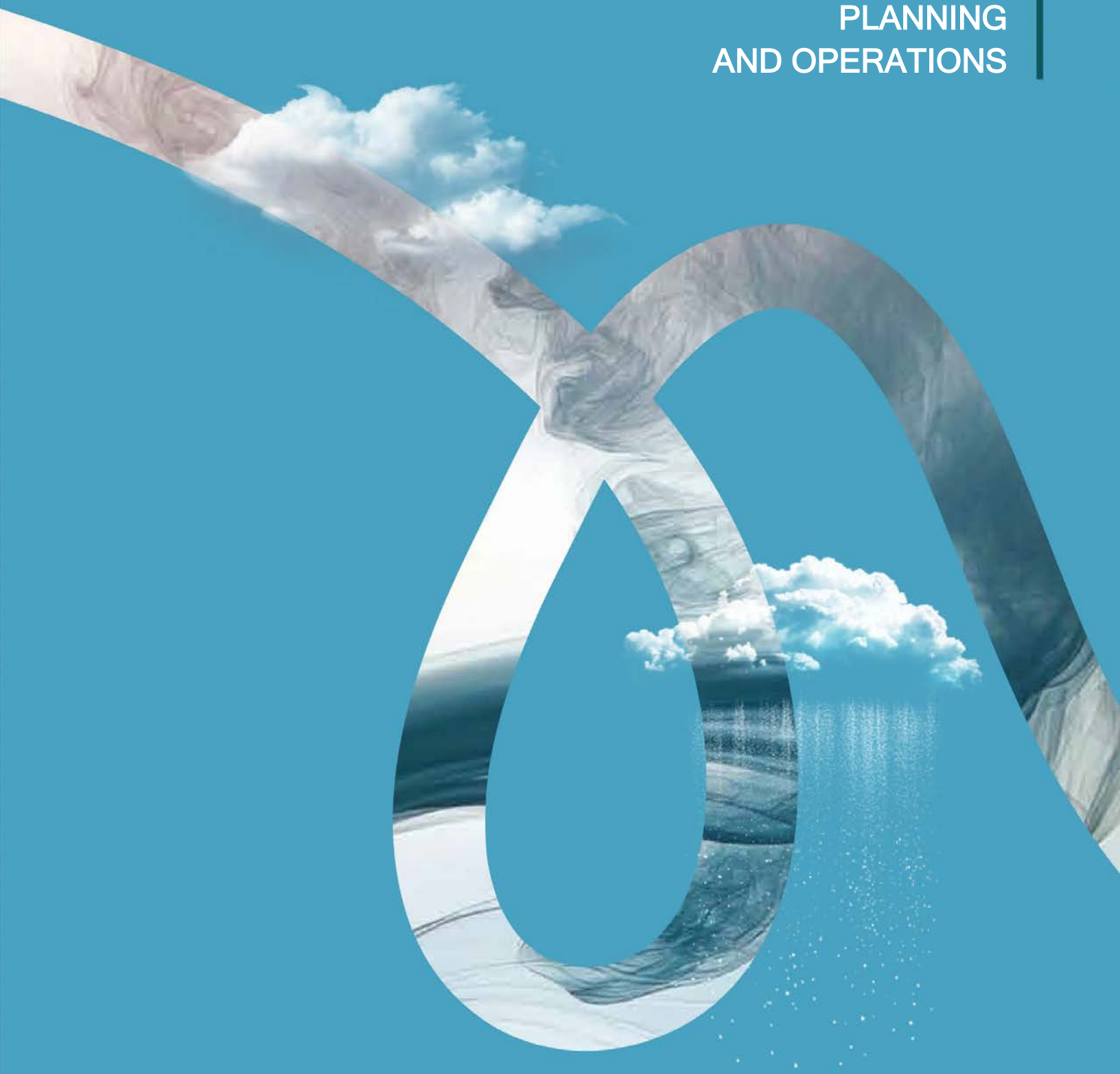
COMPONENT 2

INTEGRATION OF NATURAL CAPITAL ACCOUNTING INTO LOCAL DEVELOPMENT PLANNING AND OPERATIONS



THE INTEGRATION OF NATURAL CAPITAL ACCOUNTING IN PUBLIC AND PRIVATE SECTOR POLICY AND DECISION-MAKING FOR SUSTAINABLE LANDSCAPES

