

POLICIES AND MARKET INCENTIVES  
IN SUPPORT OF NATURAL CAPITAL





# COMPONENT 1

## POLICIES AND MARKET INCENTIVES IN SUPPORT OF NATURAL CAPITAL

### OUTPUT 1.2.6

OPPORTUNISTICALLY INTEGRATE  
EMERGING NC INFORMATION INTO  
THE NATIONAL WATER RESOURCES  
SATELLITE

ACCOUNT (WRSA)

### OUTPUT 2.2.1

ASSESS THE INTER-DEPENDENCIES OF  
THE WATER RESOURCES SECTOR ON NC  
AND ECOSYSTEM SERVICES

#### Author

Adis Israngkura, Thailand Development Research Institute (TDRI)

Winai Chaowiwat, Hydro-Informatics Institute (HII)

Prinyarat Leangcharoen, Thailand Development Research Institute (TDRI)



## Acknowledgement

The development of the Water Resources Satellite Account (WRSA), specifically the opportunistic integration of emerging NC information under output 1.2.6, was made possible through the collaborative efforts and support of numerous government agencies and output 2.2.1, assessing the inter dependencies of the water resources sector on NC and ecosystem services.

We would like to express our sincere gratitude to the Provincial Waterworks Authority (Krabi, Ao Luek, and Khlong Thom branches) for providing essential data on household water usage and supply. We also extend our thanks to the Department of Business Development for their contribution of annual registered establishment data for Krabi province.

Furthermore, we gratefully acknowledge the invaluable support of the Krabi Provincial Agricultural Office, the Royal Irrigation Department (Krabi Irrigation Project), the Groundwater Resources Office Region 6 (Trang), the Office of National Water Resources Region 10, the Ministry of Tourism and Sports (Krabi Provincial Office), and the Office of Natural Resources and Environmental Policy and Planning (Krabi).

Special appreciation is extended to the Hydro-Informatics Institute (HII) for their instrumental role in consolidating water resource and climatic data, which was vital for analyzing water supply and demand in the formulation of the Krabi WRSA.

Finally, we would like to thank all participating agencies, local authorities, and stakeholders whose cooperation was fundamental to the successful compilation of this Water Resources Satellite Account.



## Executive summary

Water accounting is a water management tool that integrates environmental and economic data. It illustrates the utilization of natural resources and ecosystem services by economic sectors, as well as the discharge of pollution and waste, thereby supporting Integrated Water Resources Management (IWRM).

The objective of water accounting is to assist in evaluating water usage across economic activities, household consumption, and ecosystem services. It serves as a framework for linking water resources with other natural resources, while also helping to explain the natural water cycle and the flow of water within the economic system. Furthermore, it acts as baseline data for water source development and the evaluation of water resource policy implementation.

The development of the water account in this study comprises the assessment of raw water supply, including water storage volumes in reservoirs and ponds, water inflow to water sources, and runoff volumes. It also includes water allocation by agencies, specifically the water distribution volumes by the Provincial Waterworks Authority, groundwater pumping volumes, water allocation volumes by irrigation projects, and utilization from storage ponds. Furthermore, it covers water provisioning and water demand for various activities, namely agriculture, industry, household consumption, and services. The study entails the creation of environmental-economic accounting for water to track the flow and changes of water in Krabi Province. This is achieved through data collection and analysis of climatic and hydrological conditions, assessment of water resources and flow volumes, compilation of allocated and self-pumped water volumes, and the collection and analysis of water demand for various activities—such as households, industries, agriculture, and service sectors—obtained from relevant government agencies.

The results of Krabi Province's water accounting during the period of 2015–2024 (B.E. 2558–2567), covering both the dry season (November–April) and the wet season (May–October), consist of two main components. The first is the Physical Asset Account for Water, which presents stock data of freshwater and brackish water located in reservoirs, lakes, rivers, streams, groundwater, and soil moisture. The findings reveal that the majority of the water volume derives from medium and small-sized reservoirs. Additionally, the intra-annual increase in water volume primarily originates from precipitation or rainfall flowing into rivers, streams, and groundwater aquifers, particularly during the rainy season.

The second component is the Physical Supply and Use Tables for Water, which display supply and use data reflecting the overarching flow of water from the environment into the economic system and back into the environment. The majority of water utilization occurs in the agricultural sector; however, this sector yields the lowest economic value for water. Other significant sectors include the service sector (encompassing educational institutions, hospitals, and commercial establishments), the water production/distribution sector, the household sector, and the accommodation/hotel sector. This is categorized into five sections:

**Water Abstraction from Surface and Groundwater Sources:** This involves abstraction from reservoirs, rivers, lakes, groundwater, and soil moisture. The findings indicate that the majority of abstracted water is sourced from reservoirs, both within and outside irrigation zones, and involves pumping for tap water production.

Regarding groundwater, abstraction is predominantly executed through private wells to supply the service and accommodation/hotel sectors.

**Distribution and Use of Abstracted Water by Enterprises and Households:** This encompasses self-abstracted water and water abstracted for distribution or sale. The majority comprises water from the Royal Irrigation Department, intended to meet demands in the agricultural sector. Conversely, water from the Provincial Waterworks Authority is primarily utilized by the service, accommodation/hotel, and household sectors, with relatively minimal abstraction directed toward the industrial sector.

**Wastewater and Reused Water Between Households and Enterprises:** This refers to water discharged by users. Wastewater may be discharged directly into the environment, released into drainage systems, transferred to other economic units for reuse, or sent as effluent into wastewater treatment processes. For this section, available data is strictly limited to the volume of wastewater entering centralized wastewater treatment systems.

**Return Flows to the Environment:** This accounts for the volume of water directly discharged into the environment by industrial sectors or households without passing through wastewater treatment plants, treated effluent discharged by treatment plants, and system water losses. Observations indicate a continuous upward trend in these water volumes.

**Evaporation of Abstracted Water:** This covers the evaporation of abstracted water, transpiration, and water incorporated into products. Evaporation and transpiration are recorded as water transferred from users to the environment, while water incorporated into products represents water retained within the economic system. The volume of water in this specific category was found to be exceptionally low.

Nevertheless, the formulation of Krabi Province's water account continues to face data constraints. This is particularly evident in the lack of data concerning water inflows from other territories, as well as comprehensive data on wastewater and reused water, given that current records only capture wastewater entering centralized treatment systems. Consequently, systematic collection and compilation of relevant data will be necessitated in the future.

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# 1. Introduction to wastewater treatment in Krabi

## 1.1 Background

Water resource management has become increasingly critical in the face of growing environmental challenges, climate change, and increasing demand across various sectors. The complex interactions between natural water systems and human economic activities necessitate comprehensive and integrated approaches to understanding water resources. Water accounting emerges as a crucial methodology to systematically track, analyze, and manage water resources, providing insights into water availability, usage patterns, and sustainability.

Water Accounting is a process of linking water resources and allocated water to water users, considering water account components from water sources, water procurement, water losses, user types, and agencies that provide water services. Data can be collected and analyzed from water service providers and other government agencies. Additionally, spatial water resources and demand can be analyzed using rainfall maps, temperature, and evaporation rates from satellite imagery to determine actual or near-actual water usage for each user type, water use efficiency, and water scarcity in the area.

The System of Environmental-Economic Accounting for Water (SEEA-W) provides a conceptual framework for organizing hydrological and economic data in a coherent manner, describing interactions between the economy and environment while covering all natural resources and environmental aspects (CEC et al., 1993). It is a standard system for collecting economic statistics and obtaining national economic indicators such as Gross Domestic Product (GDP) or determining water value in production processes.

SEEA-W is a valuable tool supporting Integrated Water Resources Management (IWRM) by preparing information systems to provide knowledge for decision-making processes. This includes efficient water resource allocation, improving water use efficiency, understanding water management impacts on users, maximizing investment value in infrastructure, linking water use capabilities, and providing standardized information consistent with various sources, accepted by stakeholders.

The objective of water accounting is to assist in evaluating water utilization across economic activities, household consumption, and ecosystem services. It serves as a framework for linking water resources with other natural resources, while also helping to explain the natural water cycle and the flow of water within the economic system (Figure 1). Furthermore, it acts as fundamental data for water source development and the evaluation of water resource policy implementation.

The system also facilitates the use of indicators, involving stakeholders in decision-making, studying climate change impacts on water usage, and assessing water resource potential. Water accounting builds upon several foundational concepts and methodological frameworks:

### 1. System of National Accounts (SNA):

- Established global macroeconomic statistical framework
- Provides basis for economic indicators
- Serves as a foundation for environmental-economic accounting

### 2. System of Environmental-Economic Accounting (SEEA):

- Demonstrates interactions between economic systems and environmental resources
- Tracks resource extraction, ecosystem service utilization, and waste generation
- Offers a standardized approach to integrating environmental considerations into economic analysis

### 3. Integrated Water Resources Management (IWRM):

- Holistic approach to water management
- Considers environmental, economic, and social dimensions simultaneously
- Emphasizes comprehensive and sustainable water resource governance

## 1.2 Objectives

1. Quantify water resources, allocation, and demand across different sectors (agriculture, industry, domestic consumption, services)
2. Implement water accounting frameworks for tracking water flows and transformations within a district context

## 1.3 Scope of works

1. Collect and analyze climate and hydrological conditions from relevant agencies such as Thai Meteorological Department and Royal Irrigation Department.
2. Collect and assess water resources and water flow volumes from relevant agencies such as Royal Irrigation Department and Land Development Department.
3. Gather allocated water and self-extracted water volumes from relevant government agencies such as Royal Irrigation Department, Provincial Waterworks Authority, Krabi Provincial Office, and Department of Groundwater Resources.
4. Collect and analyze water demand for various activities such as domestic, industrial, agricultural, and service Sectors.
5. Develop water accounts for Krabi Province by district using the aforementioned relevant Data.

