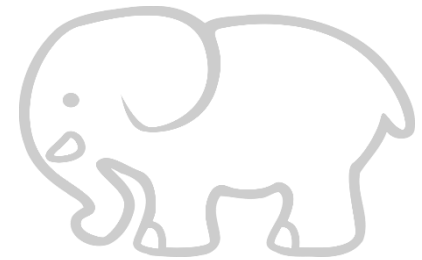




Pilot study report



Global Dialogue on Ocean Accounting
November 12-15 2019

Thailand



Global Ocean
Accounts Partnership



System of
Environmental
Economic
Accounting



1. The policy context for the pilot

Objective of Environmentally-Friendly Growth in the 12th National Economic and Social Development Plan (2017-2021)



National Concerns related to ocean

- To conserve, restore as well use natural resources sustainably and fairly;
- To build national water security and to manage the entire water resources system efficiently;
- To manage the environment and reduce pollution to achieve better environmental quality;
- To improve the capacity for greenhouse gas reduction and adaptation. To lessen the impacts from climate change, and improve the response to natural disasters.

- Unsustainable coastal development
- Unsustainable tourism and over-tourism/ carrying capacity
- Conflicting policies of infrastructure and tourism development versus artisanal fisheries and local ways of life.
- Develop coastal areas while taking into consideration environmental impacts and long-term sustainability
- IUU Fishing
- Loss of marine resources and coastal erosion
- Loss of marine ecosystems and biodiversity
- Marine pollution, eutrophication and marine debris



1. The policy context for the pilot

- SDG 14 Stakeholders

The Department of Marine and Coastal Resources (DMCR) and the Department of Fisheries (DoF) are the co-custodians for SDG 14 indicators by implementing through an interagency working group.



- Priorities of policy related to Marine and Coast

- Establishment of an up-to-date vessel database “Fishing Info”; E-license scheme and fishing day scheme based on Maximum Sustainable Yield (MSY)
- Restrict the improper use of tourism destinations. Develop environmental management systems in tourism sites, including solid waste and wastewater treatment facilities. Limit the numbers of tourists in any destination depending upon the vulnerability of such ecosystems.
- Declaration of marine and coastal conserved and reserved areas, and adopt of marine spatial planning as an integral part of marine and coastal zone management
- Conduct researches about waste management in coastal provinces. Implement a monitoring program for water quality and eutrophication
- Develop the ocean acidification observing network in the region in close cooperation with the Global Ocean Acidification-Observation Network (GOA-ON)

2. Scoping the pilot

- The reason for choosing the pilot focus



Tourism
Sustainability



Marine Protected
Areas &
Marine Ecosystem-
Based Management



Source THAILAND: THE IMPACT OF TOURISM IS NOT ONLY POSITIVE, James Morris, Dec 18, 2017

3. Pilot design

• Main considerations for design of the pilot

• Stakeholder requirements

Need data for tourism sustainability for planning and management on over-tourism/carrying capacity including effect to environment and marine protected area.

• Research question

- How to measuring the sustainable tourism by linking information from SEEA and Tourism Satellite Accounts (TSA) frameworks?
- Mapping land cover, tourism and ecosystem information to identify tourism potentials and risk areas and sites for conservation

• Data sources

- Tourism Satellite Accounts (TSA) and I/O tables in the Andaman Tourism Development Cluster
- Research on SEEA-Blue economy from The National Center for Genetic Engineering and Biotechnology (BIOTEC)
- Official statistics, Geo Spatial data including land use data form related agencies

• Analytical outputs:

- 4 core accounts: water, energy, solid waste and GHG emission accounts
- Map views to identify tourism potentials and risk areas and sites for conservation

3. Pilot design

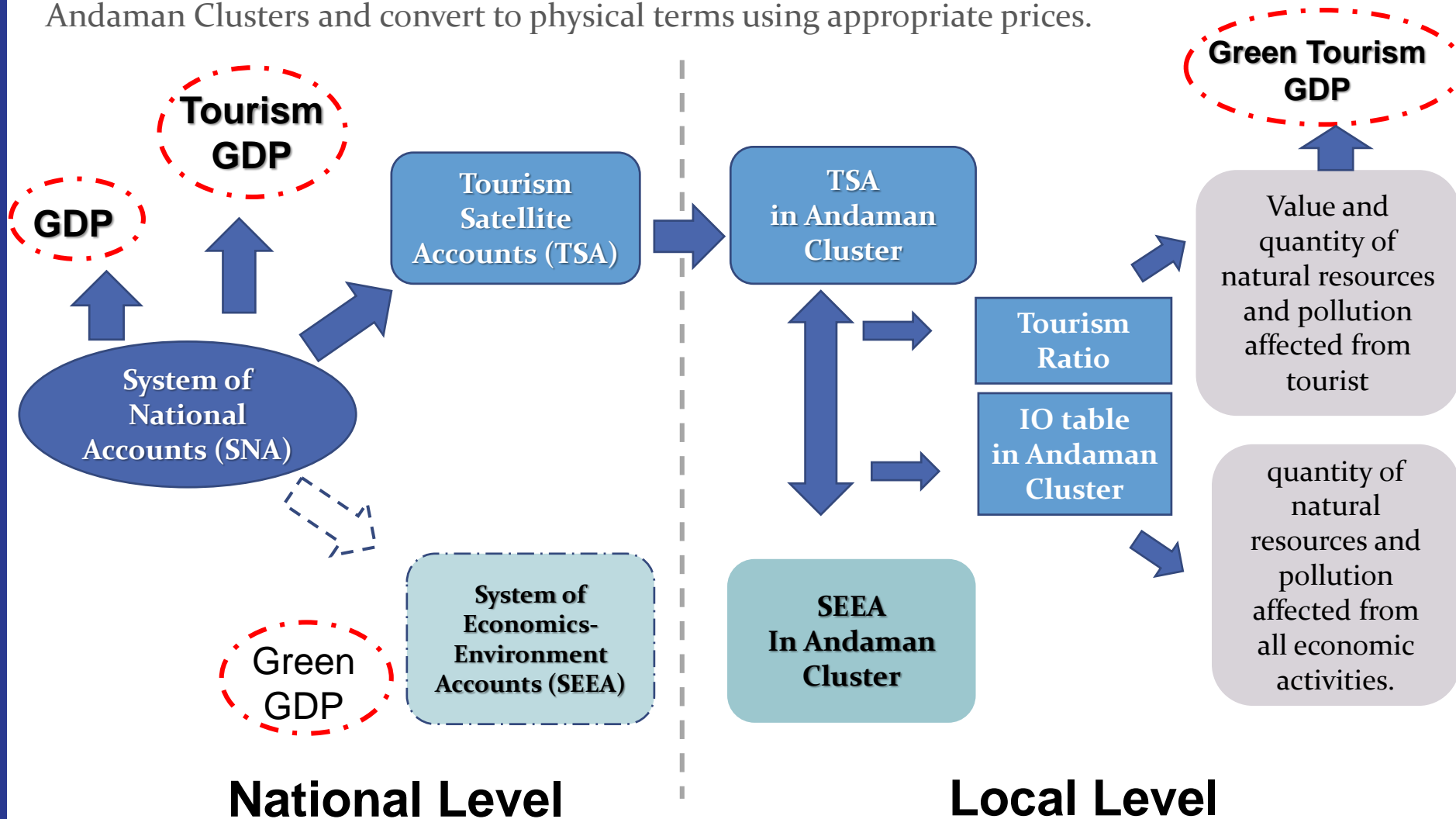
- Reference year: 2016
- Activities undertaken in implementing the pilot

Set up SEEA working group as core of national SEEA implementation:

