ONLINE TRAINING COURSE ON
“SUSTAINABLE TOURISM INDICATORS”
12-14 September 2022

SDG 8.9.1 Indicator: Tourism direct GDP as a proportion of total GDP and in growth rate

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SDG 8.9.1 Indicator: Tourism direct GDP as a proportion of total GDP and in growth rate

• **Definition:** Tourism Direct GDP (TDGDP) is defined as the sum of the part of gross value added (at basic prices) generated by all industries in response to internal tourism consumption plus the amount of net taxes on products and imports included within the value of this expenditure at purchasers’ prices.

The indicator relies on the Tourism Satellite Account: Recommended Methodological Framework 2008, an international standard adopted by the UN Statistical Commission and led by UNWTO, Organisation for Economic Co-operation and Development (OECD) and EUROSTAT.
REFERENCES
SISTEM TOURISM STATISTICS

DATA SOURCES:
- Household Survey
- Industry Tourism Survey
- Administration Data
- BIG Data

STS should be part of NSS

TOURISM SATELLITE ACCOUNT (TSA)

- GDP
- SITS
- BOP
- SDGS

Tourism Supply & Demand Data

Policy Planning
- Business
- Marketing
Demand Perspective
Basic Concept

• Inbound → arriving & leaving
• Domestics → leaving & returning
• Outbound → leaving & returning

• Visitor is a traveler taking a trip to main destination outside his/her usual environment, for less than a year, for any purpose other than to be employed by a resident entity in the country or placed visited.

• Tourism subset travel
• Visitor subset traveler

IRTS 2008
USUAL ENVIRONMENT

• Economic territory → geographical reference → resident
• Frequency, Duration, Distance, Border

Mode of Transportations

Border

Length of Stay < 12 Months
Purpose
Type of Accommodation
Expenditure
<table>
<thead>
<tr>
<th>Criterion/Country</th>
<th>Distance (km)</th>
<th>Administrative Borders</th>
<th>Respondents’ self-evaluation</th>
<th>Frequency of visit</th>
<th>Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>Twice per month</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>30</td>
<td></td>
<td></td>
<td>Once a week</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>30-50</td>
<td></td>
<td></td>
<td>Once a week</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>100</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td></td>
<td>✓</td>
<td></td>
<td>Once a week</td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td></td>
<td>✓</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>10</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>80</td>
<td></td>
<td></td>
<td>Once a month</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td></td>
<td>✓</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>80-120</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>50</td>
<td></td>
<td></td>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>Once a week</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>50</td>
<td></td>
<td></td>
<td>10 visits in three months</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>South Africa</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DATA SOURCES

• HOUSEHOLD SURVEY
• TOURISM INDUSTRY SURVEY
• ADMINISTRATION RECORD
• BIG DATA
INBOUND TOURISM

Arrival and Leaving
Entry & Departure Card (E/D Card)

Thai Arrival Card

How to fill out Thailand’s arrival card (2018 latest version) | The ...

Thai immigration card: What is it and how to fill it properly | Bangkok ...

Arrival and Departure Cards for Thailand

How to fill Thai immigration form? Thai immigration card ...
Data Source: Administration Data
Fit for Inbound & Outbound

**Immigration Data**
- MOU with Data Owner
- Data Transmission
- Data Processing

**Data Captured**
- Gender
- Nationality
- Age
- Time of Entry & Exit
- Type of Visa
- Entry Gate
- ID (Hashed)

**NOTE:**
COUNTRY OF RESIDENCE VS NATIONALITY

SURVEY to Get:
1. Purpose of Travel
2. Expenditure
3. Country of Residence
### Appendix 2. Distribution of International Visitors by Nationality and Country of Residence, 2021 (percent)

<table>
<thead>
<tr>
<th>KEBANGSAAN / NATIONALITY</th>
<th>Negara Tempat Tinggal / Country of Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrika Selatan</td>
<td></td>
</tr>
<tr>
<td>Albania</td>
<td>25,00</td>
</tr>
<tr>
<td>Amerika Serikat</td>
<td></td>
</tr>
<tr>
<td>Arab Saudi</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>14,29</td>
</tr>
<tr>
<td>Australia</td>
<td>90,51</td>
</tr>
<tr>
<td>Austria</td>
<td>86,11</td>
</tr>
<tr>
<td>Bangladesh</td>
<td></td>
</tr>
<tr>
<td>Belanda</td>
<td>0,54</td>
</tr>
<tr>
<td>Belarus</td>
<td></td>
</tr>
<tr>
<td>Belgia</td>
<td>11,11</td>
</tr>
<tr>
<td>Brasil</td>
<td></td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td></td>
</tr>
<tr>
<td>Ceko</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>4,55</td>
</tr>
<tr>
<td>Ethiopia</td>
<td></td>
</tr>
<tr>
<td>Federasi Rusia</td>
<td></td>
</tr>
<tr>
<td>Filipina</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td></td>
</tr>
<tr>
<td>Hongaria</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>4,00</td>
</tr>
<tr>
<td>Inggris</td>
<td></td>
</tr>
<tr>
<td>Irlandia</td>
<td>0,68</td>
</tr>
<tr>
<td>Italia</td>
<td></td>
</tr>
<tr>
<td>Jepang</td>
<td>1,65</td>
</tr>
<tr>
<td>Jerman</td>
<td></td>
</tr>
<tr>
<td>Kanada</td>
<td>2,38</td>
</tr>
<tr>
<td>Republik Indonesia</td>
<td></td>
</tr>
</tbody>
</table>
BPS rely on the Immigration Record and Border Survey for Inbound & Outbound Tourism Data