## 1.4 Expectations for Water Accounting

### 1. Provide Comprehensive Data Insights

- Detailed mapping of water resources
- Quantitative analysis of water flows
- Identification of water usage patterns across sectors

### 2. Support Policy Development

- Create evidence-based foundations for water management strategies
- Enable precise tracking of water allocation and consumption
- Support sustainable development goals

### 3. Enable Environmental and Economic Integration

- Demonstrate complex interactions between water resources and economic activities
- Facilitate understanding of water's role in broader ecological and economic systems

### 4. Enhance Decision-Making Capabilities

- Provide actionable insights for water resource management
- Support adaptive strategies in response to changing environmental conditions
- Enable proactive resource allocation and conservation efforts

## 2. Principles and Study Guidelines

In preparing this water account, the water accounting principles were implemented under the following guidelines: water resource volume assessment, water allocation by agencies, self - water procurement, water usage for various activities, and economic and environmental accounting. The details are as follows:

### 2.1 Water Resource Volume Assessment Guidelines

#### 2.1.1 Water Storage

1. Medium-sized reservoir water storage volume was obtained by collecting water storage data from 6 important reservoirs of the Royal Irrigation Department: Bang Kam Prad Reservoir, Huai Sai Khao Reservoir, Huai Leuk Reservoir, Khlong Ya Reservoir, Khlong Haeng Reservoir, and Huai Nam Khiew Reservoir.

2. Pond water storage volume is estimated by multiplying the ground surface area by the pond depth, with the pond depth set at approximately 6 meters.

#### 2.1.2 Inflow of water resources

1. Small reservoir water inflow volume was collected from medium-sized reservoir data from the Royal Irrigation Department.

2. Pond water inflow was estimated using the water supply coefficient of the reservoir's catchment area, with the assumption that a 500 cubic meter reservoir volume corresponds to a 1-rai (1,600 sq.m) catchment area (based on the initial consideration manual for small water resource development by the Agricultural Land Reform Office, Ministry of Agriculture and Cooperatives)

3. River runoff is estimated by multiplying the reservoir's water supply coefficient with the district area.

## **2.2 Guidelines for Analyzing Water Allocation from Relevant Agencies**

1. Provincial Waterworks Authority water supply volume was obtained by collecting data on water distribution for consumption, commercial, and industrial purposes from the Provincial Waterworks Authority.

2. Village water supply pumping volume (groundwater) was calculated by multiplying the number of households served by village water supply by the number of people per household, multiplied by the water usage rate per person (set at 50 liters per person per day).

3. Groundwater pumping volume for government wells for consumption was estimated by multiplying the authorized pumping volume by the number of pumping hours (8 hours) multiplied by the groundwater pumping coefficient (average approximately 0.60).

4. Groundwater pumping volume for private wells used for consumption, business, and agriculture was estimated by multiplying the authorized pumping volume by the number of pumping hours (8 hours) multiplied by the groundwater pumping coefficient (average approximately 0.60).

5. Irrigation project water allocation volume was estimated by dividing the project's agricultural water usage data by 1.3.

6. Water usage from storage ponds was estimated by dividing the effective water volume of storage ponds by 1.3.

## **2.3 Guidelines for Estimating Water Demand for Various Activities**

The analysis of water demand for Krabi Province includes water requirements for consumption, industry, and agriculture, with the following study details:

### **2.3.1 Domestic Water Demand**

The assessment of domestic water demand can be estimated using population data by sub-district and water usage rates, with the following evaluation details:

1. Collect relevant data, including: Population data by sub-district from the Department of Local Administration, categorized into population numbers within and outside municipal areas for the years 2015-2024. Water usage rates within and outside water service areas (Royal Irrigation Department, 2003, 2010) Water usage rates defined as: Within water service areas: 176 liters/person/day and outside water service areas: 50 liters/person/day.

2. Calculate current domestic water consumption by sub-district for the years 2015 - 2024 by multiplying the current population by the water usage rate, using the following equation:

$$WDpr = Ppr \times WUdpr \times 1000 \times 365 \quad (1)$$

Where :

WDpr = Current domestic water consumption (cubic meters per year)

Ppr = Number of people in the sub-district within and outside water service areas

WUdpr = Water usage rate per person (liters/person/year)

3. Summarize domestic water consumption within and outside water service areas by sub-district and district for the period 2015 - 2024.

### 2.3.2 Industrial Water Demand

The assessment of industrial water demand can be estimated from basic industrial plant information, including: number of horsepower per sub-district and district, production capacity, water usage rate per horsepower, water usage rate per production unit, number of working hours, water reduction capability, water use efficiency (Sustainability Water Institute, 2015) The evaluation details are as follows:

1. Collect relevant data: basic information of industrial plants authorized to operate from 2015 - 2024, classified into 107 industrial plant types, number of horsepower per plant
2. Calculate current industrial water demand (WIpr) for 2015-2024 by district and industrial plant type, using the following equation:

$$WIPpr = Wr \times HP \times Dw \times \%EFF \quad (2)$$

Where :

WIPpr = Water consumption rate per horsepower per day (cubic meters per horsepower per day)

HP = Number of horsepower for industrial plants (cubic meters)

Dw = Number of working days (set at 261 days in this study)

%EFF = Water use efficiency for each industrial type, calculated as (1-%ECO)

%ECO = Water saving capability (in percentage)

3. Summarize industrial water demand by sub-district and district for the period 2015 - 2024. Here's the translation to English:

### 2.3.3 Agricultural Water Demand

The assessment of agricultural water demand by district can be estimated from data related to agricultural areas, including: economic crop cultivation areas in irrigation zones, irrigation project cultivation areas from 2015 - 2024, cropping calendar by region, climate data, crop water coefficient reference. Data was collected from

irrigation areas : Royal Irrigation Department and rainfed areas: Office of Agricultural Economics for the period 2015 - 2024. Detailed assessment includes:

1. Collect annual economic crop cultivation data for irrigation and non-irrigation zones from 2015-2024, including: wet season rice, dry season rice, field crops, additional relevant information such as: cropping calendar, field infiltration, crop-specific water coefficients, crop reference evapotranspiration rate.
2. Summarize and create a database of economic crop cultivation areas in irrigation and non-irrigation zones by province from 2015 - 2024
3. Analyze crop reference evapotranspiration daily and weekly using Penman-Montieth equation

$$ET_o = \frac{0.408\Delta(R_n - G) + \gamma \frac{900}{T + 273} u_2 (e_s - e_a)}{\Delta + \gamma(1 + 0.34u_2)}$$

Where : ETo = Reference crop water consumption (mm/day)

Rn = Total solar radiation received by the crop (megajoules/m<sup>2</sup>/day)

G = Rate of heat energy transfer in soil (megajoules/m<sup>2</sup>/day)

T = Average air temperature (degrees Celsius)

Δ = Slope of the vapor pressure gradient curve (kilopascals/degrees Celsius)

γ = Psychrometric constant (kilopascals/degrees Celsius)

U2 = Wind speed at 2 meters above ground level (meters/second)

(es - ea) = Rate of transfer (vapor pressure deficit).

4. Analyze water requirements by considering: field infiltration, crop-specific water coefficients, and reference crop evapotranspiration

$$ET = K_c \times E_{tp}$$

$$W_{ir} = (ET + P - Re) / EFF_{ir}$$

Where :

Wir = Water requirement of crops after deducting effective rainfall, unit in millimeters

ET = Water used by crops, unit in millimeters

P = Infiltration volume in cultivation fields, unit in millimeters

Re = Effective rainfall, unit in millimeters

Kc = Crop-specific water coefficient

Etp = Reference crop evapotranspiration, unit in millimeters

EFFir = Irrigation efficiency, for non-irrigation areas: set to 1.0, and rainfed areas: set to 0.65.

5. Calculate agricultural water demand in irrigation and non-irrigation zones: daily and weekly calculations, by crop type, province, and month.

6. Summarize monthly agricultural water demand for irrigation and non-irrigation zones by sub-district and district in the period 2015-2024.

### 2.3.4 Water Demand for Services

The assessment of water demand for services covers 4 user groups: educational institutions, business establishments, hotels and resorts, and hospitals. Detailed calculation methodology:

**Assessment of educational institutions' water demand** can be estimated from the number of students and teachers (schools and universities) during the period 2015-2024, using data from the National Statistical Office. Calculation details included water usage rate: 60 liters/person/day, working days: 200 days (Metcalf and Eddy, 2003). Specific steps:

1. Collect data on the number of students and teachers from 2015-2024 using National Statistical Office information
2. Calculate academic water demand (WDA) using the following equation:

$$WDA = NS \times Wrt \times 200/1,000$$

Where :

NS = Number of students and teachers (persons)

Wrt = Water usage rate per person (liters/person/day)

3. Summarize monthly water demand for educational services by sub-district and district.

**Assessment of commercial enterprises' water demand** can be estimated from the number of workers using Krabi Provincial Statistical Office data: water usage rate: 75 liters/person/day and working days : 246 days. Detailed evaluation steps:

1. Collect data on the number of workers from 2015-2024 using the Business and Service Census conducted by the National Statistical Office.
2. Calculate enterprise water demand (WDB) using the following equation:

$$WDB = NE \times Wrt \times 246/1,000$$

Where :

NE = Number of entrepreneurs and employees (persons)

Wrt = Water usage rate per person (liters/person/day)

3. Summarize monthly water demand for business establishments by sub-district and district.

**Assessment of water demand for hotels and resorts** were evaluated based on the number of tourists staying overnight and the number of overnight stays multiplied by water usage rate per person per day.