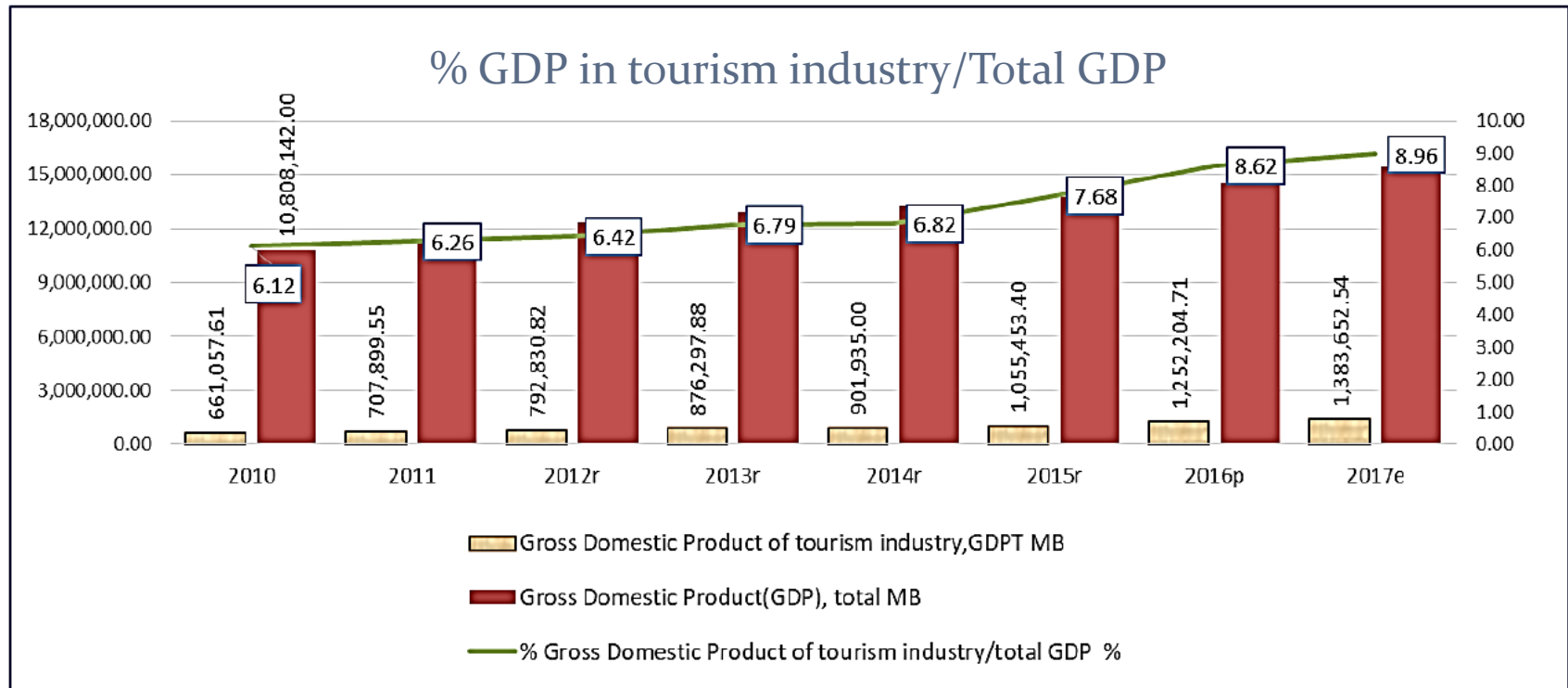
 - 1st workshop meeting to select the issue for pilot country study
 - Meeting with policy level of MOTS to select the specific point and area for pilot study
 - Technical workshop meeting to review methodology, data and first draft of accounts
 - 2nd workshop meeting to review result and feedback
- Data collection
 - Mostly using secondary data from official statistics, and geo spatial data
 - Interview officers, collect data, and receive policy recommendations from local related agencies in Andaman province such as City Municipality, Regional Environment Office, Provincial Waterworks Authority, Provincial Electricity Authority, environmentally-conscious accommodation services, Kho Lanta Tourism Association, Strategy for Province Development Group, Aonang municipality, etc.
- Mapping
 - Create base map of number and density in grid cell (capita/km²) estimation of people in 5 provinces by using number of population projection, land use, boundary of administrative areas, number of tourists, num of accommodation rooms, etc.
 - Overlay other related data such as number of tourist in national park, fishery area, ports, waste treatment sites, coral reef, seagrasses, mangroves, etc

Methodology

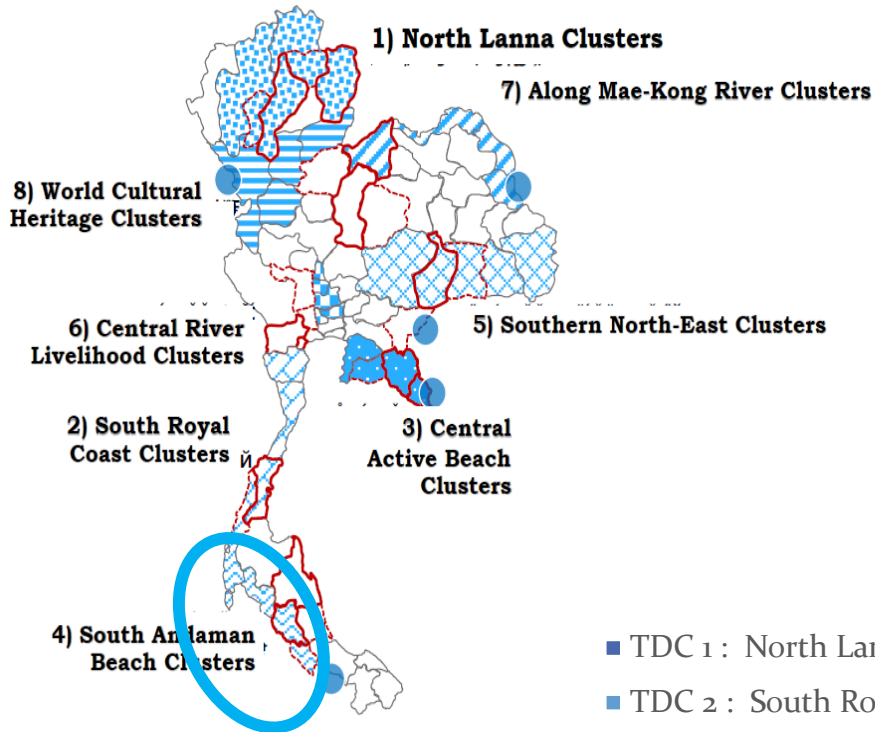
Analysis, accounting, valuation by using TSA estimation methods from I/O tables in TSA Andaman Clusters and convert to physical terms using appropriate prices.



Introduction of Tourism Industry in Thailand



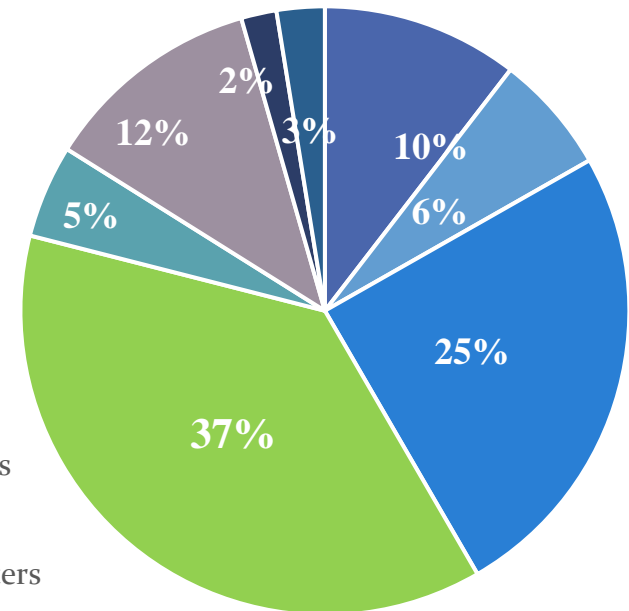
In Thailand, the tourism industry is of great economic significance when compared to most countries in the region. Gross Domestic Product of tourism industry accounted for 8.96% of Thailand's GDP in 2017.



Polit study area

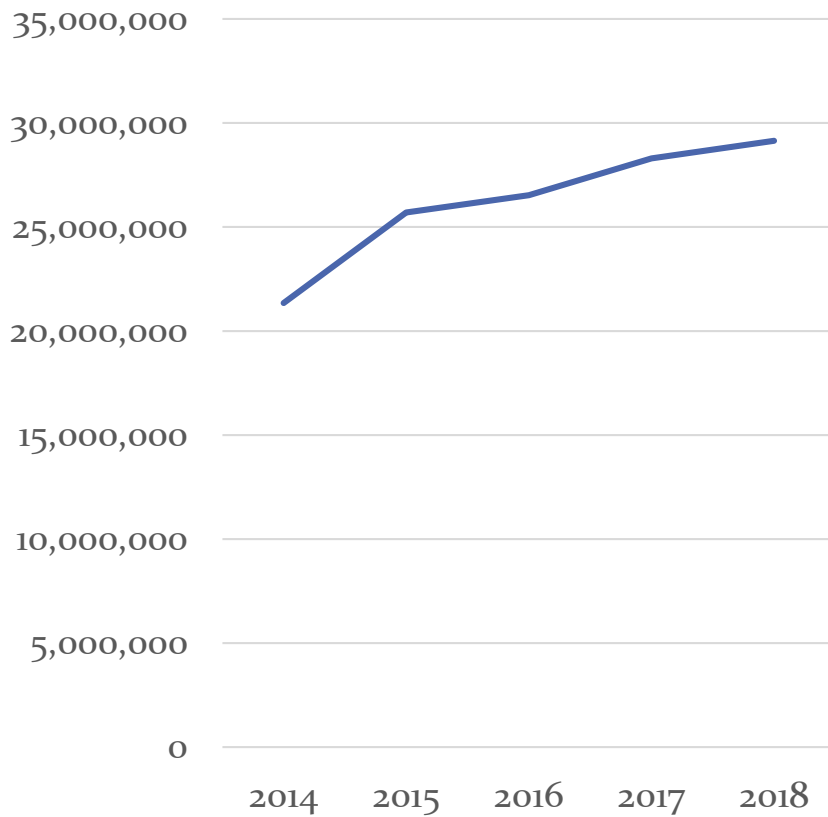
- TDC 1 : North Lanna Clusters
- TDC 2 : South Royal Coast Clusters
- TDC 3 : Central Active Beach Clusters
- TDC 4 : South Andaman Beach Clusters
- TDC 5 : Southern North-East Clusters
- TDC 6 : Central River Livelihood Clusters
- TDC 7 : Along Mae-Kong River Cluster
- TDC 8 : World Cultural Heritage Clusters

Value Added (%) of Tourism Industries in 8 Tourism Development Cluster (TDC), 2016