Visits from neighbour countries only 7% of tourism
MPD is not 100% Inbound Data:
1. It comes from one MNO
2. Not all border crosser Using Mobile Phone (non-roamer)
3. Not all Mobile Phone User are Tourism
4. Some Using more than one Sim Card

**CALIBRATION**

**BORDER AREA SURVEY FORM 2017**

Where:
- **AT** = Additional Tourism
- **MPD** = Number of SIM cards detected by MNO in the border area
- **X_roam** = Average number of cell phones actively used by tourist
- **P_NR** = Proportion of non-roamers
- **MS** = Market Share of roaming to the MNO
- **WCI** = Number of tourist entering through Immigration Post

\[ AT = \frac{MPD}{X_{roam}} \times \frac{1}{1 - P_{NR}} \times \frac{1}{MS} - WCI \]
BIG DATA as Supporting for Adm Data

- **Dailly Arrival of International Flight by 1\textsuperscript{st} of August 2022**
- **Before Immigration Data Finalize**
OUTBOUND TOURISM
LEAVING & RETURNING
IMMIGRATION, MPD + Digital Survey

- IMMIGRATION RECORD AT INTERNATIONAL GATES
  - UNKNOWN DESTINATION COUNTRY
  - LENGTH OF TRAVEL
  - SEX
  - AGE
  - TIME OF LEAVING & RETURNING

- MOBILE PHONE DATA RECORD:
  - DESTINATION COUNTRIES OF TRAVELER:
  - LENGTH OF STAY

- DIGITAL SURVEY:
  - TO MEASURE EXPENDITURE WHILE OVERSEAS

DIGITAL SURVEY:
1. MOU WITH MOBILE NETWORK OPERATOR
2. SEND LINK OF QUESTIONNAIRE TO IDENTIFIED TRAVELER
3. FILL THE CAWI QUESTIONNAIRE
<table>
<thead>
<tr>
<th>date</th>
<th>time</th>
<th>mcc_destination</th>
<th>mnc_destination</th>
<th>hashed imsi/msisdn</th>
</tr>
</thead>
<tbody>
<tr>
<td>21/09/2018</td>
<td>23:59:21</td>
<td>420</td>
<td>01</td>
<td>439114f7a28d2f4eef896c38e7f70321</td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>208</td>
<td>09</td>
<td>7f859e31d44a1012275306aa01925de1</td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>302</td>
<td>610</td>
<td>d865eab7ccf0ff0727adb75db2960e6a</td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>310</td>
<td>30</td>
<td>cee4f08b61a6f60012e2437b77dced75</td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>404</td>
<td></td>
<td>731082907968083414427138265</td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>404</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:22</td>
<td>418</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21/09/2018</td>
<td>23:59:23</td>
<td>310</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DOMESTIC TOURISM
Leaving & Returning
Data Source: Household Survey
Need Survey Frame: Household has member as traveler

Activities:
• Sampling Design
• Designing of Questionnaire
• Survey Hand Book/Manual
• Training for Trainer
• Enumerator Training
• Collecting data
• Data Processing

FUTURE:
• Expensive
• Respondent Memory Laps
• Respondent Burden
• Field Work Load
• Impossible to get monthly data

Could Get Traveler & Expenditure data in one step
Data Source: BIG Data & Digital Survey
Fit to collect travelers precisely

• Mobile Positioning Data
  Frequency, Duration, Border, Distance, Usual environment Could be Measured accurately
  • More Granular
  • Timelines
  • Lower Cost
  • Reduced Workload
  • Capacity Building (experiences)
  • Provide OD Matrix
  • Tracing trip

To be Considered:
• IT Infrastructure
• Availability of Data Scientist
• Regulation
• Side bar data for supporting MPD:
  • Sim card Used by Traveller
  • Digital Survey to get
    • Purpose of trip
    • expenditure
## Mobile Phone Log Dataset Example