1. Collect data on the number of tourists staying overnight from 2015-2024 using information from the Ministry of Tourism and Sports
2. Calculate water demand for hotels and resorts (Accommodation water demand, WDH) using the following equation :

$$WDH = NH \times DH \times WH / 1,000$$

Where : NH is guest arrivals of accommodation (persons), DH is length of stay (days), WH is water usage rate per person (210 liters per person per day)

3. Summarize monthly water demand for hotels and resorts by sub-district and district.

**Assessment of water demand for hospital services** were evaluated based on the number of medical personnel and patients from 2015 - 2024, considering inpatients and outpatients multiplied by overnight stays and water usage rate per person per day. Detailed assessment steps:

1. Collect data on number of inpatient days and number of daily outpatients from hospital basic information under the Permanent Secretary of the Ministry of Public Health for the period 2015-2024.
2. Calculate hospital water demand (WDH) with two components:

Inpatient Water Demand:  $WDHIN = NHIN \times Wrt / 1,000$

Where: NHIN is number of inpatient days and Wrt is water usage rate (60 liters/person/day)

Outpatient Water Demand:  $WDHOUT = NHOUT \times Wrt / 1,000$

Where : NHOUT is number of daily outpatients and Wrt is water usage rate (5 liters/person/day)

3. Summarize monthly hospital water demand by sub-district and district.

## 2.4 National Economic and Environmental Accounting

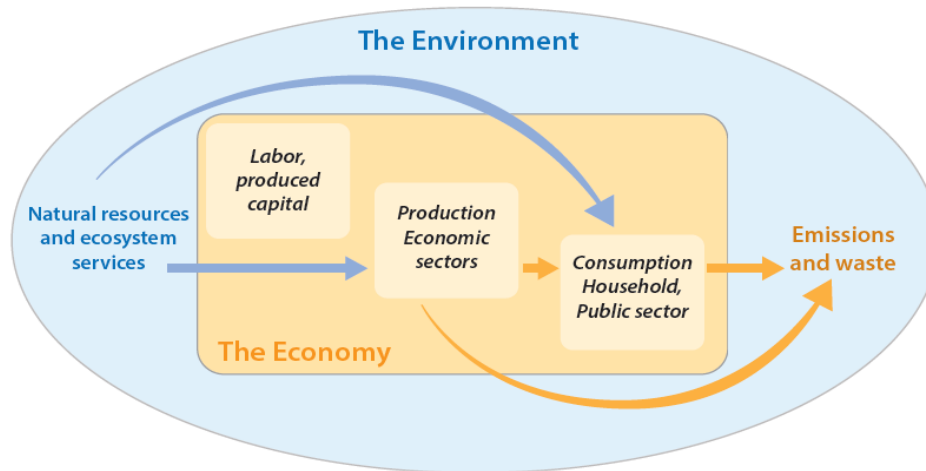
### 2.4.1 System of National Accounts (SNA) and SEEA

Water accounting is part of the "Environmental-Economic Accounting" group under SEEA, which is linked to SNA (EC et al., 2009). The SNA system has been used for creating global macroeconomic statistics for over 50 years and is the origin of the most well-known accounting indicator: Gross Domestic Product (GDP) (Coyle, 2015).

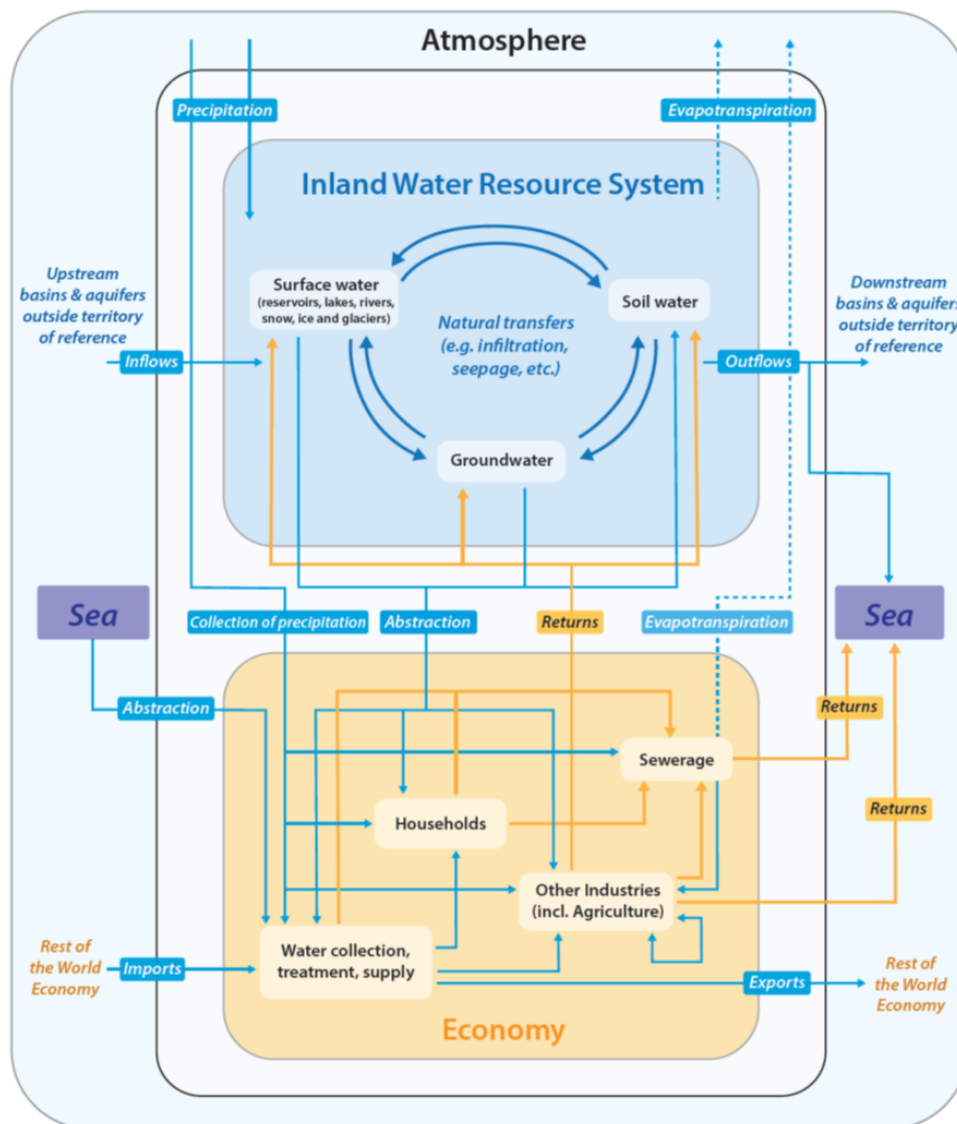
Generally, SEEA demonstrates the interaction between the economy and the environment. Figure 1 (a) shows the use of natural resources and ecosystem services by economic sectors, as well as the release of pollutants and waste. The definition of "economy" follows the SNA guidelines.

Figure 1 Environmental and Economic Context for Accounting

a) interaction between the economy and the environment



b) Main flows within the inland water resource system and the economy



Source: World Bank (2021) and UN (SEEA Water) (2012)

The scope of water accounting is presented in Figure 1 (b) showing the physical stocks and flows of water within the hydrological system, which is a part of the environment, and the economy, and the interactions between the two. Many of the flows, and particularly those within the economy and between the economy and the inland water resource system, have matching monetary flows (Michael J. Vardon, Thi Ha Lien Le, Ricardo Martinez-Lagunes, Ogopotse Batlokwa Pule, Sjoerd Schenau, Steve May, and R. Quentin Grafton, 2023).

Water accounting is a tool developed to improve water management by integrating environmental and economic data. Managing water comprehensively across environmental, economic, and social dimensions is the core of Integrated Water Resources Management (IWRM), a widely accepted water management approach. From water accounting collections across various countries, water accounts support: 1) Creation of descriptive indicators and statistics for monitoring and evaluation; 2) Comprehensive statistics for policy analysis

Water accounting can create indicators to assess water supply and usage, evaluate wastewater generation, and identify industrial sector sources creating pressure on water resources.

These analyses and indicators can be directly calculated from water accounts without extensive technical expertise. Additionally, water accounting supports international indicator development, such as Sustainable Development Goals (SDGs) Goal 6 on Water and Sanitation, including key indicators like: 6.1.1: Percentage of drinking water from clean sources; 6.3.1: Proportion of household and industrial wastewater safely treated; 6.4.1: Changes in water use efficiency over time; and 6.4.2: Water stress level (proportion of freshwater usage to total freshwater). Water accounting can also support more complex policy analysis using economic models, such as forecasting future water demands and assessing impacts of water price reforms.

SEEA Water Accounts is a framework that helps collect and integrate data necessary for water management, referencing the SEEA Central Framework, which was approved by the United Nations Statistical Commission (UNSC) as an international standard. Over 44 countries have already implemented this framework.

Water accounts aim to assess water usage in economic activities, evaluate household consumption, analyze ecosystem services, and provide a framework linking water resources with other natural resources. Key characteristics are to describe the natural water cycle and water flow within the economic system, quantify water resources in numerical terms, and measure in both physical and monetary terms. Water resources in land and economic systems can be defined by countries, administrative regions, watersheds

Water exchange can occur through 1) water imports and exports (between economic systems), 2) Natural inflows from upstream and outflows to downstream territories, and 3) Exchanges between seas and atmospheric layers (considered outside land water resources). For hydrological measurement purposes, these exchanges should be maintained within the water accounting framework to ensure comprehensive analysis.