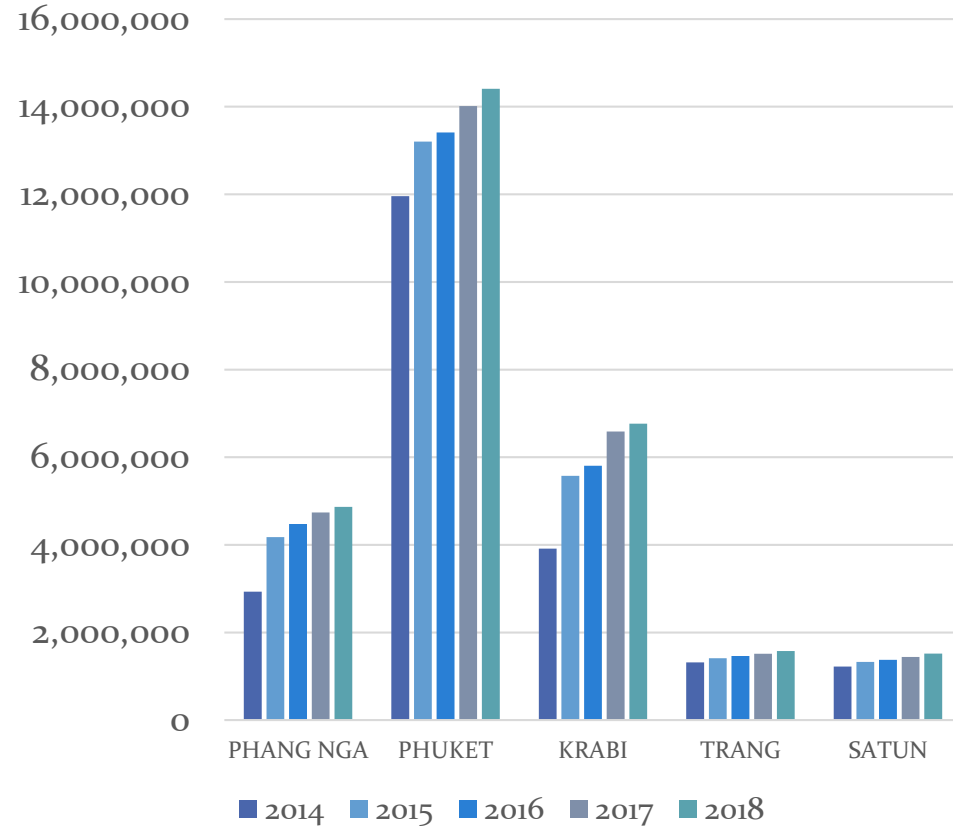




Number of tourists in Andaman cluster, 2014-2018

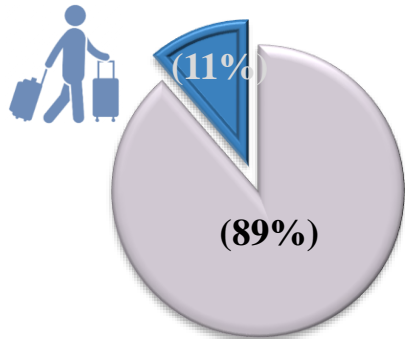


Number of visitors in Andaman Cluster, by provinces, 2014-2018



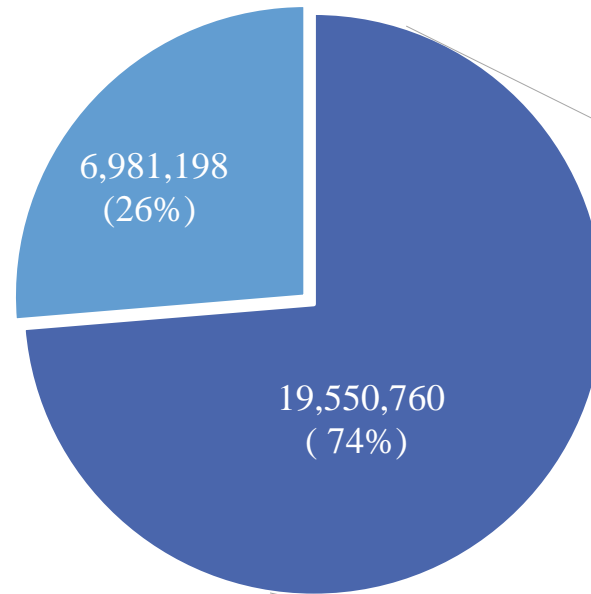
Source : Ministry of Tourism and Sports

% of Population and visitors/day
in Andaman Cluster, 2016



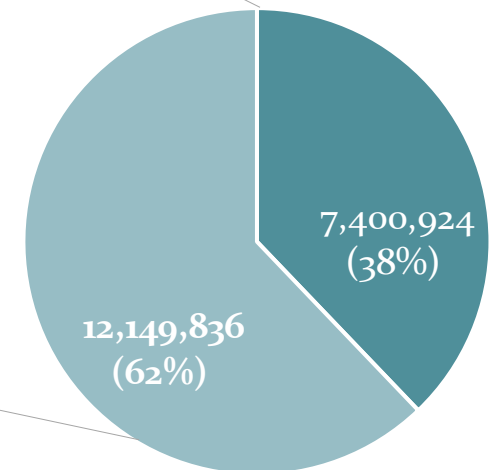
- Num of population per day
- Num of visitor per day