NATURAL CAPITAL

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COMPONENT 2

INTEGRATION OF NATURAL CAPITAL ACCOUNTING INTO LOCAL DEVELOPMENT PLANNING AND OPERATIONS

OUTPUT 2.2.1

ANNUALLY INTEGRATE THE PROVINCIAL NCAS FOR THE TOURISM SECTOR AND WATER RESOURCES IN KRABI PROVINCE INTO THE NATIONAL TSA AND WRSA

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Executive Summary

This report presents the integration of the Water Resources Satellite Account (WRSA) for Krabi Province, which serves as the foundation for the Natural Capital Account (NCA), with the Tourism Satellite Account for Krabi Province (TSA Krabi) based on the TSA–SEEA Technical Note. Building upon the provincial TSA framework adapted from Thailand's national Tourism Satellite Account, the study demonstrates how water resource information can be incorporated into tourism accounts to better understand the relationship between tourism activities and natural resource use. The analysis covers the period 2015–2021 and distinguishes between the dry and wet seasons, illustrating patterns of water use across different economic sectors, with particular emphasis on the tourism sector. By linking tourism statistics with water resource accounts, the study provides a practical framework for integrating natural capital information into provincial tourism accounts, strengthening the evidence base for sustainable tourism planning, water resource management, and informed policy decision-making.

Regarding the limitations in integrating the provincial Natural Capital Account (NCA) for water resource with the Water Resources Satellite Account (WRSA), although Thailand has established water resource accounting at the national level, it lacks continuity, consists only of physical data, and lacks economic valuation. This is compounded by data constraints regarding wastewater issues linking the provincial NCA for water resource with the WRSA—such as wastewater volumes and water quality monitoring results—which do not cover the province's entire area. Therefore, it is recommended to establish a comprehensive water quality monitoring database for water sources including rivers, canals, and reservoirs, as well as marine and coastal water quality, particularly in key tourist destinations within Krabi Province. This monitoring should be conducted continuously on an annual basis to enable the integration and systematic linkage between the provincial NCA for water resource and WRSA.

Content

Table

Developing procedures to incorporate water account for the tourism sector at provincial level

The integration of water resources and tourism at the provincial level presented in this report builds upon the methodologies developed in the report of the Output 1.2.5, *Opportunistically Integrate Emerging Natural Capital (NC) Information into the National Tourism Satellite Account (TSA)*, and the report of the Output 1.2.6, *Opportunistically Integrate Emerging Natural Capital (NC) Information into the National Water Resources Satellite Account (WRSA)*. Since the compilation procedures for the TSA are derived from the national accounting framework, applying the same methodology at the provincial level ensures consistency and facilitates comparisons between provincial and national accounts.

This report focuses on the integration of tourism and water accounts at the provincial level. Due to data limitations, the water account was compiled only for Krabi Province; therefore, only the integration component between the Tourism Satellite Account (TSA) and the Water Resources Satellite Account (WRSA) is presented.

Integrating the provincial NCA for water resources into the national WRSA

This section of the study involves synthesizing data on Krabi provincial NCA for water resources to integrate into the National Water Resources Satellite Account (WRSA). This process includes quantifying available natural water resources and tracking water consumption across various economic sectors. The data is collected annually, and the analysis explores the feasibility of integrating these metrics into the Natural Capital Account (NCA) for Krabi Province.