In economic systems, water usage can be divided into two cases: first case is water extraction are withdrawing water from the environment for production and consumption activities. Examples include using rainwater, water absorption by crops in rainfed agricultural areas, and hydroelectric power generation. Second case is water usage without extraction are using water for recreational and transportation purposes. Examples include fishing

and other uses dependent on water's physical presence. It often relies on water quality and may negatively impact water sources, but not directly considered in water accounting since water is not physically extracted. Water return to environment: Water can be returned directly to inland water sources or flow into the sea. Typically, water return negatively affects environmental water quality. Returned water usually has lower quality compared to its original state. Despite quality reduction, water return increases water quantity. Returned water can potentially be reused for other purposes.

This description emphasizes the complex interactions between economic systems and natural water resources, highlighting the importance of understanding water extraction, usage, and return processes.

## 2.4.2 Water Account Components

### Physical Asset Accounts for Water

Physical water asset accounts record stock data for freshwater and brackish water in artificial reservoirs, lakes, rivers and streams, groundwater, and soil water. At the beginning and end of the accounting period, these accounts record compose of:

- Water extraction volumes
- Water consumption
- Precipitation amounts
- Water inflows and outflows between countries
- Water flows into the sea

The purposes of this physical water asset accounts are to assess available water to meet economic system needs and evaluate long-term water demand sustainability. Measurements are physically quantified, typically measured in million cubic meters, and classified by water resource type

### Physical Supply and Use Tables for Water (PSUT)

PSUT shows water supply and use, reflecting water circulation from environment to economic system and back. Five main components:

1. Water extraction from environment is the records water volume from sources, categorized by extracting industries, and sources include reservoirs, rivers, lakes, groundwater, soil water, precipitation.

2. Water distribution and use can be separated to two parts: water used by economic units directly and water distributed to other economic units. Usage recorded in three sections:

- Intermediate industrial consumption
- Household final consumption
- Water exports

3. Wastewater and Recycling: Tracks wastewater circulation between economic units. Wastewater can be 1) directly released to environment, 2) discharged into drainage systems and 3) transferred for reuse.

4. Water Return to Environment includes water released 1) directly by industries/households, after treatment and water losses.

5. Water Evaporation, Transpiration, and Product Incorporation included water evaporation, water transpiration, and water in products.

Measured in million cubic meters, aiming to balance water flow into and out of economic systems. Industry categories follow ISIC classification:

- Subsection 01-03: Agriculture, Forestry, and Fishing
- Subsection 05-33 and 41: Mining and Quarrying, Manufacturing, and Construction, respectively
- Subsection 35: Electricity, Gas, Steam, and Air Conditioning
- Subsection 36: Water Supply, Water Production, and Water Distribution
- Subsection 37: Wastewater Management
- Subsection 38, 39, and 45-99: Other Industries
- Emphasis on ISIC subsections 35, 36, and 37 due to direct water supply and use relevance.

### **3. Meteorology**

The objective of studying hydrology and meteorology is to utilize the findings for analyzing agricultural water demand within and outside irrigation areas, as well as evaluating water budget. The details of the study are as follows:

#### **3.1 Meteorological Conditions**

Daily and monthly meteorological data from weather stations in Krabi Province were collected and analyzed based on Thai Meteorological Department records from 1995 to 2024. This data includes maximum temperature, minimum temperature, average temperature, relative humidity, wind speed, sunshine duration, evaporation rate, and evapotranspiration rate. When analyzing the monthly averages, maximums, and minimums, it was found that Krabi Province has an average maximum temperature of 32.47 - 32.57 °C, with a range of 30.91 - 34.79°C; the highest value occurs in April and the lowest in December. The average minimum temperature is 22.96 - 24.39°C, with a range of 12.77 - 25.10°C; the highest value occurs in May and the lowest in February. The overall average temperature is 27.76°C, with a range of 26.54 - 29.63°C; the highest value occurs in April and the lowest in December.

The average relative humidity is 82.88 - 83.08%, with a range of 75 - 86%; the highest value occurs in November and the lowest in February. The average wind speed is 11.71 – 13.57 knots, with a range of 10.93 – 17.38 knots; the highest value occurs in August and the lowest in April. The average sunshine duration is 5.88 – 5.98 hours, with a range of 4.53 - 8.09 hours; the highest value occurs in February and the lowest in October. The average evaporation rate is 1,442.49 - 1,450.34 mm/year, with a monthly range of 99 - 150 mm/month; the highest value occurs in March and the lowest in November. The average evapotranspiration rate is 1,559.92 - 1,583.13 mm/year, with a monthly range of 105 - 165 mm/month; the highest value occurs in March and the lowest in November. The distribution of meteorological conditions for the Krabi weather station is shown in Figures 1, and the meteorological summary of Krabi Province is provided.

**Table 1 Summary of Meteorological Conditions for Station 566201**

Weather	Statistics	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Dry	Wet	Annual
Average Maximum Temperature	Max	°C	34.35	35.03	35.86	36.65	35.46	33.45	33.57	33.16	32.57	32.49	32.21	33.06	34.53	33.45	33.99
	Min	°C	30.60	31.95	32.74	32.12	31.61	31.43	31.11	29.93	30.28	29.73	30.24	29.20	31.14	30.68	30.91
	Average	°C	32.05	33.34	34.24	34.35	33.20	32.44	32.15	31.86	31.61	31.44	31.18	30.99	32.69	32.12	32.41
Average Minimum Temperature	Max	°C	25.65	25.43	26.63	26.47	26.11	26.43	25.96	26.25	25.60	25.40	25.20	24.94	25.72	25.96	25.84
	Min	°C	21.56	22.25	23.12	23.79	23.96	23.90	23.69	23.38	23.49	23.46	23.25	22.14	22.68	23.65	23.17
	Average	°C	23.68	23.77	24.36	24.92	25.10	24.91	24.74	24.72	24.48	24.28	24.11	23.66	24.08	24.71	24.39
Average Temperature	Max	°C	29.61	30.04	30.63	31.02	30.56	29.70	29.76	29.06	28.86	28.65	28.39	28.69	29.73	29.43	29.58
	Min	°C	26.64	27.37	28.23	28.37	28.38	28.03	28.01	27.13	27.45	27.25	26.78	25.85	27.21	27.71	27.46
	Average	°C	27.87	28.55	29.30	29.63	29.15	28.67	28.45	28.29	28.05	27.86	27.64	27.32	28.39	28.41	28.40
Average Relative Humidity	Max	%	90	87	91	94	93	93	90	93	93	95	94	93	91.25	93.10	92.17
	Min	%	69	68	68	73	77	76	78	78	81	80	79	72	71.52	78.55	75.04
	Average	%	79	76	79	82	84	85	84	85	86	87	86	83	80.84	85.33	83.08
Average Solar Radiation	Max	Hour	8.73	9.36	8.95	8.79	7.10	6.54	6.18	6.04	5.82	6.31	6.23	7.01	8.18	6.33	7.25
	Min	Hour	3.80	5.32	4.86	5.59	4.17	4.29	3.90	4.03	3.73	3.26	3.31	3.95	4.47	3.90	4.18
	Average	Hour	6.99	8.09	7.75	7.41	6.07	5.30	5.12	5.27	4.82	4.73	4.91	5.34	6.75	5.22	5.98
Average Wind Speed	Max	Knot	17.77	18.02	18.73	17.43	21.03	24.77	23.03	26.13	24.77	24.32	14.92	16.39	17.21	24.01	20.61
	Min	Knot	6.74	6.29	7.71	6.83	8.58	8.53	9.61	11.35	7.50	7.39	4.53	5.84	6.32	8.83	7.58
	Average	Knot	12.14	12.13	11.68	11.38	14.40	15.80	16.27	17.38	16.49	13.49	10.54	11.17	11.51	15.64	13.57
Average Evaporation rate	Max	mm.	154	158	191	182	153	132	135	178	141	128	123	123	931.71	867.45	1799.16
	Min	mm.	100	103	111	108	112	99	105	97	100	90	83	87	592.84	604.11	1196.95
	Average	mm.	123	133	150	139	127	117	118	122	110	107	99	106	750.20	700.14	1450.34
Average Evapotranspiration rate	Max	mm.	197	196	202	177	163	156	151	155	140	140	127	162	1059.43	904.26	1963.69
	Min	mm.	101	115	112	119	109	98	111	100	100	90	89	92	627.48	607.74	1235.22
	Average	mm.	144	152	165	150	137	123	127	130	117	113	106	118	835.42	747.70	1583.12