Visitors in Andaman, 2016



- Tourist
- Excursionist

Tourist



- Domestic
- Inbound



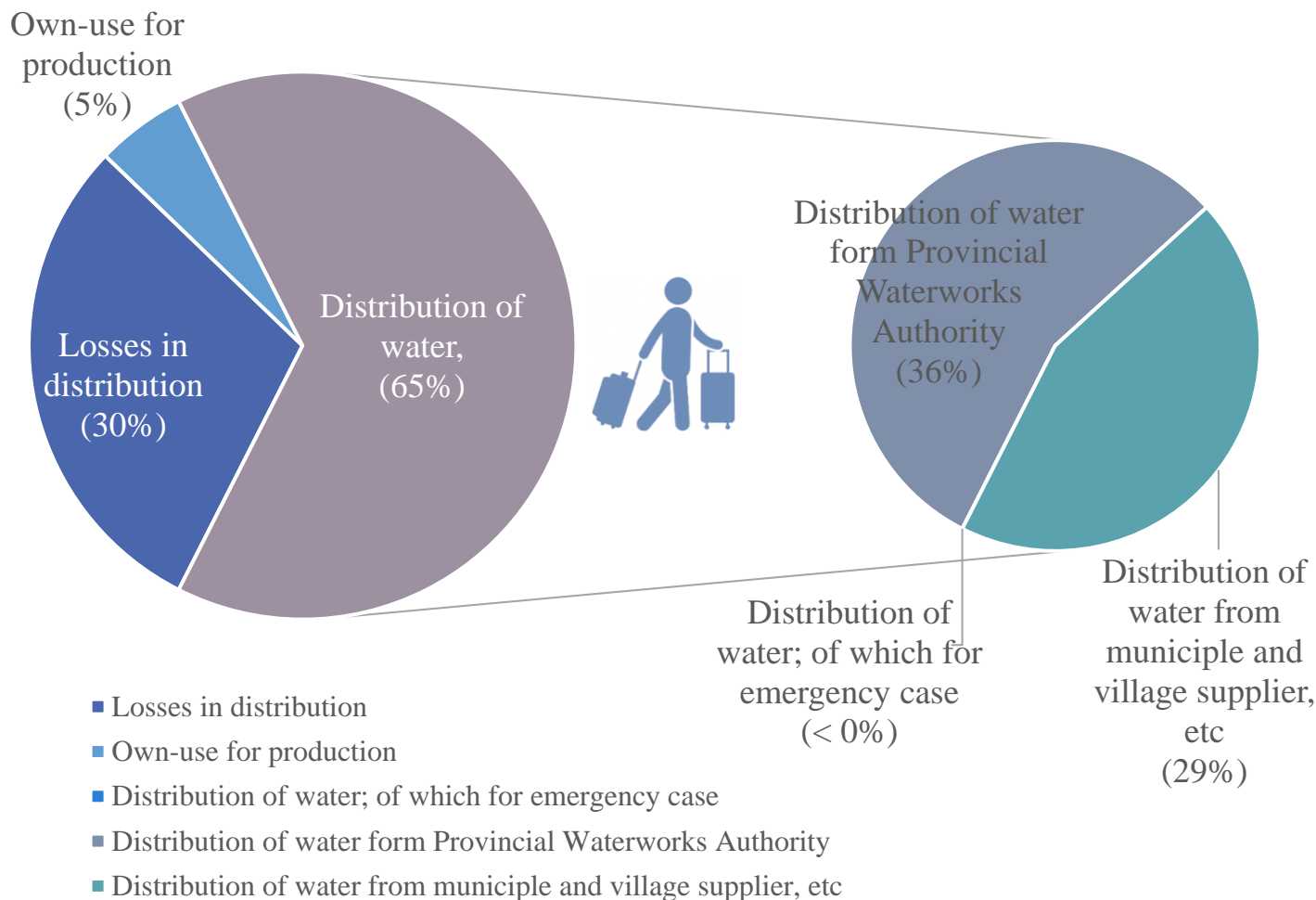
water

Majors Research findings



5. Pilot results

% Water supply in Andaman Cluster, 2016

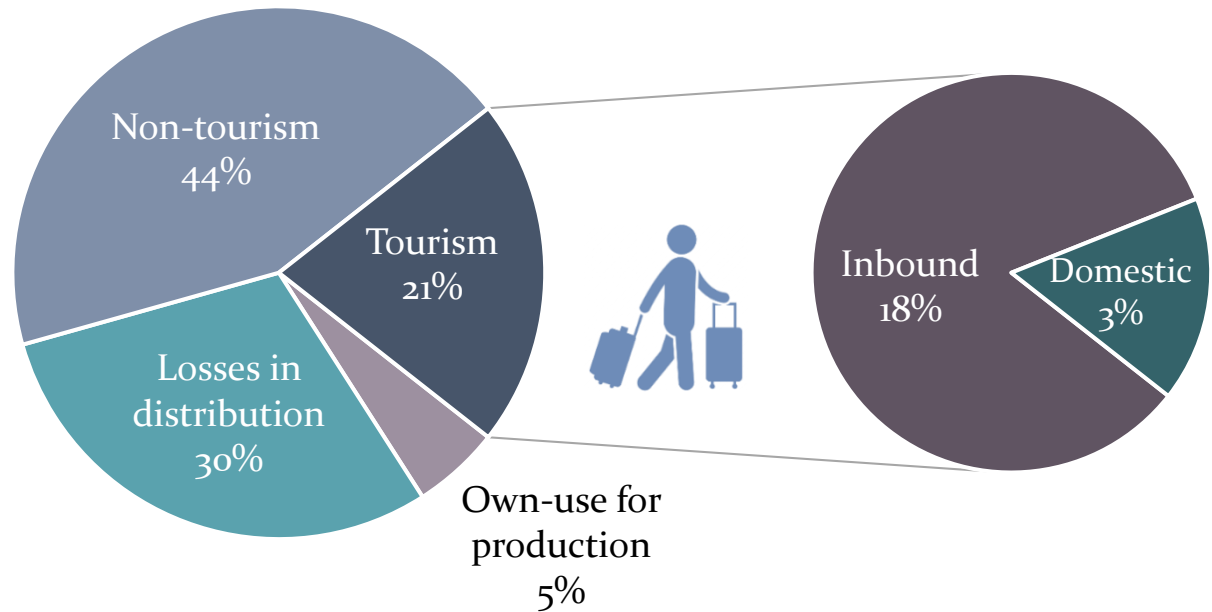


5. Pilot results

Water



% of Water uses in Andaman Cluster, 2016



- Own-use for production
- Losses in distribution
- Non-tourism (including final consumption)
- Inbound
- Domestic



waste

Majors Research findings



Source: Hate Waste, Ministry of Natural Resources and Environment (MONRE)

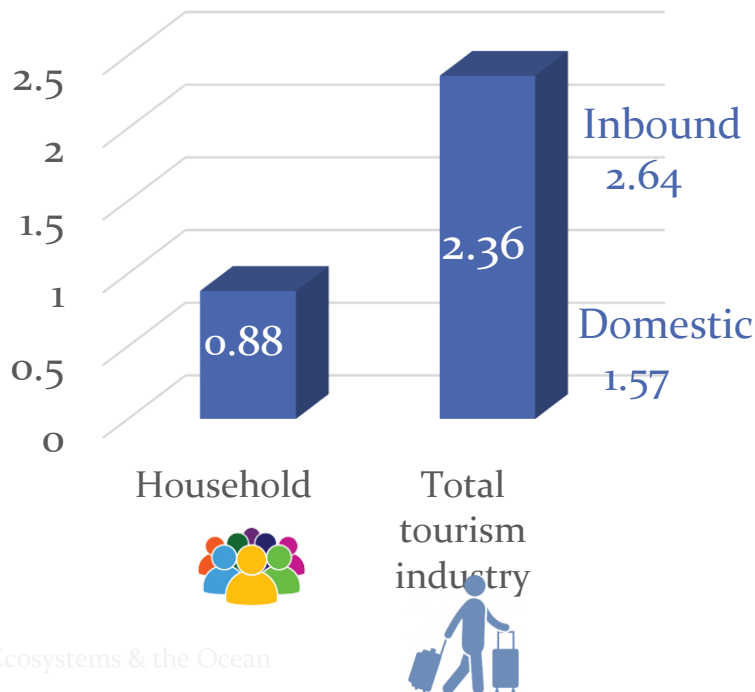
5. Pilot results



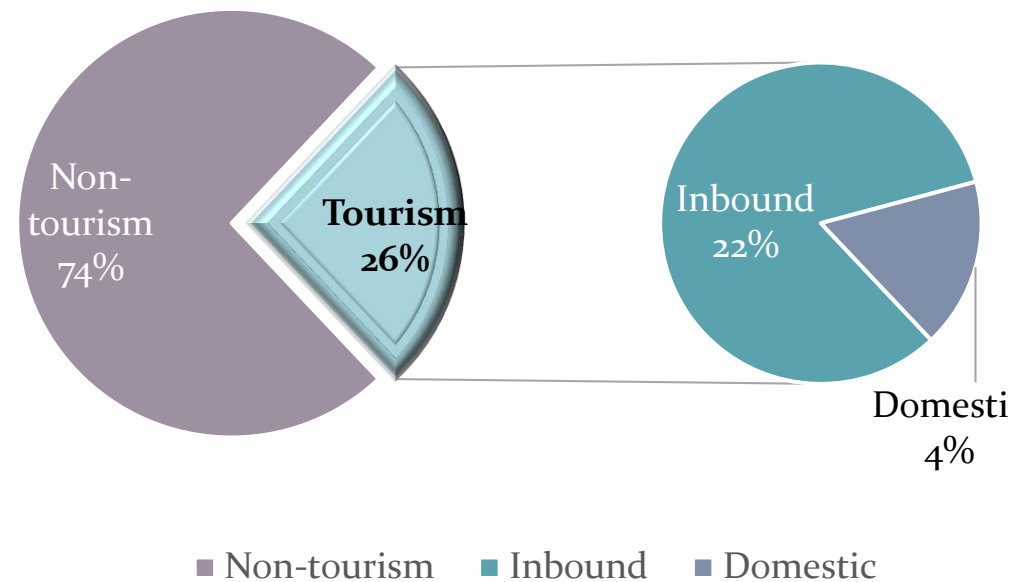
Waste Total Generation of solid waste residuals = 971,385 tons/year

- **Supply**

Generation of solid waste residual rate (kgs/capita/day)



Generation of solid waste (tons/year), Andaman Cluster, 2016



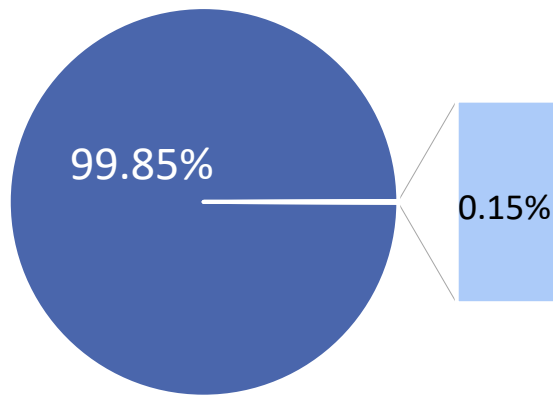
5. Pilot results



Waste Total Generation of solid waste residuals = 971,385 tons/year

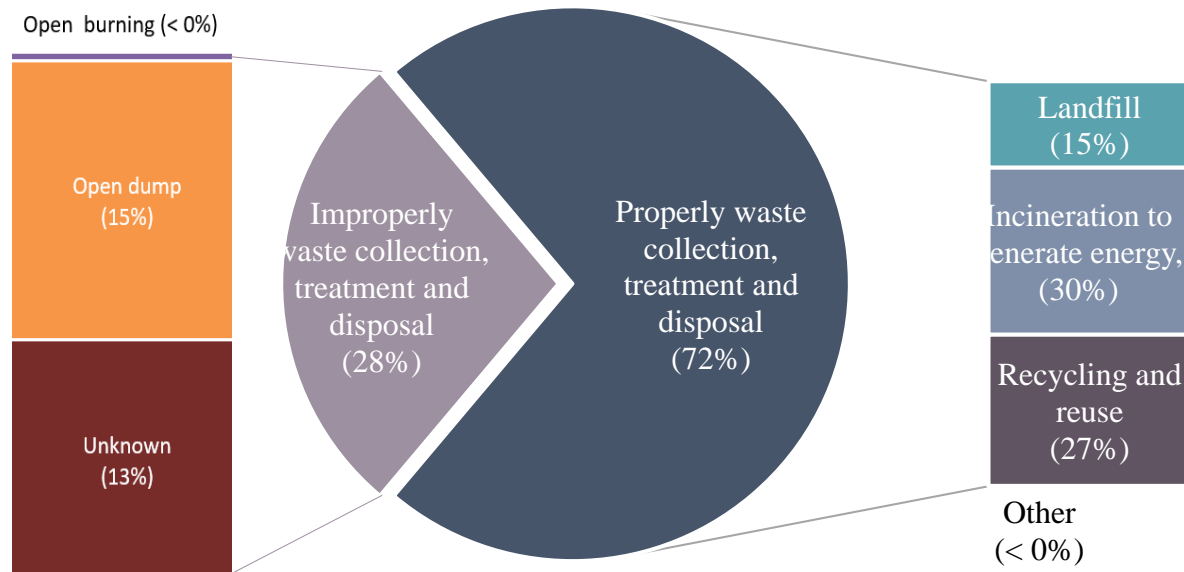
• Use

% of solid waste collection, treatment and disposal, in Andaman Cluster, 2016



- Waste collection, treatment and disposal
- Flows to the environment

% of Properly and improperly waste collection, treatment and disposal in Andaman Cluster, 2016