However, in practice, compiling the NCA requires foundational data from the WRSA—specifically regarding water supply and demand. This dependency creates an operational misalignment with the framework established in the project's Key Activities. To address this, the following sections outline the data linkage, analytical findings, limitations, and recommendations:

1.Data Linkage for the Krabi Province NCA

This study consolidates annual data to support the provincial NCA, focusing on:

1. The linkage of data related to the Water Resources Account of Krabi Province that is used in the Natural Capital Account (NCA) and is collected continuously on an annual basis includes:
    - Water Availability includes reservoir storage, small-scale water bodies, and surface water.
    - Water Allocation includes irrigation water and municipal water supply (piped water).
    - Self-Supplied Water includes water abstraction from deep groundwater wells and shallow wells.
    - Sectoral Water Demand includes annual household consumption, industrial activities, agriculture, and the service sector, with a specific focus on the tourism industry

2. Analysis of input data for the preparation of the Physical Water Resources Account, including water availability, water allocation, and self-supplied water, as well as water demand for various activities, including annual household consumption, industrial activities, agriculture, and the service sector. The analysis is used to prepare the Physical Water Resources Account for Krabi Province.

3. Limitations preventing data integration between the provincial NCA for water resources and the national WRSA:

- Wastewater volume and water quality monitoring data system: The study could not integrate these datasets due to limitations in monitoring coverage across Krabi Province. Specifically, freshwater quality is monitored at only two sampling locations, whereas 24 stations track marine and coastal water quality (where annual results generally comply with prescribed standards). Furthermore, when preparing the Krabi Province Water Resources Account (WRSA), data shows that the volume of wastewater entering centralized treatment systems accounts for only 5% of the total estimated wastewater discharge.
- Additionally, while Thailand has developed a national Water Resources Account and published guidelines aligned with the UN's System of Environmental-Economic Accounting (SEEA) framework, the implementation faces significant gaps:
    - Lack of Continuity: The water resources accounting data is not collected or updated continuously.
    - Scope Limitations**:** The current accounts are strictly limited to physical volumes and entirely omit economic valuation.

4. Recommendations for linking the Natural Capital Account (NCA) with the Water Resources Satellite Account (WRSA) include:

- **Establishing a Comprehensive Water Quality Database:** Develop and maintain a unified database of water quality monitoring results. This database should comprehensively cover all key water bodies in Krabi Province, including rivers, canals, reservoirs, inland sources, and coastal or marine waters—with a particular focus on major tourist destinations.
- **Ensuring Monitoring Continuity:** Conduct water quality monitoring continuously on an annual basis to ensure the resulting datasets are temporally consistent and can be effectively integrated across both accounting systems.
- **Expand Monitoring Coverage:** Increase the number of water quality monitoring stations to ensure consistent coverage of major freshwater sources, such as rivers and canals, throughout Krabi Province.
- **Institutionalize Data Collection:** Establish a standardized, annual protocol for collecting water quality and quantity data to ensure continuity and reliability.

- **Standardize Reporting:** Adopt SEEA framework guidelines to facilitate better interoperability between provincial inventories and future national-level systems.
- **Enhance Wastewater Management Tracking:** Implement more comprehensive reporting mechanisms to increase the capture rate of data related to wastewater treatment and discharge.

Integrating the provincial NCAs for the tourism sector in Krabi province into the TSA

The integration of Natural Capital Accounting (NCA) information into the Tourism Satellite Account (TSA) was recommended in Output 1.2.5 of the report Opportunistically Integrate Emerging Natural Capital Information into the National Tourism Satellite Account (TSA), recognizing that Thailand's current national TSA does not yet incorporate information on the contribution of natural capital to tourism activities and expenditure. On the demand side, tourist expenditure under the category Accommodation services for visitors could be further disaggregated by accommodation attributes, such as sea-view and garden-view rooms, to better capture the premium value of natural assets reflected in market prices and tourists' willingness to pay. Similarly, tourism products that depend directly on ecosystem services, including snorkeling, scuba diving, surfing, mountain hiking, and birdwatching, could be separately identified under cultural ecosystem services to improve the integration of tourism and environmental accounts and provide a more accurate assessment of the contribution of natural capital to tourism expenditure.

