.8
4-Travel agencies and other reservation services	129.5	143.2	170.8	221.1	269.7
5-Entertainment and recreation services	231.6	247.2	299.5	380.8	465.9
<b>Total Economy</b>	<b>61,307.1</b>	<b>63,601.6</b>	<b>66,280.0</b>	<b>65,033.9</b>	<b>70,473.8</b>
Internal Tourism's share of Energy Consumption to Total Economy	<b>6.7</b>	<b>7.5</b>	<b>8.5</b>	<b>9.9</b>	<b>10.8</b>

*Tonne of oil equivalent (toe) is a unit of energy, defined as the amount of energy released by burning one tonne(1000 Kilograms) of crude oil.*

*The toe is used to describe large amounts of oil or natural gas in transport or consumption, and will often use a prefix of mega (1 000 000) in order to communicate this as Mtoe.*

[http://energyeducation.ca/encyclopedia/Tonne\\_of\\_oil\\_equivalent](http://energyeducation.ca/encyclopedia/Tonne_of_oil_equivalent)



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## Experimental Results: Energy

Table Energy Consumption of Internal Tourism, 2012-2016  
Growth Rates (in percent)

Products	2012-2013	2013-2014	2014-2015	2015-2016
<b>A. Consumption Products</b>				
A.1 Tourism characteristic products	14.8	18.3	14.8	17.8
1-2 Accommodation services for visitors and food and beverage serving services	18.8	20.6	27.1	19.2
3-Transport services	13.8	16.8	6.4	16.2
4-Travel agencies and other reservation services	10.6	19.3	29.4	22.0
5-Entertainment and recreation services	6.7	21.2	27.1	22.4
<b>Total Economy</b>	<b>3.7</b>	<b>4.2</b>	<b>(1.9)</b>	<b>8.4</b>



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## Experimental Results: Water

### Water Consumption of Internal Tourism, 2012-2016 (in '000 cu.m.)

Products	2012	2013	2014	2015	2016
<b>A. Consumption Products</b>					
A.1 Tourism characteristic products	94,907.9	109,710.6	135,037.3	161,085.9	184,271.2
1-2 Accommodation services for visitors and food and beverage serving services	75,101.6	88,460.1	109,312.3	130,627.1	148,606.7
3-Transport services	9,798.0	10,506.4	12,459.6	14,575.2	17,170.1
4-Travel agencies and other reservation services	3,496.7	3,837.3	4,688.5	5,693.3	6,621.7
5-Entertainment and recreation services	6,511.6	6,906.8	8,576.9	10,190.3	11,872.6
<b>Total Economy</b>	<b>2,843,663.2</b>	<b>2,943,673.3</b>	<b>3,129,661.2</b>	<b>3,231,591.6</b>	<b>3,428,066.9</b>

Internal Tourism's share of Water Consumption to Total Economy	<b>3.3</b>	<b>3.7</b>	<b>4.3</b>	<b>5.0</b>	<b>5.4</b>
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## Experimental Results: Water

### Water Consumption of Internal Tourism, 2012-2016 Growth Rates (in percent)

Products	2012-2013	2013-2014	2014-2015	2015-2016
<b>A. Consumption Products</b>				
A.1 Tourism characteristic products	15.6	23.1	19.3	14.4
1-2 Accommodation services for visitors and food and beverage serving services	17.8	23.6	19.5	13.8
3-Transport services	7.2	18.6	17.0	17.8
4-Travel agencies and other reservation services	9.7	22.2	21.4	16.3
5-Entertainment and recreation services	6.1	24.2	18.8	16.5
<b>Total Economy</b>	<b>3.5</b>	<b>6.3</b>	<b>3.3</b>	<b>6.1</b>



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## Experimental Results: Energy per Tourist

Per Capita Energy Consumption of Internal Tourism, 2012-2016  
 in TOE

Products	2012	2013	2014	2015	2016
A. Consumption Products					
<b>A.1 Tourism characteristic products</b>	<b>0.275</b>	<b>0.288</b>	<b>0.321</b>	<b>0.307</b>	<b>0.305</b>
1-2 Accommodation services for visitors and food and beverage serving services	0.085	0.100	0.112	0.119	0.111
3-Transport services	0.171	0.171	0.187	0.164	0.170
4-Travel agencies and other reservation services	0.002	0.002	0.002	0.003	0.002
5-Entertainment and recreation services	0.018	0.016	0.019	0.021	0.022

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## Experimental Results: Energy per Tourist

Per Capita Energy Consumption of Internal Tourism, 2012-2016

Growth Rates (in percent)

Products	2012-2013	2013-2014	2014-2015	2015-2016
A. Consumption Products				
<b>A.1 Tourism characteristic products</b>	<b>4.8</b>	<b>11.2</b>	<b>(4.4)</b>	<b>(0.7)</b>
1-2 Accommodation services for visitors and food and beverage serving services	18.0	12.6	5.6	(6.6)
3-Transport services	0.2	9.2	(12.1)	3.3
4-Travel agencies and other reservation services	(4.8)	32.5	27.7	(15.4)
5-Entertainment and recreation services	(12.4)	22.8	8.5	4.0



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## Experimental Results: Water per Tourist

Per Capita Water Consumption of Internal Tourism, 2012-2016

(in '000 cu.m.)

Products	2012	2013	2014	2015	2016
<b>A. Consumption Products</b>					
<b>A.1 Tourism characteristic products</b>	<b>6.414</b>	<b>7.177</b>	<b>8.301</b>	<b>8.267</b>	<b>7.547</b>
1-2 Accommodation services for visitors and food and beverage serving services	5.125	6.000	6.917	6.869	6.124
3-Transport services	0.740	0.696	0.773	0.767	0.811
4-Travel agencies and other reservation services	0.049	0.046	0.063	0.075	0.061
5-Entertainment and recreation services	0.500	0.436	0.548	0.556	0.551



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## Experimental Results: Water per Tourist

Per Capita Water Consumption of Internal Tourism, 2012-2016

Growth Rates (in percent)

Products	2012-2013	2013-2014	2014-2015	2015-2016
<b>A. Consumption Products</b>				
<b>A.1 Tourism characteristic products</b>	<b>11.9</b>	<b>15.7</b>	<b>(0.4)</b>	<b>(8.7)</b>
1-2 Accommodation services for visitors and food and beverage serving services	17.1	15.3	(0.7)	(10.8)
3-Transport services	(6.0)	11.1	(0.8)	5.9
4-Travel agencies and other reservation services	(5.5)	35.7	19.8	(19.4)
5-Entertainment and recreation services	(12.9)	25.8	1.4	(1.0)



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## Way Forward

- **Capacity building of PSA as compiler of TSA and MST including the Department of Tourism and other data producing agencies for measurement of sustainable indicators;**
- **Enhance administrative data and strengthen validation processes;**
- **Estimation of the Greenhouse Gas Emissions and Solid Waste of Tourism Industries**
- **Linking of MST estimates to the Physical Flow Accounts (Energy and Water)**



# Thank You!



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