energy

Majors Research findings

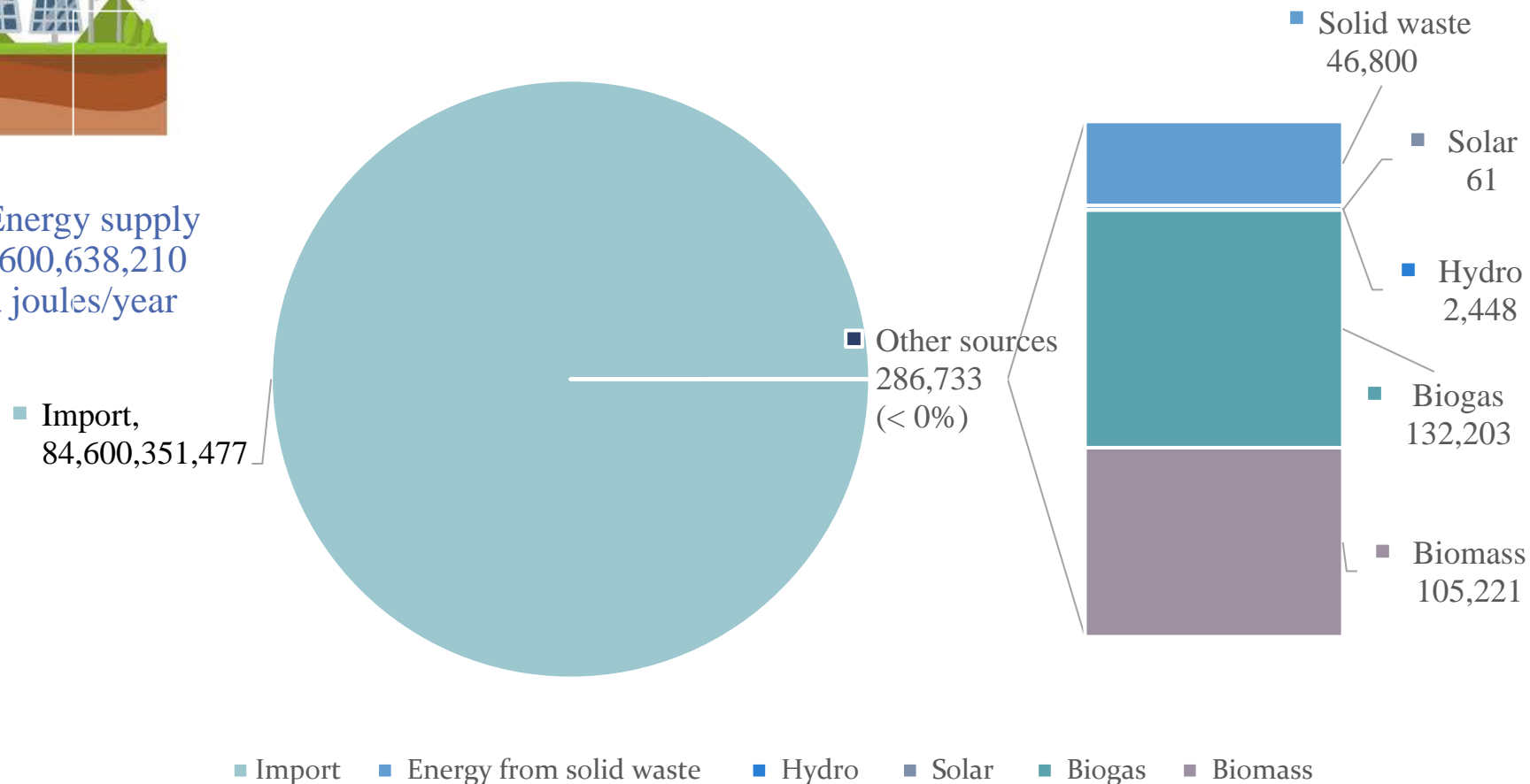


5. Pilot results

% of Energy Supply in Andaman Cluster, by energy sources, 2016, unit: mega joules



Total Energy supply = 84,600,638,210 mega joules/year

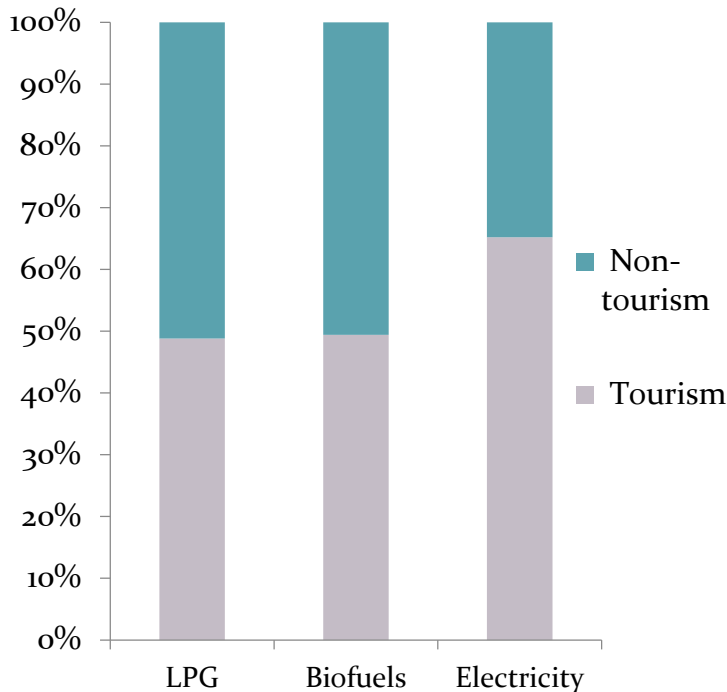


5. Pilot results

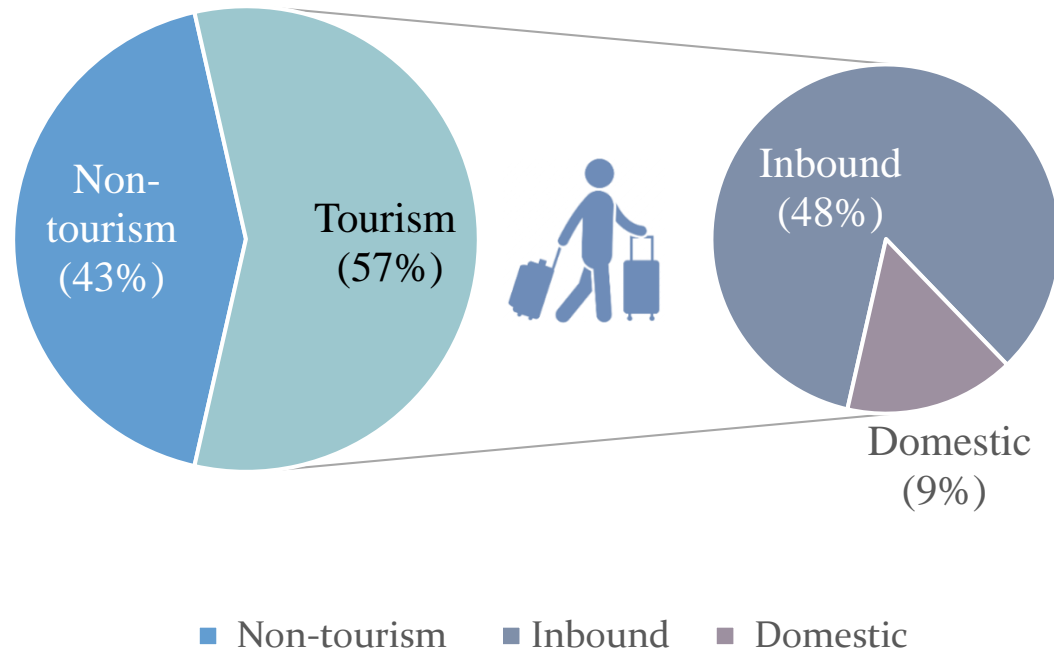


Total Energy Use= 84,600,685,009.6 Mega joules/year

% of Energy Uses in Andaman Cluster, by energy products, 2016



% of Energy Uses in Andaman Cluster, by tourism and non-tourism industry, 2016





Majors Research findings

GHG

Emission



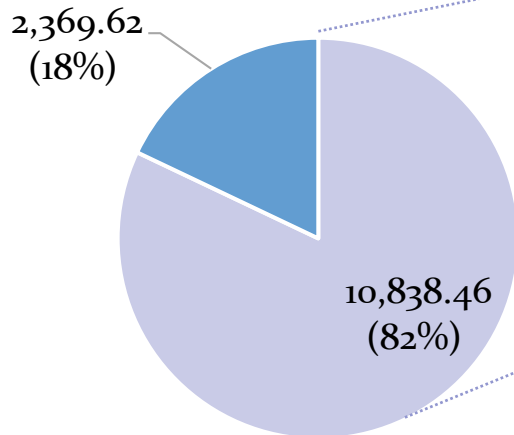
5. Pilot results



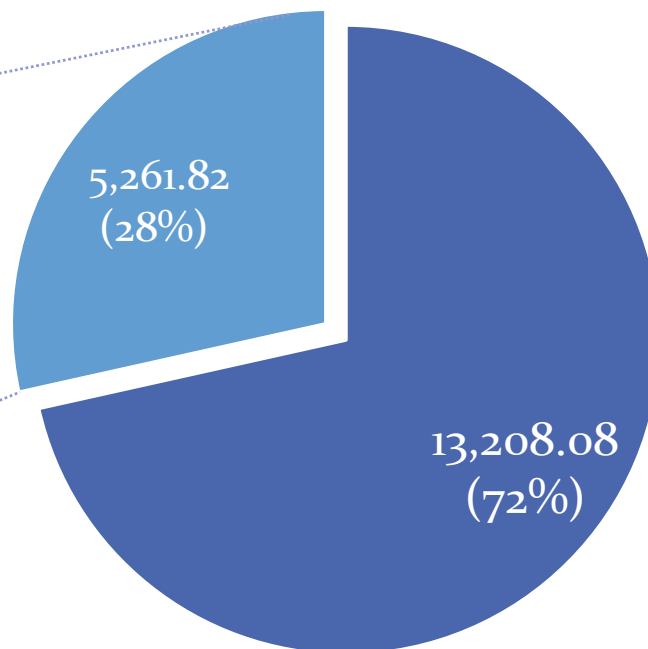
Total GHG Emission = 18,469.90 1000T CO₂eq