In addition, under the Tourism Collective Consumption by Product and Level of Government account, government expenditure on the conservation and management of natural resources in tourism destinations should be separately identified to better reflect public investment in maintaining the ecosystem services that support tourism. The study also recommends expanding non-monetary tourism statistics by disaggregating visitor numbers according to the type of natural destination or ecosystem visited, such as national parks, wetlands, beaches, and mangrove forests. Developing a more comprehensive and integrated database would strengthen the linkage between tourism statistics and NCA, enabling a more systematic assessment of both the economic contribution of tourism and its dependence on natural capital and ecosystem services, while providing a stronger evidence base for sustainable tourism policy, informed decision-making, natural resource management, and the long-term monitoring of tourism's environmental impacts.

Table 1 Comparison between the Existing Tourism Satellite Account (TSA) and the Proposed Integration of Natural Capital Accounting (NCA)

Current TSA account	Current TSA Framework	Proposed NCA-Integrated TSA
Table 1 Inbound tourism expenditure by products and classes of visitors **Table 2 Domestic tourism expenditure by products, classes of visitors and types of trips** **Table 3 Outbound tourism expenditure by products and classes of visitors** **Table 4 Internal tourism expenditure by the products**	**Tourism characteristic products**	
	1.Accommodation services for visitors	1.1 Seaview
		1.2 Garden view
	2.Food and beverage serving services	-
	3.Road passenger transport services	-
	4.Water passenger transport services	-
	5.Air passenger transport services	-
	6.Transport equipment rental services	-
	7.Travel agencies and other reservation services	-
	8.Cultural services	8.1 Snorkeling
		8.2 Diving
		8.3 Serf
		8.4 Mountain hiking
		8.5 Birdwatching
	10.Sports and recreational services	-
	11.Country-specific tourism characteristic goods	-
	12.Country-specific tourism characteristic services	-
Table 9 Tourism collective consumption	1.Tourism promotion services	4.Natural protection for tourism
	2.Public administrative services related to tourism affairs	
	3.Police and fire protection services	
Table 10 Non-monetary Indicators	1.Number of trips and overnights by forms of tourism and classes of visitors	4.Number of visitors according to the type of natural destination visited, such as national parks, wetlands, beaches, and mangrove forests, or by ecosystem type
	2.Number of arrivals and overnights by modes of transport	
	3.Number of rooms and capacity of accommodation	

Source: The research team

The limitation of integration of NCA information

As highlighted in Output 1.2.5 in the report 'Opportunistically integrate emerging NC information into the national Tourism Satellite Account (TSA)', the integration of Natural Capital Accounting (NCA) should follow a bottom-up rather than a top-down approach. This is because NCA requires detailed, site-specific information collected at the local level before it can be aggregated to broader geographic scales. For example, data should be compiled within clearly defined management boundaries, such as national parks, including the number of tourists visiting each area and detailed classifications of tourist expenditures by destination. Therefore, comprehensive and consistent data

collection at the provincial or site level is a prerequisite for developing reliable national-level accounts and effectively integrating NCA into the Tourism Satellite Account (TSA).

The proposed NCA values cannot currently be incorporated into the TSA because the accounting framework requires tourist expenditure to be disaggregated by expenditure type, and such detailed expenditure data are not presently collected.

Linking the Water Resources Satellite Account (WRSA) to Tourism Satellite Account (TSA) for Krabi Province

According to the linking the TSA and the SEEA: Technical note (Linking the TSA and SEEA (UNWTO), n.d.) the first core account is a physical supply and use table for the flow of water. It contains information on the supply and use of water and provides an overview of water flows from the environment into tourism and other industries, the distribution and use of this water and the generation and treatment of wastewater. It is likely that, in practice, only relatively few cells in the table will be of significance and these should form the focus of initial development.