Table 2 Summary of Meteorological Conditions for Station 566202, Krabi Province

Weather	Stat	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Dry	Wet	Annual
Average Maximum Temperature	Max	oC	34.72	36.01	37.22	38.10	36.01	34.44	33.83	33.10	32.36	33.27	32.73	33.49	35.38	33.84	34.61
	Min	oC	30.20	31.74	32.59	32.46	32.32	31.75	31.43	30.24	30.69	30.56	29.93	29.08	31.00	31.16	31.08
	Average	oC	32.01	33.43	34.70	34.79	33.47	32.61	32.24	31.99	31.79	31.61	31.24	30.91	32.85	32.29	32.57
Average Minimum Temperature	Max	oC	24.08	23.32	23.92	25.52	25.57	25.06	24.87	24.87	24.80	24.47	24.49	23.86	24.20	24.94	24.57
	Min	oC	17.91	17.97	20.33	21.09	22.10	21.49	20.98	20.51	19.95	19.39	19.81	19.52	19.44	20.74	20.09
	Average	oC	21.85	21.77	22.66	23.59	24.08	23.80	23.52	23.32	23.07	22.82	22.81	22.18	22.48	23.43	22.96
Average Temperature	Max	oC	29.15	29.66	30.57	31.81	30.79	29.65	28.78	28.79	28.22	28.76	28.61	28.67	29.75	29.16	29.45
	Min	oC	24.43	25.12	27.38	27.58	27.28	27.00	26.58	25.74	25.63	25.45	25.09	24.81	25.74	26.28	26.01
	Average	oC	26.93	27.60	28.68	29.19	28.78	28.21	27.88	27.65	27.43	27.22	27.02	26.54	27.66	27.86	27.76
Average Relative Humidity	Max	%	94	93	93	97	97	97	96	98	98	99	98	96	95.33	97.62	96.47
	Min	%	64	57	61	68	73	77	79	78	79	80	77	71	66.34	77.49	71.92
	Average	%	78	75	77	80	84	85	85	86	87	88	87	83	79.88	85.89	82.88
Average Solar Radiation	Max	Hour	8.82	9.35	8.99	8.59	7.07	6.67	5.81	5.99	5.40	6.14	6.39	7.03	8.20	6.18	7.19
	Min	Hour	3.62	5.25	4.96	5.32	3.98	3.86	3.57	3.29	3.26	3.00	3.05	3.73	4.32	3.49	3.91
	Average	Hour	7.13	8.10	7.70	7.25	5.81	5.01	4.89	5.07	4.57	4.53	4.96	5.54	6.78	4.98	5.88
Average Wind Speed	Max	Knot	18.77	22.50	14.10	15.30	16.23	16.77	20.97	18.94	18.37	20.26	16.33	20.74	17.96	18.59	18.27
	Min	Knot	6.35	6.64	5.84	5.50	5.23	6.42	5.48	5.55	5.47	5.19	5.33	6.71	6.06	5.56	5.81
	Average	Knot	12.28	12.30	11.19	10.93	10.99	11.40	12.07	12.44	11.92	11.07	11.29	12.61	11.77	11.65	11.71
Average Evaporation rate	Max	mm.	155	171	189	184	155	132	132	149	130	123	122	128	948.7	820.19	1768.89
	Min	mm.	99	105	113	91	98	93	106	97	96	87	84	83	574.2	576.82	1151.02
	Average	mm.	121	134	152	141	126	116	116	120	109	104	99	105	751.6	690.84	1442.49
Average Evapotranspiration rate	Max	mm.	202	235	227	194	176	147	151	158	134	131	135	161	1154.	897.03	2051.74
	Min	mm.	98	112	105	120	107	91	93	92	85	85	79	85	597.9	554.08	1152.01
	Average	mm.	144	153	169	154	134	119	121	123	111	109	105	119	844.15	715.77	1559.92

### 3.2 Rainfall Conditions

Rainfall data was collected from 21 rainfall stations within Krabi Province, managed by the Thai Meteorological Department, covering the period from 1995 to 2024. Based on the analysis of monthly average, maximum, and minimum rainfall data, it was found that Krabi Province has an average annual rainfall of 1,773.7 mm, with a range of 32.7 – 247.0 mm. The highest rainfall occurs in September, while the lowest is in February and a summary of rainfall conditions by district is provided in Table 3.

**Table 3 Summary of Monthly Average Rainfall by Station in Krabi Province**

Station	Monthly Average Rainfall, mm/month												Dry season	Wet Season	Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
BKHN	92.6	30.6	56.0	102.3	139.7	120.1	159.7	161.0	199.6	223.8	215.5	134.8	597.1	1003.9	1601.1
BMDG	82.9	25.9	32.0	88.5	148.2	159.0	168.9	184.3	176.4	237.8	177.5	131.3	514.8	1074.7	1589.5
BSBA	74.2	12.9	14.8	35.8	87.7	49.2	92.5	77.9	97.3	119.6	149.2	103.0	373.0	524.1	897.2
CBUR	82.4	37.4	44.2	132.1	186.6	113.1	159.6	163.3	191.0	197.0	179.3	106.7	544.3	1010.6	1554.9
CHNA	67.1	24.6	36.8	98.0	151.1	107.2	154.7	151.9	194.9	191.7	173.7	92.4	470.4	951.5	1421.9
HYOD	87.7	47.2	47.9	98.7	130.4	130.4	169.6	160.7	185.9	243.0	225.1	158.3	623.9	1020.0	1643.9
KHNI	57.3	27.5	25.0	105.9	166.6	136.3	148.0	131.1	145.1	189.3	148.6	106.9	446.0	916.5	1362.5
KMSI	43.6	20.0	31.2	96.2	163.6	196.5	235.1	290.2	286.4	204.1	172.8	91.0	421.4	1375.8	1797.2
KOSK	52.1	39.2	63.5	112.6	221.7	268.8	416.6	379.3	508.8	416.1	168.8	109.6	506.7	2211.3	2718.0
LMKD	55.3	32.9	38.8	107.7	154.1	142.8	176.5	209.8	218.8	180.5	202.4	94.0	485.7	1082.5	1568.2
NANG	70.4	35.5	72.8	120.7	232.6	191.5	252.9	288.8	320.8	265.4	190.8	84.9	523.7	1551.9	2075.6
NKO001	130.4	43.5	31.3	75.5	166.1	159.3	161.7	171.1	211.9	222.5	302.9	200.8	746.6	1092.5	1839.1
TKP002	61.2	47.1	69.1	120.8	266.0	258.4	308.9	322.1	375.3	321.9	164.1	79.8	486.2	1852.7	2338.9
TNG001	83.6	25.7	49.3	114.8	119.1	122.4	165.4	186.5	193.6	202.4	206.8	141.4	582.7	989.5	1572.2
TNG002	68.6	25.8	36.5	120.5	169.6	146.5	187.9	228.1	286.7	238.5	216.5	143.3	572.0	1257.3	1829.3
TPI005	53.8	20.8	51.1	85.6	157.1	110.3	157.9	121.4	137.3	177.9	158.9	84.5	396.8	861.9	1258.7
TTLG	69.7	44.9	77.3	127.6	280.1	208.8	260.1	291.1	308.8	248.6	168.5	82.2	500.4	1597.6	2098.0
VLGE09	71.9	41.2	50.6	115.6	169.2	123.9	205.7	143.6	194.2	203.3	172.3	107.8	520.2	1040.0	1560.1
552008	73.5	22.2	39.4	102.3	188.2	150.9	191.7	164.2	195.6	221.5	204.4	144.4	565.8	1112.0	1677.8
566005	89.6	39.6	88.9	165.6	242.2	290.6	312.8	342.8	398.5	277.4	188.4	99.3	584.0	1864.2	2448.3
567010	102.7	41.8	99.4	171.1	235.8	248.7	298.2	244.4	359.7	287.0	240.3	165.5	721.6	1673.7	2395.3
Average	74.8	32.7	50.3	109.4	179.8	163.6	208.8	210.2	247.0	231.9	191.8	117.2	532.5	1241.2	1773.7

## 4. Water Resource, Allocated Water, and Procured Water Volumes

This chapter consists of assessing water resource volumes, evaluating allocated water volumes, determining procured water volumes for each district, and providing input data for water accounting.

### 4.1 Water Resources

Data collected includes water storage in medium reservoirs, small water sources and river runoff volumes.

#### 4.1.1 Medium Reservoirs

The study collected water storage data from six medium reservoirs in Krabi Province, including Bang Kam Prat, Huai Nam Khiew, Khlong Ya, Huai Leuk, Khlong Haeng, and Huai Sai Khao Reservoirs. The total water storage amounts to 33.68 million cubic meters. Table 4 presents the average monthly water storage for these medium-sized reservoirs in Krabi Province.

**Table 4 Average Monthly Water Storage for Medium Reservoirs in Krabi Province**

Reservoir	Storage, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
Bang Kam Prat	14.29	14.26	13.66	12.83	11.67	10.91	11.37	10.83	10.98	11.17	12.14	13.28	12.94	11.63	12.28
Huai Nam Khiew	4.93	4.83	4.58	4.19	3.80	3.57	3.61	3.59	3.76	4.04	4.41	4.82	4.32	4.04	4.18
Khlong Ya	3.22	3.04	2.96	2.74	2.44	2.31	2.59	2.58	2.71	2.89	3.13	3.13	2.78	2.84	2.81
Huai Leuk	2.27	2.15	2.03	1.80	1.58	1.43	1.54	1.49	1.59	1.73	1.88	2.21	1.88	1.74	1.81
Khlong Haeng	10.30	9.92	10.12	9.28	8.42	7.66	7.09	6.86	7.06	7.51	8.65	9.97	9.28	7.86	8.57
Huai Sai Khao	4.29	4.29	4.03	3.93	3.79	3.36	4.81	4.65	3.41	3.62	4.25	3.97	3.95	4.12	4.03
Total	39.29	38.49	37.37	34.77	31.70	29.24	31.01	30.01	29.50	30.95	34.47	37.37	35.14	32.22	33.68

#### 4.1.2 Small Water Sources

Based on data from the National Water Resources Office database, Krabi Province has a total of 171 small water sources with a water storage capacity of 6 million cubic meters. The average monthly water storage for these small water sources is presented in Table 5.