Total GHG Emission 1,000 T CO₂eq, classified by tourism and non-tourism industry

GHG Emission
1,000 T CO₂eq in tourism industry



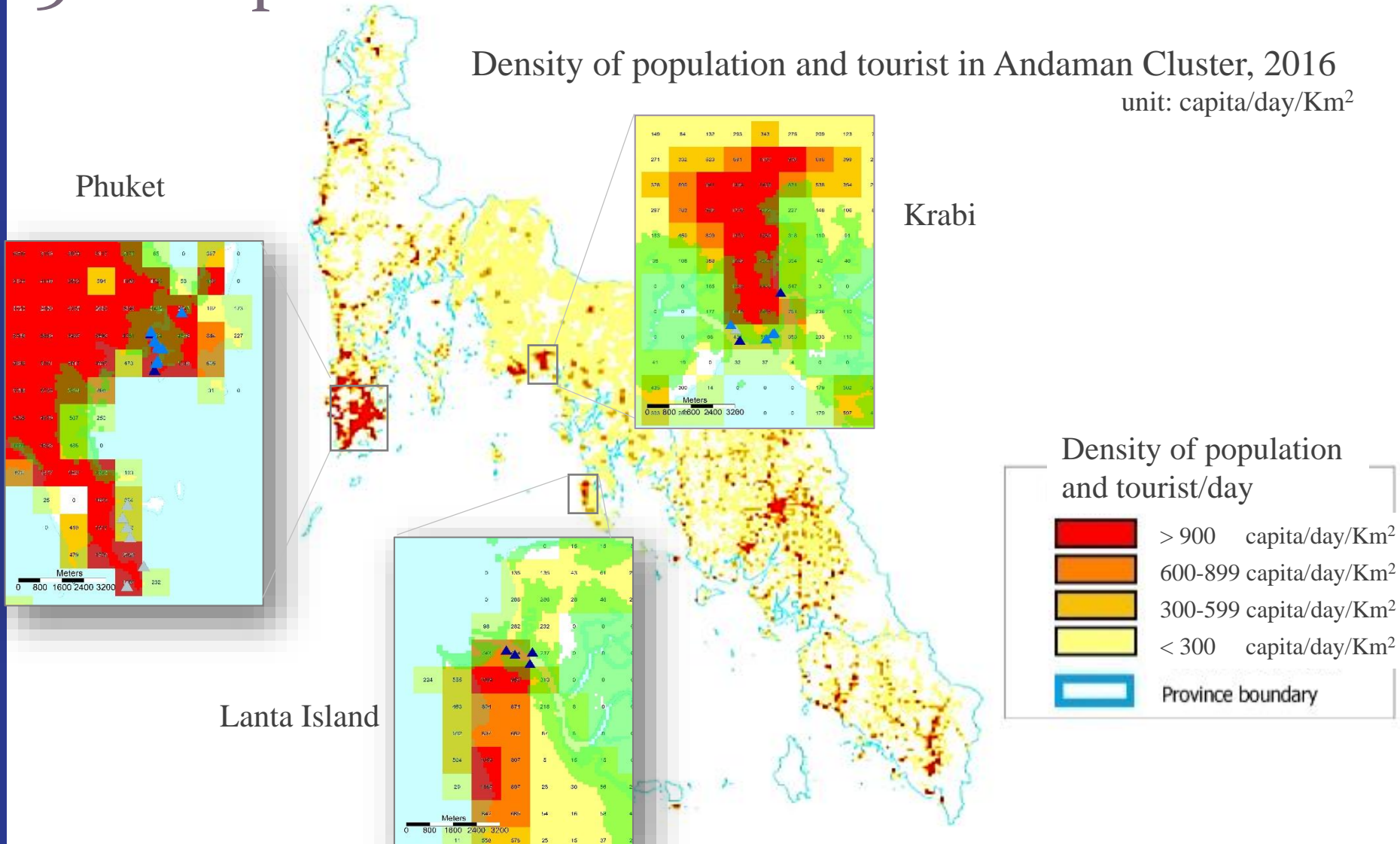
- Inbound
- Domestic



- Tourism
- Non Tourism

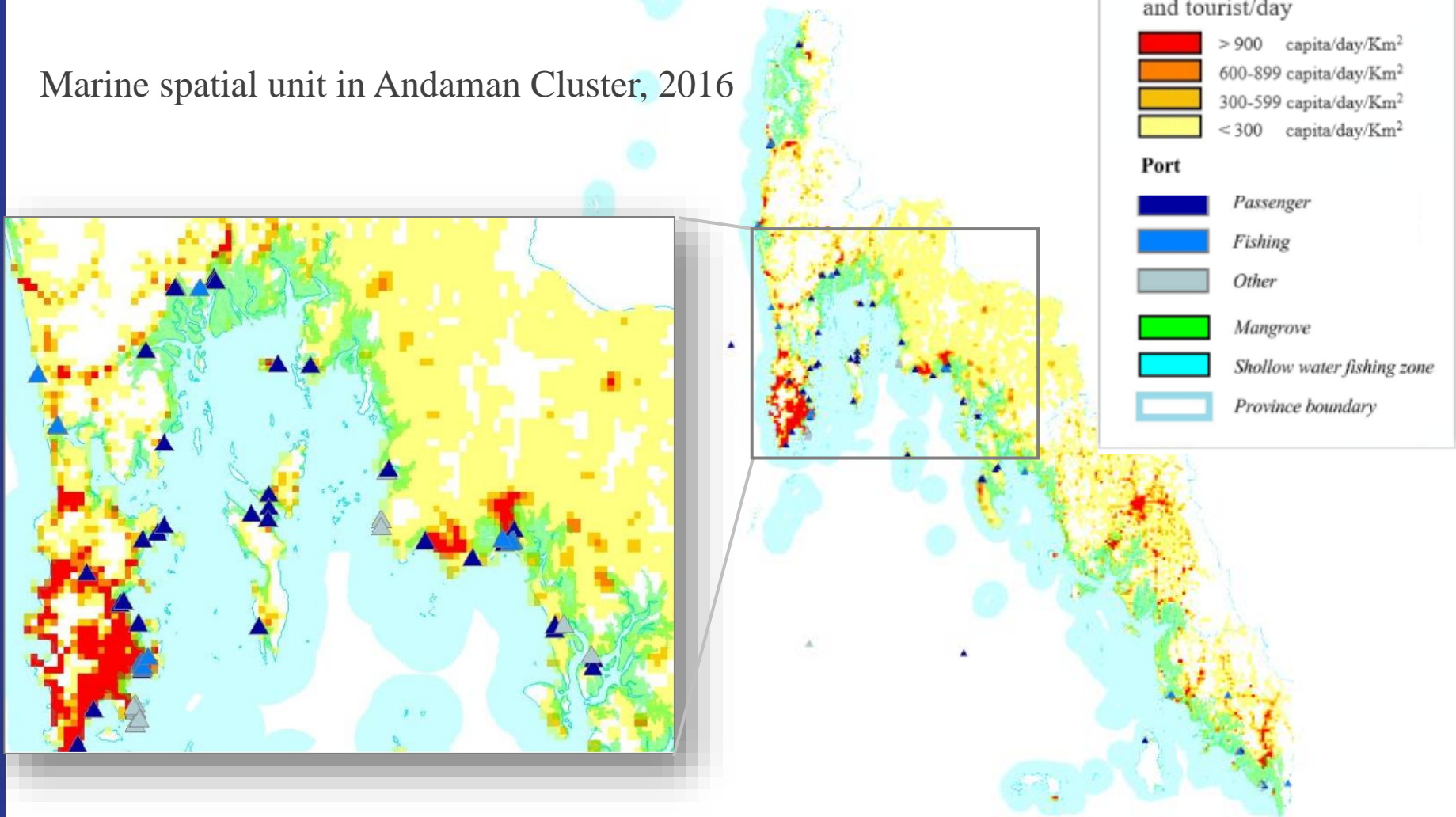
5. Map Pilot results

Density of population and tourist in Andaman Cluster, 2016
unit: capita/day/Km²



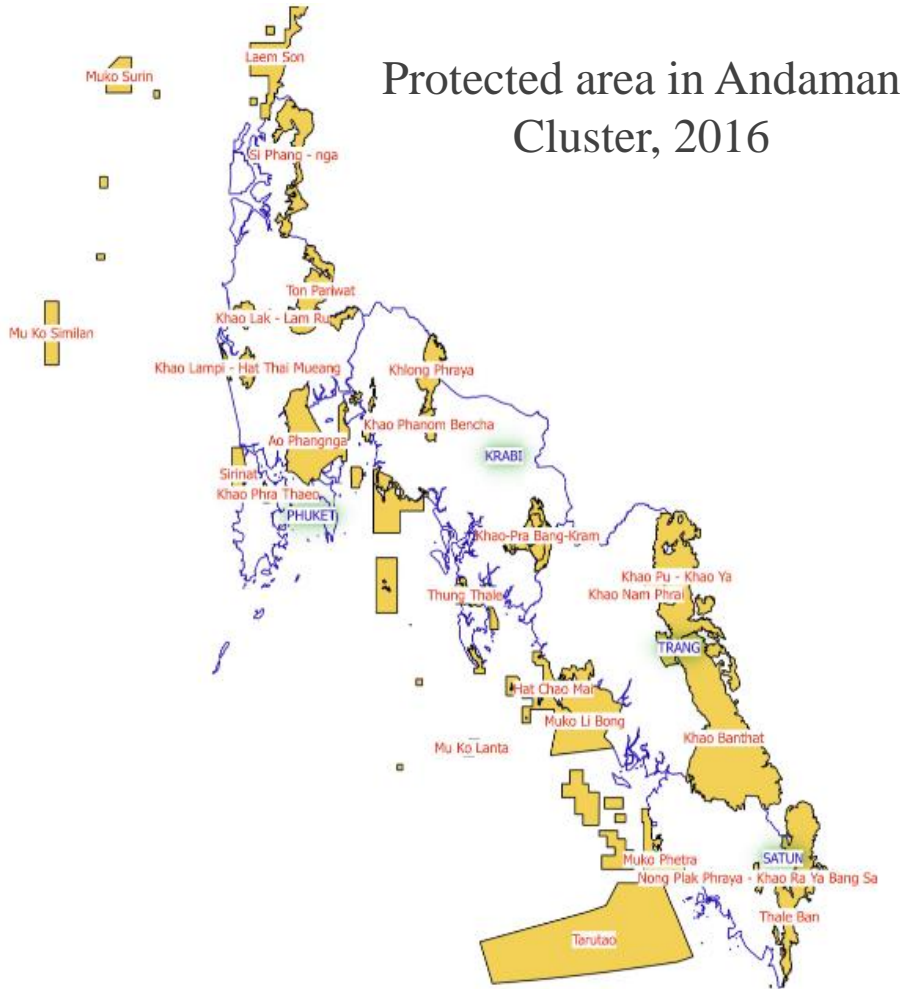
5. Map Pilot results