Physical supply and use tables for water can be compiled at various levels of detail, depending on the required policy and analytical focus and data availability. Of particular interest for sustainable tourism are the seasonal patterns in water use since in specific locations there will be peaks in the demand for water. Also, consistent with the advice in the SEEA Central Framework, it will be preferable for the tables to be compiled for individual catchments since the pressures on water supply will vary by location Estimating the tourism share of the environmental flows

The TSA-SEEA Krabi water flow accounts were developed using data from the Water Resources Stellite Account (WRSA), which provides information on water use across different economic sectors, including tourism, water collection, treatment and supply, Households, Flows from the Environment. The tables presented below are derived from the WRSA for Krabi Province and have been disaggregated into the dry season and wet season to capture seasonal variations in water use. All values are reported in million cubic meters (MCM). See details in Table 1- Table 14.

Table 2 **Linking WRSA to TSA Krabi (Dry Season) 2015**

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.10	0.34	0.27	0.00	0.72
2. Water (use)						
Distribution of abtracted water	0.04	0.17	0.00	0.00	0.00	0.21
Own-use of abstracted water	0.03	0.11	0.00	0.00	0.00	0.15
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	329.06	329.06
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.34	1.34
Total Supply	0.09	0.38	0.34	0.27	330.39	331.47

Source: The research team

Table 3 **Linking WRSA to TSA Krabi (Wet Season) 2015**

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.10	0.34	0.27	0.00	0.72
2. Water (use)						
Distribution of abtracted water	0.03	0.17	0.00	0.00	0.00	0.21
Own-use of abstracted water	0.02	0.12	0.00	0.00	0.00	0.14
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	259.99	259.99
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.14	1.14
Total Supply	0.07	0.39	0.34	0.27	261.13	262.20

Source: The research team

Table 4 **Linking WRSA to TSA Krabi (Dry Season) (2016)**

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.10	0.00	0.00	0.00	0.11
2. Water (use)						
Distribution of abtracted water	0.04	0.17	0.00	0.00	0.00	0.22
Own-use of abstracted water	0.03	0.11	0.00	0.00	0.00	0.14
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	0.00	0.00
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.00	0.00
Total Supply	0.09	0.39	0.00	0.00	0.00	0.47

Source: The research team

Table 5 Linking WRSA to TSA Krabi (Wet Season) (2016)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.10	0.00	0.00	0.00	0.11
2. Water (use)						
Distribution of abtracted water	0.03	0.18	0.00	0.00	0.00	0.21
Own-use of abstracted water	0.02	0.11	0.00	0.00	0.00	0.14
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	0.00	0.00
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.00	0.00
Total Supply	0.07	0.39	0.00	0.00	0.00	0.46

Source: The research team

Table 6 Linking WRSA to TSA Krabi (Dry Season) (2017)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.02	0.12	0.34	0.27	0.00	0.75
2. Water (use)						
Distribution of abtracted water	0.04	0.18	0.00	0.00	0.00	0.22
Own-use of abstracted water	0.04	0.14	0.00	0.00	0.00	0.18
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	396.25	396.25
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.59	1.59
Total Supply	0.10	0.44	0.34	0.27	397.84	398.99

Source: The research team

Table 7 Linking WRSA to TSA Krabi (Wet Season) (2017)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.02	0.13	0.00	0.00	0.00	0.14
2. Water (use)						
Distribution of abtracted water	0.03	0.18	0.00	0.00	0.00	0.21
Own-use of abstracted water	0.03	0.14	0.00	0.00	0.00	0.17
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	399.39	399.39
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.29	1.29
Total Supply	0.08	0.44	0.00	0.00	400.68	401.20

Source: The research team

Table 8 Linking WRSA to TSA Krabi (Dry Season) (2018)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.02	0.20	0.34	0.27	0.00	0.83
2. Water (use)						
Distribution of abtracted water	0.05	0.19	0.00	1.08	0.00	1.31
Own-use of abstracted water	0.04	0.21	0.00	0.27	0.00	0.52
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	435.71	435.71
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.27	1.27
Total Supply	0.11	0.60	0.34	1.61	436.99	439.65

Source: The research team

Table 9 Linking WRSA to TSA Krabi (Wet Season) (2018)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.02	0.20	0.00	0.27	0.00	0.49
2. Water (use)						
Distribution of abtracted water	0.04	0.19	0.00	1.10	0.00	1.33
Own-use of abstracted water	0.04	0.21	0.00	0.27	0.00	0.52
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	329.92	329.92
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.21	1.21
Total Supply	0.10	0.60	0.00	1.63	331.14	333.47