**Table 5 Average Monthly Water Storage for Small Water Sources in Krabi Province**

Code	District	Water storage, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	2.07	1.93	1.82	1.67	1.53	1.47	1.54	1.62	1.83	2.08	2.16	2.10	1.75	1.89	1.82
8102	Khao Phanom	1.18	1.17	1.11	1.04	0.95	0.89	0.93	0.91	0.94	0.99	1.06	1.13	1.06	0.99	1.03
8103	Ko Lanta	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
8104	Khlong Thom	0.98	0.97	0.91	0.85	0.79	0.74	0.75	0.74	0.76	0.80	0.88	0.94	0.87	0.81	0.84
8105	Ao Luek	0.32	0.30	0.28	0.26	0.23	0.22	0.24	0.25	0.28	0.32	0.33	0.32	0.27	0.29	0.28
8106	Plai Phraya	0.43	0.41	0.39	0.36	0.32	0.30	0.33	0.32	0.34	0.37	0.40	0.42	0.37	0.36	0.36
8107	Lam Thap	0.89	0.90	0.86	0.81	0.73	0.68	0.71	0.68	0.69	0.70	0.76	0.83	0.81	0.73	0.77
8108	Nuea Khlong	1.03	1.00	0.95	0.87	0.79	0.74	0.76	0.77	0.82	0.89	0.96	1.02	0.90	0.87	0.88
Total		6.92	6.69	6.34	5.86	5.36	5.06	5.28	5.31	5.68	6.17	6.56	6.77	6.04	5.96	6.00

### 4.1.3 River Runoff

River runoff for each sub-district was analyzed by calculating the specific yield coefficient through multiplying reservoir inflow volume by district area. Krabi Province's total river runoff is 11,205 million cubic meters, with 4,578 million cubic meters during the dry season and 6,626 million cubic meters during the rainy season. Table 6 summarizes the monthly average river runoff by district.

**Table 6 Monthly Average River Runoff by District**

Code	District	River runoff, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	114	97	59	48	42	40	61	62	82	158	112	133	401	607	1008
8102	Khao Phanom	356	297	248	207	150	159	291	276	380	391	343	353	1415	2034	3449
8103	Ko Lanta	24	13	11	11	10	15	16	14	50	23	33	36	85	173	257
8104	Khlong Thom	194	160	136	133	91	106	154	140	254	211	210	226	820	1196	2016
8105	Ao Luek	147	119	79	69	57	58	97	86	109	179	134	167	530	772	1302
8106	Plai Phraya	140	113	81	77	58	64	111	90	109	146	117	159	533	732	1265
8107	Lam Thap	121	101	85	71	51	54	100	95	131	132	117	119	483	694	1177
8108	Nuea Khlong	73	66	51	51	34	36	53	49	70	90	73	83	312	419	730
Total		1170	965	750	666	494	533	884	813	1184	1329	1139	1277	4578	6626	11205

## 4.2 Water Allocation

### 4.2.1 Irrigation Water Volume from Medium Reservoirs

In preparing this water account, irrigation water volume from medium-sized reservoirs was collected from the Royal Irrigation Department's water allocation plan. Water allocation covers different sectors including consumption, industry, agriculture (for both dry and rainy seasons). The seasonal water allocation was distributed by multiplying the proportion of water demand for consumption, industry, and agriculture for each month. Water allocation for consumption, industry, and agriculture according to the Royal Irrigation Department's allocation plan is shown in Tables 7 to 9.

**Table 7 Water Allocation for Consumption According to the Royal Irrigation Department's Allocation Plan**

Code	District	Water Allocation for Consumption, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.08	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.51	0.53	1.05
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8103	Ko Lanta	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.06	0.11
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.10
8106	Plai Phraya	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.06
8107	Lam Thap	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.23	0.24	0.48
8108	Nuea Khlong	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.26	0.26	0.52
Total		0.19	0.18	0.19	0.19	0.18	0.21	0.20	0.20	0.19	0.20	0.20	0.18	1.14	1.18	2.31

**Table 8 Water Allocation for Industrial Purposes According to the Royal Irrigation Department's Allocation Plan**

Code	District	Water Allocation for Industrial, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.23	0.23	0.46
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8106	Plai Phraya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8107	Lam Thap	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.20	0.20	0.40
8108	Nuea Khlong	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.06	0.13
Total		0.07	0.08	0.09	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.09	0.07	0.49	0.49	0.99

**Table 9 Water Allocation for Agricultural Purposes According to the Royal Irrigation Department's Allocation Plan**

Code	District	Water Allocation for Agricultural, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.32	0.38	0.55	0.52	0.58	0.49	0.43	0.28	0.43	0.19	0.18	0.31	2.85	1.82	4.67
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8103	Ko Lanta	0.11	0.12	0.19	0.17	0.22	0.16	0.14	0.09	0.15	0.07	0.06	0.09	0.97	0.59	1.56
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	0.27	0.34	0.48	0.44	0.40	0.40	0.42	0.28	0.43	0.18	0.18	0.30	2.34	1.79	4.12
8106	Plai Phraya	0.25	0.28	0.43	0.37	0.37	0.34	0.39	0.25	0.38	0.17	0.17	0.24	2.04	1.59	3.63
8107	Lam Thap	0.23	0.26	0.39	0.40	0.38	0.38	0.43	0.27	0.45	0.21	0.20	0.30	2.03	1.86	3.89
8108	Nuea Khlong	1.32	1.68	2.41	2.31	2.43	2.31	2.20	1.40	2.15	1.02	0.89	1.61	12.47	9.28	21.75
Total		2.49	3.05	4.46	4.20	4.39	4.09	4.02	2.57	3.98	1.84	1.67	2.85	22.69	16.93	39.61

#### 4.2.2 Water Allocation from Small Water Sources

In preparing this water account, water allocation from small water sources was determined by: Using the proportion of water release to capacity of medium-sized reservoirs and multiplying by the capacity of small water sources and considering only water allocation for agricultural purposes. The seasonal water allocation was distributed by multiplying the proportion of agricultural water demand for each month. Water allocation from small water sources for agriculture is about 30.59 million cubic meters per year. The monthly water allocation from small water sources for agriculture is shown in Table 10

**Table 10 Monthly Water Allocation from Small Water Sources for Agriculture**

Code	District	Monthly Water Allocation from Small Water Sources for Agriculture, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.65	0.68	0.55	0.52	0.64	0.66	0.65	0.69	0.68	0.82	0.71	0.72	3.70	4.27	7.96
8102	Khao Phanom	0.41	0.40	0.37	0.34	0.33	0.34	0.41	0.49	0.48	0.51	0.42	0.40	2.18	2.71	4.88
8103	Ko Lanta	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.09
8104	Khlong Thom	0.41	0.41	0.40	0.42	0.39	0.40	0.42	0.43	0.42	0.45	0.37	0.39	2.43	2.48	4.91
8105	Ao Luek	0.10	0.10	0.08	0.08	0.10	0.10	0.10	0.11	0.10	0.13	0.11	0.11	0.57	0.65	1.22
8106	Plai Phraya	0.26	0.25	0.21	0.20	0.19	0.21	0.22	0.23	0.22	0.23	0.21	0.28	1.33	1.39	2.72
8107	Lam Thap	0.31	0.30	0.30	0.26	0.24	0.25	0.32	0.39	0.38	0.39	0.32	0.30	1.66	2.10	3.76
8108	Nuea Khlong	0.40	0.41	0.42	0.45	0.43	0.44	0.43	0.42	0.42	0.46	0.38	0.38	2.55	2.50	5.05
	Total	2.55	2.57	2.34	2.27	2.32	2.40	2.55	2.77	2.70	2.99	2.54	2.59	14.45	16.15	30.59

#### 4.2.3 Provincial Waterworks Authority Water Distribution

In preparing this water account, water distribution by the Provincial Waterworks Authority was considered, which represents water extracted from surface water sources. Water distribution was categorized into 4 main user groups included households, business services, hotels, and industrial sectors. Total water distribution is about 16.05 million cubic meters/year included households 7.06 million cubic meters/year, business services 5.88 million cubic meters/year, hotels 2.81 million cubic meters/year, and industrial sectors: 0.30 million cubic meters/year. Monthly water distribution for Provincial Waterworks Authority by user groups is shown in Tables 11 to 15

**Table 11 Monthly Water Distribution by Provincial Waterworks Authority for Household Group**

Code	District	Monthly Water Distribution for Household, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.29	0.28	0.29	0.30	0.30	0.31	0.30	0.30	0.29	0.30	0.29	0.28	1.76	1.75	3.52
8102	Khao Phanom	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.31	0.31	0.61
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.05	0.05	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.34	0.34	0.68
8105	Ao Luek	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.22	0.22	0.44
8106	Plai Phraya	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.27	0.27	0.54
8107	Lam Thap	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.12	0.12	0.25
8108	Nuea Khlong	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.08	0.09	0.08	0.08	0.51	0.51	1.03
Total		0.57	0.56	0.59	0.59	0.60	0.63	0.61	0.59	0.58	0.59	0.57	0.57	3.54	3.52	7.06

**Table 12 Monthly Water Distribution by Provincial Waterworks Authority for Business Service Group**

Code	District	Monthly Water Distribution for Business Service, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.32	0.31	0.34	0.34	0.36	0.36	0.35	0.35	0.36	0.36	0.35	0.33	2.03	2.11	4.14
8102	Khao Phanom	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.08	0.17
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.22	0.22	0.44
8105	Ao Luek	0.03	0.04	0.04	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.21	0.21	0.42
8106	Plai Phraya	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.10	0.10	0.19
8107	Lam Thap	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.08	0.08	0.16
8108	Nuea Khlong	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.18	0.17	0.35
Total		0.45	0.46	0.49	0.48	0.51	0.51	0.50	0.50	0.50	0.51	0.49	0.48	2.90	2.97	5.88