### DOMESTIC MPD DATA

<table>
<thead>
<tr>
<th>msisdn</th>
<th>datetime</th>
<th>source</th>
<th>bts_lat</th>
<th>bts_lon</th>
<th>prov</th>
<th>kab</th>
<th>kec</th>
<th>desa</th>
<th>node</th>
<th>trx_date</th>
</tr>
</thead>
<tbody>
<tr>
<td>6281 ...</td>
<td>2018-02-08 13:33:03</td>
<td>LBA_ALL</td>
<td>-4.54691</td>
<td>120.35833</td>
<td>SULAWESI SELATAN</td>
<td>BONE</td>
<td>TANETTE</td>
<td>CELLU</td>
<td>3G</td>
<td>2018-02-08</td>
</tr>
<tr>
<td>6281 ...</td>
<td>2018-02-08 13:51:39</td>
<td>CHG_POST</td>
<td>-4.54051</td>
<td>120.30777</td>
<td>SULAWESI SELATAN</td>
<td>BONE</td>
<td>TANETTE</td>
<td>MACANANG</td>
<td>3G</td>
<td>2018-02-08</td>
</tr>
<tr>
<td>6281 ...</td>
<td>2018-02-08 14:00:39</td>
<td>CHG_POST</td>
<td>-4.53591</td>
<td>120.30377</td>
<td>SULAWESI SELATAN</td>
<td>BONE</td>
<td>TANETTE</td>
<td>MACANANG</td>
<td>3G</td>
<td>2018-02-08</td>
</tr>
</tbody>
</table>

**ID**
- **Hashed MSISDN**

**Datetime**
- **Transaction timestamp**

**Source**
- Type of data stored (CDR, signalling)

**Lat & Lon**
- BTS coordinates
### Change Criteria for usual environment in Indonesia after using MPD

**HOUSE HOLD SURVEY**

<table>
<thead>
<tr>
<th>Criterion/Country</th>
<th>Distance (km)</th>
<th>Administrative Borders</th>
<th>Respondents’ self-evaluation</th>
<th>Frequency of visit</th>
<th>Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>100</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MOBILE PHONE/POSITIONING DATA**

<table>
<thead>
<tr>
<th>Criterion/Country</th>
<th>Distance (km)</th>
<th>Administrative Borders</th>
<th>Respondents’ self-evaluation</th>
<th>Frequency of visit</th>
<th>Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>
Examples of Subscriber Mobilities

DESTINATION OF DOMESTICS TOURISM

Based on Household Survey

Based on MPD
MPD Digital Survey

Within a certain radius, BTS catches mobile signal as log data for every transaction.

Log data stored in MNO’s database.

Processing log data: filtering, counting, and validating by algorithm.

Produce datasets:
1. Domestic tourism
2. Commuter
3. Circular
4. Others

Domestic tourism profiling by MPD contains variables:
1. MSISDN
2. Number of trips
3. Home
4. Destination
5. Length of stay

MNO prepares list of subscribers' mobile number based on MPD profiling. It is used as digital survey sample frame.

1. BPS build digital survey platform connected to BPS's server
2. BPS create direct link to digital survey webpage
3. BPS create digital survey sampling mechanism

MNO conducts sampling based on walkthrough from BPS.
1. MNO creates digital survey masked link survey to be injected in SMS
2. MNO sends SMS contains digital survey link to targeted mobile number

Respondent receives digital survey SMS.
1. Respondent fills questionnaire of digital survey
2. Validated digital survey response data are sent to BPS's server

1. BPS process digital survey response data
2. BPS shows list of submitted respondent into dashboard. MNO can download some variables especially mobile number, result status, and type of reward

Domestic tourism variables are collected by digital survey:
1. Demographic
2. Trip motivation
3. Accommodation
4. Transportation mode
5. Type of tourism activity
6. Type of tourism packages
7. Expenditure values

1. MNO submits list of submitted respondent and match the mobile phone respondent with sample frame then create white-list
2. MNO sends reward to submitted respondent
3. MNO submits report to BPS

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Domestic tourism variables are collected by digital survey:
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4. Transportation mode
5. Type of tourism activity
6. Type of tourism packages
7. Expenditure values
Tourism Expenditure

Amount paid for the acquisition of consumption good & service for and during tourism trips paid directly by visitor or reimbursed by others
Purchased on the trips + before & after
Recorded when it is consumed or acquired

- Include
  - Transportation
  - Accommodation
  - Food & beverage
  - Valuables
  - Durable
  - Education
  - Health
  - Museums
  - Performing art
  - Sport
  - Travel agency service