Marine spatial unit in Andaman Cluster, 2016

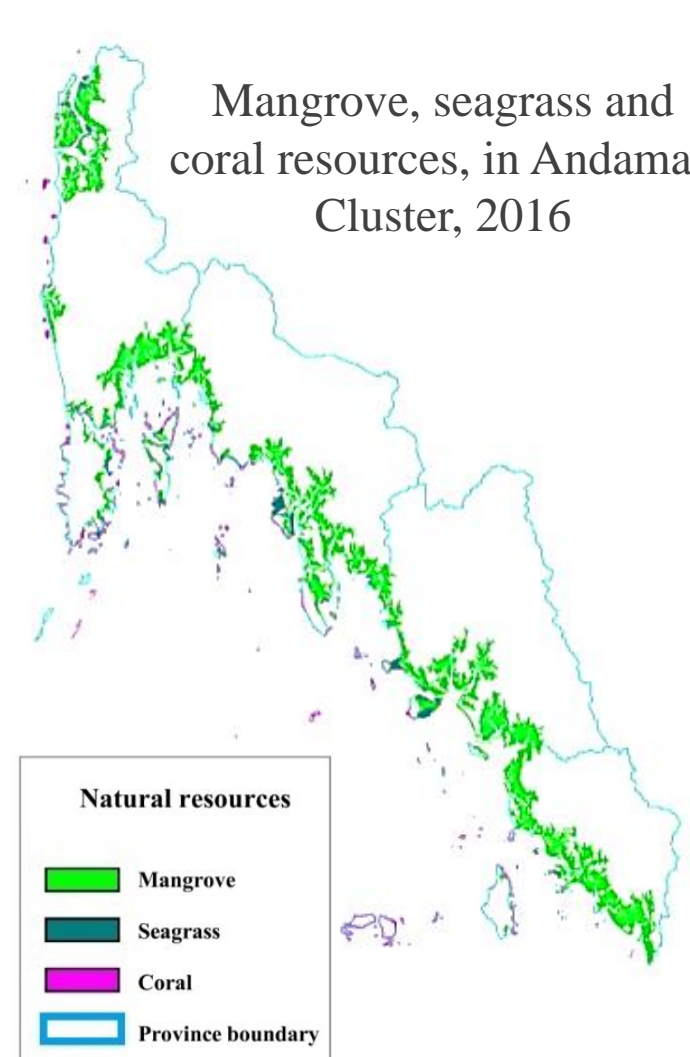


5. Map Pilot results

Protected area in Andaman Cluster, 2016

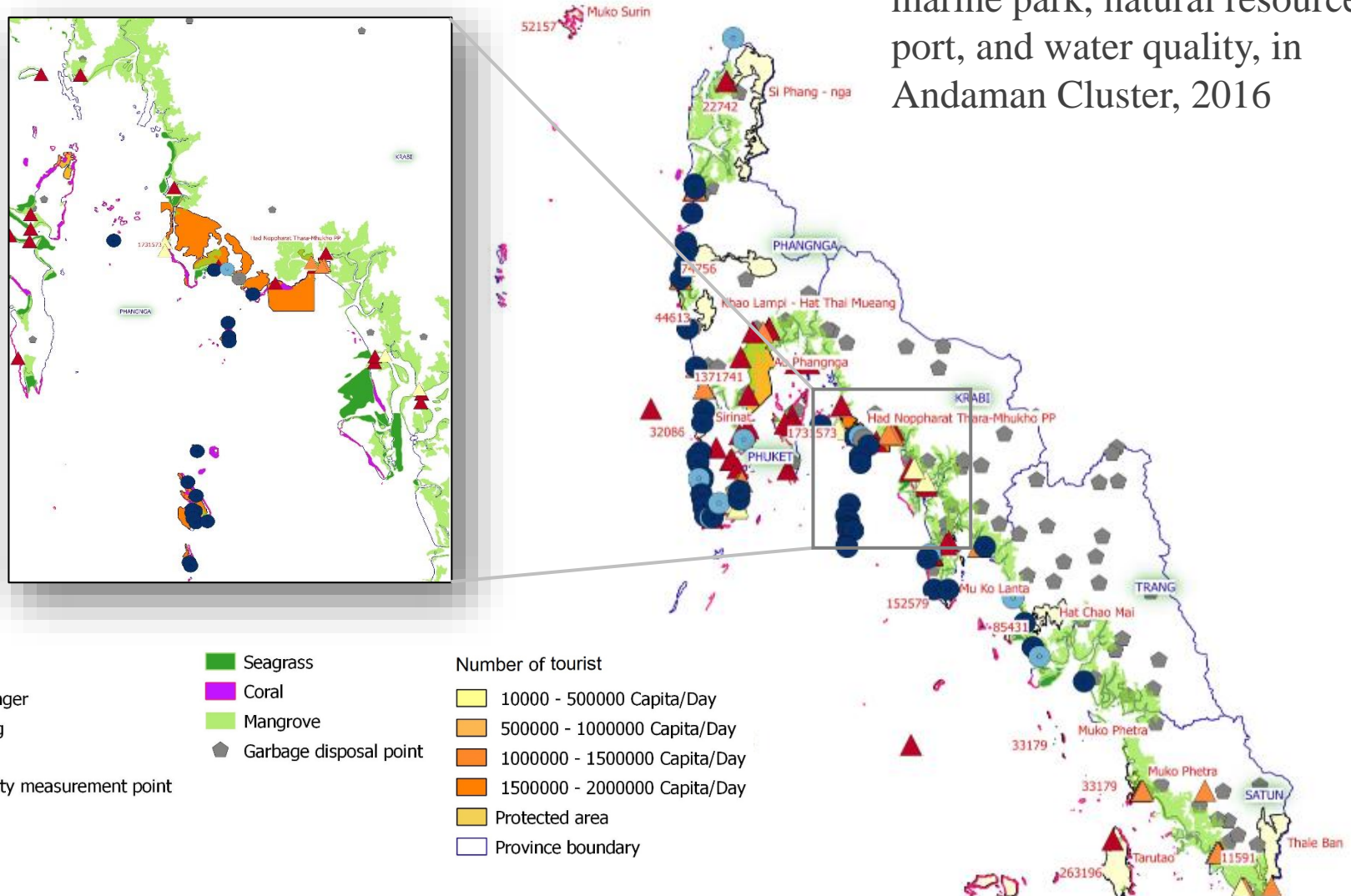


Mangrove, seagrass and coral resources, in Andaman Cluster, 2016



5. Map Pilot results

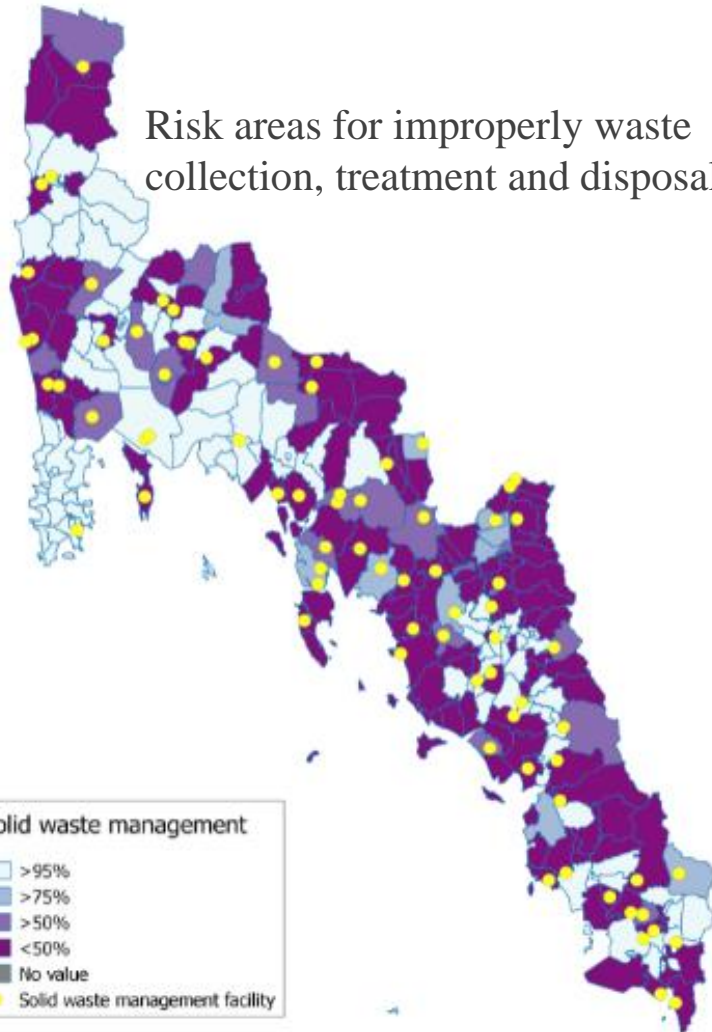
Number of tourist in national marine park, natural resources, port, and water quality, in Andaman Cluster, 2016