**Table 13 Monthly Water Distribution by Provincial Waterworks Authority for Hotel Group**

Code	District	Monthly Water Distribution for Hotel, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.20	0.25	0.25	0.26	0.25	0.25	0.22	0.20	0.18	0.19	0.18	0.20	1.47	1.18	2.65
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03
8105	Ao Luek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.05
8106	Plai Phraya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8107	Lam Thap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8108	Nuea Khlong	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04
Total		0.21	0.27	0.27	0.27	0.27	0.26	0.23	0.21	0.20	0.20	0.20	0.21	1.55	1.26	2.81

**Table 14 Monthly Water Distribution by Provincial Waterworks Authority for Industrial Group**

Code	District	Monthly Water Distribution for Industrial, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.10	0.09	0.19
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.05
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8106	Plai Phraya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8107	Lam Thap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8108	Nuea Khlong	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.05
Total		0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.02	0.16	0.15	0.30

**Table 15 Monthly Water Distribution by Provincial Waterworks Authority for all groups**

Code	District	Monthly Water Distribution, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.83	0.86	0.9	0.92	0.93	0.94	0.89	0.87	0.84	0.87	0.84	0.82	5.36	5.13	10.5
8102	Khao Phanom	0.06	0.06	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.45	0.43	0.87
8103	Ko Lanta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8104	Khlong Thom	0.08	0.09	0.1	0.09	0.1	0.1	0.1	0.1	0.1	0.1	0.08	0.1	0.57	0.57	1.15
8105	Ao Luek	0.06	0.07	0.08	0.07	0.08	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.46	0.45	0.91
8106	Plai Phraya	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.37	0.37	0.73
8107	Lam Thap	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.2	0.2	0.43
8108	Nuea Khlong	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.11	0.73	0.72	1.47
Total		1.25	1.32	1.38	1.37	1.41	1.43	1.37	1.32	1.3	1.32	1.29	1.28	8.15	7.9	16.05

#### 4.2.4 Village Water Supply Distribution

Data collection details were focused on sub-districts and number of households served and most village water supplies use groundwater for production of drinking water. Calculation method is to take number of people per household multiplied by number of households served multiplied by water usage rate (set at 50 liters/person/day). Total water distribution by village water supply is about 4.18 million cubic meters/year. Monthly water distribution by village water supply is shown in Table 16

**Table 16 Monthly water distribution by village water supply**

Code	District	Monthly water distribution by village water supply, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.27	0.27	0.53
8102	Khao Phanom	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.26	0.26	0.52
8103	Ko Lanta	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.23	0.23	0.46
8104	Khlong Thom	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.53	0.53	1.06
8105	Ao Luek	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.24	0.24	0.49
8106	Plai Phraya	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.13	0.13	0.27
8107	Lam Thap	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.10	0.10	0.20
8108	Nuea Khlong	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.33	0.33	0.66
Total		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	2.09	2.09	4.18

### 4.3 Self-Water Procurement

#### 4.3.1 Groundwater Pumping from Private Wells

Groundwater well data was collected from Department of Groundwater Resources. The purposes of groundwater wells are used for hotel services and other service sectors. Groundwater pumping is calculated from authorized groundwater volume multiplied by pumping hours per day (8 hours) multiplied by pumping coefficient (0.5). Total groundwater pumping is about 9.978 million cubic meters, included hotel services 3.035 million cubic meters and other services: 6.943 million cubic meters. Monthly groundwater pumping volumes from private wells for hotel services are shown in Table 17 and 18.

**Table 17 Monthly groundwater pumping from private wells for hotel services**

Code	District	Monthly groundwater pumping from private wells for hotel services, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.178	0.211	0.203	0.204	0.199	0.190	0.172	0.163	0.157	0.157	0.157	0.172	1.184	0.978	2.162
8102	Khao Phanom	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.007	0.007	0.014
8103	Ko Lanta	0.050	0.072	0.069	0.069	0.067	0.064	0.058	0.055	0.052	0.053	0.053	0.058	0.391	0.328	0.718
8104	Khlong Thom	0.004	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.027	0.027	0.054
8105	Ao Luek	0.002	0.003	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.015	0.012	0.027
8106	Plai Phraya	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.005
8107	Lam Thap	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
8108	Nuea Khlong	0.004	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.029	0.025	0.054
Total		0.240	0.296	0.286	0.286	0.279	0.267	0.243	0.230	0.221	0.222	0.221	0.243	1.655	1.379	3.035

**Table 18 Monthly groundwater Pumping from Private Wells for Services**

Code	District	Monthly groundwater Pumping from Private Wells for Services, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.321	0.295	0.302	0.302	0.307	0.315	0.333	0.342	0.349	0.348	0.349	0.333	1.841	2.054	3.894
8102	Khao Phanom	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.057	0.057	0.115
8103	Ko Lanta	0.087	0.087	0.090	0.090	0.092	0.095	0.101	0.104	0.106	0.106	0.106	0.101	0.540	0.625	1.165
8104	Khlong Thom	0.048	0.049	0.048	0.048	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.291	0.292	0.583
8105	Ao Luek	0.024	0.027	0.027	0.027	0.027	0.027	0.028	0.028	0.028	0.028	0.028	0.028	0.160	0.167	0.327
8106	Plai Phraya	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.134	0.135	0.268
8107	Lam Thap	0.012	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.080	0.081	0.161
8108	Nuea Khlong	0.036	0.035	0.035	0.035	0.035	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.213	0.217	0.430
Total		0.559	0.538	0.548	0.548	0.555	0.567	0.591	0.605	0.613	0.613	0.613	0.592	3.316	3.627	6.943

### 4.3.2 Groundwater Pumping from Government Wells

Groundwater well data was collected from Department of Groundwater Resources. The purposes of groundwater wells are used for consumption and agricultural sectors. Groundwater pumping is calculated from pumped groundwater volume multiplied by pumping hours per day (8 hours) multiplied by pumping coefficient (0.5). Total groundwater pumping from government wells is about 5.357 million cubic meters, included consumption 4.745 million cubic meters and agriculture: 0.612 million cubic meters. Monthly groundwater pumping volumes from government wells for consumption and agriculture are shown in Tables 19 and 20.

**Table 19 Monthly Groundwater Pumping from Government Wells for Consumption**

Code	District	Monthly Groundwater Pumping from Government Wells for Consumption, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.301	0.301	0.602
8102	Khao Phanom	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.291	0.291	0.583
8103	Ko Lanta	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.066	0.066	0.132
8104	Khlong Thom	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.066	0.393	0.393	0.786
8105	Ao Luek	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.455	0.455	0.910
8106	Plai Phraya	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.152	0.152	0.304
8107	Lam Thap	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.453	0.453	0.907
8108	Nuea Khlong	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.261	0.261	0.521
Total		0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395	0.395	2.373	2.373	4.745

**Table 20 Monthly Groundwater Pumping from Government Wells for Agriculture**

Code	District	Monthly Groundwater Pumping from Government Wells for Agriculture, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.041	0.041	0.081
8102	Khao Phanom	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.112	0.112	0.224
8103	Ko Lanta	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.009	0.009	0.019
8104	Khlong Thom	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.008	0.008	0.017
8105	Ao Luek	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.014	0.014	0.028
8106	Plai Phraya	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.035	0.035	0.071
8107	Lam Thap	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.077	0.077	0.153
8108	Nuea Khlong	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.010	0.010	0.020
Total		0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.306	0.306	0.612

### 4.3.3 Groundwater Pumping from Public Shallow Wells

Groundwater pumping from public shallow wells data was collected from Department of Community Development. The purposes of groundwater wells are used for consumption and agricultural sectors. Groundwater pumping from public shallow wells are calculated from number of functional shallow wells multiplied by water usage rate for consumption or agriculture. Total shallow well water pumping is about 1.394 million cubic meters including consumption 0.068 million cubic meters and agriculture: 1.326 million cubic meters. Monthly groundwater pumping volumes from public shallow wells for consumption and agriculture are shown in Tables 21 and 22.

**Table 21 Monthly Groundwater Pumping from Public Shallow Wells for Consumption**

Code	District	Groundwater Pumping from Public Shallow Wells for Consumption, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.006	0.006	0.012
8102	Khao Phanom	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.010
8103	Ko Lanta	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001
8104	Khlong Thom	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004	0.007
8105	Ao Luek	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.009	0.009	0.018
8106	Plai Phraya	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.006
8107	Lam Thap	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.004
8108	Nuea Khlong	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.006	0.006	0.011
Total		0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.034	0.034	0.068

**Table 22 Monthly Groundwater Pumping from Public Shallow Wells for Agriculture**

Code	District	Groundwater Pumping from Public Shallow Wells for Agriculture, MCM/month												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.022	0.022	0.022	0.022	0.022	0.022	0.015	0.015	0.015	0.015	0.015	0.015	0.134	0.091	0.225
8102	Khao Phanom	0.019	0.019	0.019	0.019	0.019	0.019	0.013	0.013	0.013	0.013	0.013	0.013	0.112	0.076	0.188
8103	Ko Lanta	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.013	0.009	0.023
8104	Khlong Thom	0.014	0.014	0.014	0.014	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.083	0.056	0.139
8105	Ao Luek	0.034	0.034	0.034	0.034	0.034	0.034	0.023	0.023	0.023	0.023	0.023	0.023	0.203	0.139	0.342
8106	Plai Phraya	0.011	0.011	0.011	0.011	0.011	0.011	0.008	0.008	0.008	0.008	0.008	0.008	0.067	0.046	0.113
8107	Lam Thap	0.008	0.008	0.008	0.008	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.047	0.032	0.079
8108	Nuea Khlong	0.022	0.022	0.022	0.022	0.022	0.022	0.015	0.015	0.015	0.015	0.015	0.015	0.129	0.088	0.218
Total		0.131	0.131	0.131	0.131	0.131	0.131	0.090	0.090	0.090	0.090	0.090	0.090	0.788	0.537	1.326

## 5. Water Demand

This study analyzed water demand for various activities in Krabi Province, including consumption, industrial use, agricultural purposes, and service sectors. Analysis was conducted at the district level, with results to be used for sub-district water accounting.