Source: The research team

Table 10 Linking WRSA to TSA Krabi (Dry Season) (2019)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.04	0.21	0.34	0.27	0.00	0.86
2. Water (use)						
Distribution of abtracted water	0.05	0.20	0.00	1.05	0.00	1.30
Own-use of abstracted water	0.04	0.23	0.03	0.27	0.00	0.57
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	2154.44	2154.44
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.08	1.08
Total Supply	0.13	0.64	0.37	1.58	2155.52	2158.25

Source: The research team

Table 11 Linking WRSA to TSA Krabi (Wet Season) (2019)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.04	0.22	0.00	0.27	0.00	0.53
2. Water (use)						
Distribution of abtracted water	0.04	0.20	0.00	1.06	0.00	1.29
Own-use of abstracted water	0.04	0.24	0.00	0.27	0.00	0.54
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	443.03	443.03
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.98	0.98
Total Supply	0.12	0.66	0.00	1.59	444.01	446.37

Source: The research team

Table 12 Linking WRSA to TSA Krabi (Dry Season) (2020)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.04	0.26	0.34	0.27	0.00	0.90
2. Water (use)						
Distribution of abtracted water	0.23	0.03	0.00	1.09	0.00	1.35
Own-use of abstracted water	0.03	0.27	0.03	0.27	0.00	0.60
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	562.89	562.89
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.75	0.75
Total Supply	0.29	0.56	0.37	1.63	563.64	566.49

Source: The research team

Table 13 Linking WRSA to TSA Krabi (Wet Season) (2020)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.28	0.00	0.27	0.00	0.56
2. Water (use)						
Distribution of abtracted water	0.01	0.21	0.00	1.03	0.00	0.22
Own-use of abstracted water	0.30	0.01	0.03	0.27	0.00	0.61
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	285.43	285.43
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.66	0.66
Total Supply	0.33	0.50	0.03	0.53	286.09	287.48

Source: The research team

Table 14 Linking WRSA to TSA Krabi (Dry Season) (2021)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.02	0.29	0.34	0.27	0.00	0.92
2. Water (use)						
Distribution of abtracted water	0.02	0.21	0.00	1.02	0.00	1.24
Own-use of abstracted water	0.02	0.31	0.02	0.27	0.00	0.62
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	426.76	426.76
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	1.07	1.07
Total Supply	0.06	0.81	0.36	1.55	427.83	430.61

Source: The research team

Table 15 Linking WRSA to TSA Krabi (Wet Season) (2021)

Water Usage	Tourism industries		Water collection, treatment and supply	Households	Flows from the Environment	Total Supply
	accommodation for visitors	Service Sector				
1. Source of abstracted water						
Total supply abtracted water	0.01	0.30	0.34	0.27	0.00	0.92
2. Water (use)						
Distribution of abtracted water	0.01	0.19	0.00	0.97	0.00	1.17
Own-use of abstracted water	0.01	0.32	0.02	0.27	0.00	0.62
3. Waste water and re-used water						
Wastewater to treatment	0.00	0.00	0.00	0.00	0.00	0.00
Own treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00
Re-used water produced (for distribution)	0.00	0.00	0.00	0.00	0.00	0.00
Total Wastewater and Re-used water	0.00	0.00	0.00	0.00	0.00	0.00
4. Return Flows of water						
Total Return flows	0.00	0.00	0.00	0.00	279.39	279.39
5. Evaporation of abstracted water, transpiration and water incorporated into products						
Total	0.00	0.00	0.00	0.00	0.71	0.71
Total Supply	0.04	0.81	0.36	1.51	280.09	282.80

Source: The research team

THE INTEGRATION OF NATURAL CAPITAL ACCOUNTING IN PUBLIC AND PRIVATE SECTOR POLICY AND DECISION-MAKING FOR SUSTAINABLE LANDSCAPES