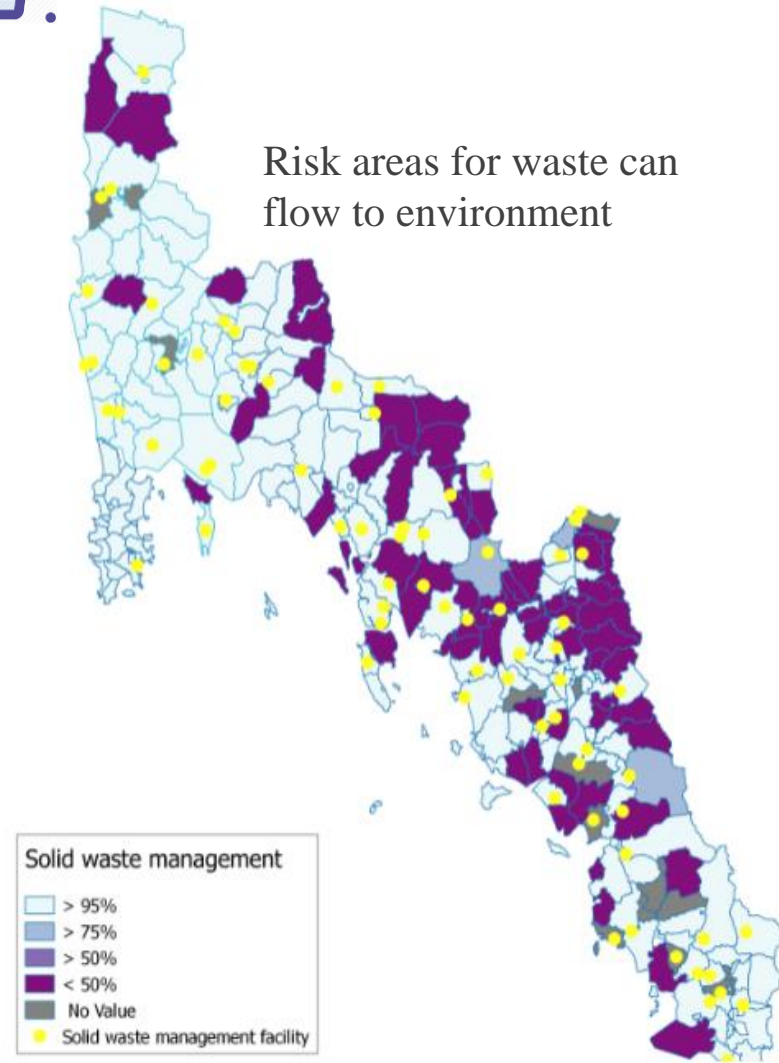
5. Map Pilot results



Risk areas for improperly waste collection, treatment and disposal






Risk areas for waste can flow to environment

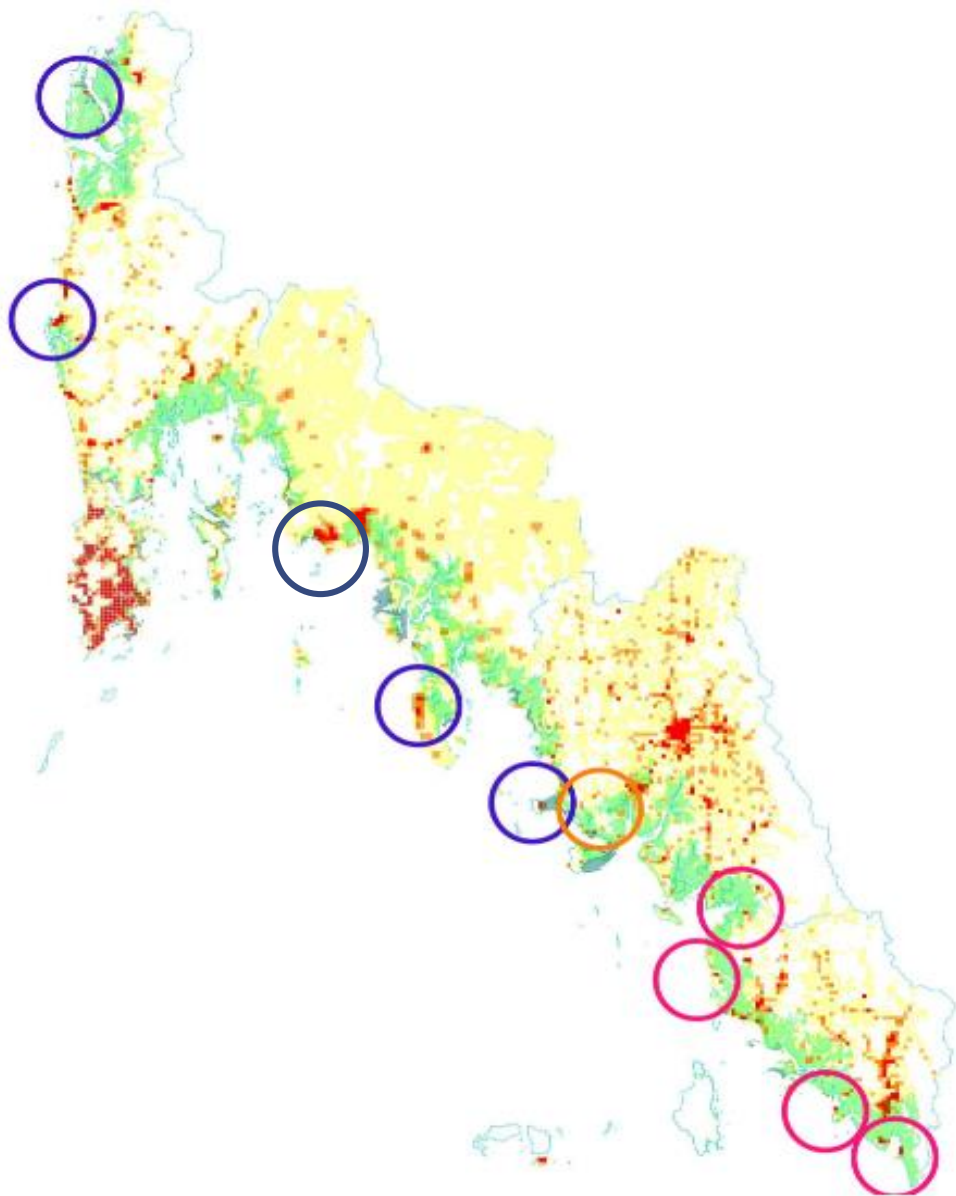


5. Map Pilot results

Risk areas of over carry capacity tourism, in Andaman Cluster, 2016

Risk area ranking criteria

- 
 Density of population > 900 capita / Km2 and properly waste collection, treatment and disposal < 50% and 3 types of natural resource
- 
 Density of population > 900 capita / Km2 and properly waste collection, treatment and disposal < 50% and 2 types of natural resource
- 
 Density of population > 900 capita / Km2 and properly waste collection, treatment and disposal < 50% and 1 types of natural resource



6. Main challenges and needs

• Data

- Data and statistics still separated (silo) based on agency missions
- Limitation: due to this project has worked as research by linkage between TSA-SEEA accounts using TSA estimation methods from I/O tables in TSA Andaman Clusters and convert to physical terms using appropriate prices.
 - Value can be calculated in market output from I/O table but in non-market output need to find out more data such as water for agricultural sector, free water for charity, etc
 - Some of data should conduct specific survey such as waste account for waste generation

• Institutional (such as data sharing)

- Need to work more in data sharing forum by using, the national level, key institutional cooperation mechanisms for driving SDG 14 implementation (on policy and roadmap) and the Sub-Committee on Natural Resources and Environment Statistics (on data and statistics)

• International collaboration

- Need advocacy on important of SEEA, rather focus only SNA, for policy maker in global dialogue and mainstream to national and local dialogue
- Also need SEEA-CF, SEEA-EEA and other SEEA account training or pilot project among countries.
- International organization related to SDG14 indicators should be set up as community to shared tools, software, methodology, data including technical assistance to be guidance and knowledge sharing for countries for their own implementation

7. Next steps for ocean accounts or policy

- Marine Protected Areas & Marine Ecosystem-Based Management
- Marine spatial planning (MSP)
- Ocean Health Index
- Blue Economy Initiatives
- Develop code of practice, regulation, or laws for Eco-Tourism among related agencies to be a means of implementation in sustainable tourism development
- Central government needs to work with local agencies closely to drive Eco-Tourism strategies plan and should have forum to participate among multi-related domain stakeholders such as municipality, tourism sector, water sector, energy sector, waste sector, etc.
- Guideline for environmental impact assessment especially from emissions, e.g. eutrophication, toxicity, acidification, global warming potential, etc. to help people in both local and central level better understanding effects on their livelihoods. This could promote local and central authorities to invest more in data collecting and monitoring, assessing impacts and implementing measures to reduce impacts in sustainable manner. Moreover, it could gain coordination from local people to provide more accuracy and useful data to improve impact assessment.
- National data gap analysis for SDG 14 indicators



Thank you!