- Not Include
  - Social transfer
  - Purchase of Assets (except valuables)
  - Good for resale
  - Housing, real estate, major repair
  - Imputation of vacation home
  - Taxes not part of acquired product
  - Interest
<table>
<thead>
<tr>
<th>TYPE OF TRIP</th>
<th>GOOD &amp; SERVICE PROVIDER</th>
<th>EXPENDITURE OF</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMESTIC</td>
<td>NON-RESIDENT</td>
<td>OUTBOUND IF ON LEG TRIP</td>
</tr>
<tr>
<td></td>
<td>RESIDENT</td>
<td>DOMESTIC</td>
</tr>
<tr>
<td>OUTBOUND</td>
<td>NON RESIDENT</td>
<td>OUTBOUND</td>
</tr>
<tr>
<td></td>
<td>RESIDENT</td>
<td>DOMESTIC</td>
</tr>
<tr>
<td>INBOUND</td>
<td>NON RESIDENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RESIDENT</td>
<td>INBOUND</td>
</tr>
</tbody>
</table>
SUPPLY PERSPECTIVE
MAINTAIN STATISTICAL BUSINESS REGISTER

UPDATING DIRECTORY TOURISM INDUSTRIES

EXISTING DIRECTORY IN SBR

MATCH ?

LIST OF NAME & ADDRESS OF INDUSTRIES AT REGULATOR OFFICES

NOT MATCH

NOT EXIST

ACTIVE

FIELD CHECKING

DISCOVERED ACTIVE

CLOSSED

REGULAR SURVEY

ACTIVE

UPDATED SBR- FRAME NEXT YEAR SURVEY
Field Checking candidate of new establishment using application named WILKERSTAT.

WILKERSTAT Application is designed to handy field work such as identification working area, Geotagging dan Tracking.
# Consumption Product

- Accommodation services for visitors
- Food and beverage serving services
- Railway passenger transport services
- Road passenger transport services
- Water passenger transport services
- Air passenger transport services
- Transport equipment rental services
- Travel agencies and other reservation services
- Cultural services
- Sport and recreational services
- Country-specific tourism characteristic goods
- Country-specific tourism characteristic services

## Activities

- Accommodation for visitors
- Food and beverage serving activities
- Railway passenger transport
- Road passenger transport
- Water passenger transport
- Air passenger transport
- Transport equipment rental
- Travel agencies and other reservation services activities
- Cultural activities
- Sport and recreational activities
- Retail trade of country-specific tourism characteristic goods
- Other country-specific tourism characteristic activities

158 ISIC CODE (5 digit)
STATISTICAL UNIT AND SURVEY DESIGN

• Statistical UNIT
  • Establishment
  • Enterprise

• SAMPLING
  • Complete
  • Sample

• MONTHLY ➔ HOTEL OCCUPANCY
• ANUAL
SURVEY

• MONTHLY → HOTEL OCUPANCY
• ANUAL
  • COMPANY PROFILE
  • EMPLOYMENT
  • COMPENSATION OF EMPLOYEES
  • INTERMEDIATE INPUT
  • OUTPUT
  • CAPITAL FORMATION
COMPANY PROFILE

• Formal Name
• Commercial Name
• Administrative Location
• Address
• Phone Number,
• e-mail
• Web site, face book, Instagram, other social media
• Specific to the particular tourism industry
  • Rooms, bed places (room or bed), occupancy rates, etc.,
EMPLOYMENT

• According to 2008 SNA, (para.19.20): Employees are persons who, by agreement, work for a resident institutional unit and receive remuneration for their labour.

• **The relationship of employer to employee exists** when there is an agreement, which may be formal or informal, between the employer and a person, normally entered into voluntarily by both parties, whereby the person works for the employer in return for remuneration in cash or in kind.

DATA COLECTED:

1. Education, Professional Certificate
2. Worker Status: Permanent, Temporary, Training
3. Gender
4. Occupation: Manager, Clerk, Security, Driver, etc
5. Compensation of Employee
VALUE ADDED

• OUTPUT
• INTERMEDIATE INPUT
• CAPITAL FORMATION
COLLECTING DATA

• SELF FILLED
  • CAWI → SEND LINK TO RESPONDENTS
  • PAPI
DASHBOARD MONITORING SURVEY

• MONITORING PROGRESS
• INTERACTIVE SUPERVISING
BIG DATA AS INSIGHT
GOOGLE MOBILITY DASHBOARD

DATE
15/02/2020  31/05/2022

REGION
Nasional

RESIDENTIAL VS WORKPLACES
Workplaces  Residential

GROCERIES & PHARMACY

PARKS

RETAIL & RECREATION

TRANSIT STATION

Terima Kasih!