### 5.1 Domestic Water Demand

Domestic water demand was analyzed by examining population in and outside water supply service areas, multiplied by the per capita daily water usage rate. The total water demand reached 2 million cubic meters/year, with 1.67 million cubic meters/year (83.5%) within water service areas and 0.33 million cubic meters/year (16.5%) outside these areas. From 2015-2024, water demand showed an increasing trend, with an average annual growth rate of 0.58%. In terms of district ranking for water consumption, Mueang Krabi recorded the highest demand, followed by Khlong Thom and Nuea Khlong. Detailed analysis of water consumption for municipal and non-municipal areas across Krabi Province is presented in Tables 23 to 25

**Table 23 Analysis of water demand within water service areas by district in Krabi Province**

Code	District	Water demand within water service areas, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	0.72	0.73	0.74	0.76	0.77	0.77	0.77	0.78	0.79	0.67
8102	Khao Phanom	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28	0.23
8103	Ko Lanta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8104	Khlong Thom	0.40	0.40	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.31
8105	Ao Luek	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.07
8106	Plai Phraya	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.04
8107	Lam Thap	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.07
8108	Nuea Khlong	0.34	0.34	0.34	0.34	0.35	0.35	0.35	0.35	0.36	0.27
Total		2.07	2.09	2.11	2.13	2.15	2.15	2.16	2.16	2.17	1.67

**Table 24 Analysis of water demand outside water service areas by district in Krabi Province**

Code	District	Water demand outside water service areas, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
8102	Khao Phanom	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
8103	Ko Lanta	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
8104	Khlong Thom	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05
8105	Ao Luek	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.08
8106	Plai Phraya	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
8107	Lam Thap	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
8108	Nuea Khlong	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Total		0.24	0.24	0.24	0.24	0.24	0.25	0.25	0.25	0.25	0.33

**Table 25 Analysis of total water demand in and outside water service areas by district in Krabi Province**

Code	District	Total water demand in and outside water service areas, MCM/day									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	0.74	0.75	0.76	0.77	0.78	0.79	0.79	0.79	0.80	0.69
8102	Khao Phanom	0.29	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.26
8103	Ko Lanta	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
8104	Khlong Thom	0.43	0.43	0.43	0.44	0.44	0.44	0.44	0.44	0.44	0.35
8105	Ao Luek	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.16
8106	Plai Phraya	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.08
8107	Lam Thap	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10
8108	Nuea Khlong	0.36	0.36	0.36	0.36	0.37	0.37	0.37	0.37	0.38	0.30
Total		2.31	2.33	2.35	2.37	2.39	2.40	2.40	2.41	2.42	2.00

## 5.2 Industrial Water Demand

Industrial water demand was calculated by multiplying the horsepower of each factory by its industrial type and the corresponding water usage rate per horsepower per day. The industrial factories were categorized into four subsections:

- Subsection 01-03: Agriculture, Forestry, and Fishing
- Subsection 05-33 and 41: Mining, Manufacturing, and Construction
- Subsection 35: Electricity, Gas, Steam, and Air Conditioning
- Subsection 38 , 39 , and 45 – 99 : Other Industries

In 2023, the total industrial water demand reached 4,950,882 cubic meters per year. The district ranking for industrial water demand, from highest to lowest, was Mueang Krabi, Khao Phanom, and Plai Phraya. A detailed analysis of industrial water demand by district in Krabi Province is presented in Table 26.

**Table 26 Analysis of Industrial Water Demand in Krabi Province by District.**

a) Subsection 01 - 03: Agriculture, Forestry, and Fishing

Code	District	Industrial Water Demand, MCM/year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
8101	Mueang Krabi	0	0	6,232	6,232	6,232	6,232	6,232	6,232	6,232
8102	Khao Phanom	0	0	0	0	0	0	0	0	0
8103	Ko Lanta	0	0	0	0	0	0	0	0	0
8104	Khlong Thom	0	0	0	0	0	0	0	0	0
8105	Ao Luek	0	0	0	0	0	0	0	0	0
8106	Plai Phraya	55,508	55,508	55,508	55,508	55,508	55,508	55,508	372,065	372,065
8107	Lam Thap	0	0	0	0	9,023	9,023	9,023	9,023	9,023
8108	Nuea Khlong	0	0	36,004	36,004	36,004	36,004	36,004	36,004	36,004
Total		55,508	55,508	97,745	97,745	106,768	106,768	106,768	423,324	423,324

b) Subsection 05 - 33 and 41: Mining and Quarrying, Manufacturing, and Construction

Code	District	Industrial Water Demand, MCM/year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
8101	Mueang Krabi	91,389	91,389	91,389	91,389	91,389	91,389	91,389	91,389	91,389
8102	Khao Phanom	32,283	32,283	100,816	100,816	100,816	100,816	100,816	100,816	100,816
8103	Ko Lanta	0	0	0	0	0	0	0	0	0
8104	Khlong Thom	15,621	15,621	15,621	15,621	15,621	26,845	26,845	26,845	26,845
8105	Ao Luek	711	19,258	88,897	88,897	123,982	135,206	209,591	258,571	258,571
8106	Plai Phraya	9,022	15,611	15,611	15,611	56,584	132,481	132,481	132,481	132,481
8107	Lam Thap	0	6,046	6,046	6,046	6,046	6,046	48,686	48,686	48,686
8108	Nuea Khlong	11,789	56,444	56,444	56,967	56,967	56,967	56,967	59,547	59,547
Total		160,815	236,652	374,824	375,347	451,405	549,750	666,775	718,335	718,335

c) Subsection 35 : Electricity , Gas, Steam , and Air Conditioning

Code	District	Industrial Water Demand, MCM/year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
8101	Mueang Krabi	0	320	320	320	320	320	320	320	320
8102	Khao Phanom	525	525	525	525	525	2,731	2,731	2,731	2,731
8103	Ko Lanta	0	0	0	0	0	0	0	0	0
8104	Khlong Thom	0	485	485	485	485	794	794	794	794
8105	Ao Luek	1,284	1,468	1,468	1,468	1,468	2,592	2,592	2,592	2,592
8106	Plai Phraya	314	314	110,923	110,923	110,923	221,532	221,532	221,532	221,532
8107	Lam Thap	349	349	349	349	349	349	349	349	349
8108	Nuea Khlong	304	304	304	304	304	304	304	304	304
Total		2,775	3,766	114,375	114,375	114,375	228,621	228,621	228,621	228,621

d) Subsection 38 , 39 , and 45 - 99 : Other Industries

Code	District	Industrial Water Demand, MCM/year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
8101	Mueang Krabi	594,756	643,526	650,358	653,254	668,839	1,156,971	1,157,787	1,160,743	1,160,743
8102	Khao Phanom	130,424	130,424	159,289	185,165	783,261	785,281	785,281	785,281	785,281
8103	Ko Lanta	1,044	1,044	1,044	1,044	1,044	1,531	1,531	1,531	1,531
8104	Khlong Thom	214,257	214,470	214,470	214,470	216,864	273,610	273,610	273,610	273,610
8105	Ao Luek	444,999	445,116	445,116	447,678	453,012	458,208	461,165	461,165	461,165
8106	Plai Phraya	95,876	144,087	146,756	147,414	147,414	148,961	150,164	150,244	150,244
8107	Lam Thap	585,764	587,096	587,096	602,429	602,439	602,439	602,439	602,439	602,439
8108	Nuea Khlong	126,106	141,957	142,123	142,662	142,662	144,238	144,238	144,238	145,590
Total		2,193,226	2,307,720	2,346,252	2,394,116	3,015,534	3,571,238	3,576,214	3,579,251	3,580,602

e) Total Subsections

Code	District	Industrial Water Demand, MCM/year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
8101	Mueang Krabi	686,145	735,235	748,299	751,195	766,780	1,254,912	1,255,728	1,258,684	1,258,684
8102	Khao Phanom	163,232	163,232	260,630	286,506	884,602	888,828	888,828	888,828	888,828
8103	Ko Lanta	1,044	1,044	1,044	1,044	1,044	1,531	1,531	1,531	1,531
8104	Khlong Thom	229,878	230,576	230,576	230,576	232,970	301,249	301,249	301,249	301,249
8105	Ao Luek	446,994	465,842	535,481	538,043	578,462	596,006	673,348	722,328	722,328
8106	Plai Phraya	160,720	215,520	328,798	329,456	370,429	558,482	559,685	876,322	876,322
8107	Lam Thap	586,113	593,491	593,491	608,824	617,857	617,857	660,497	660,497	660,497
8108	Nuea Khlong	138,199	198,705	234,875	235,937	235,937	237,513	237,513	240,093	241,445
Total		2,412,324	2,603,646	2,933,196	2,981,583	3,688,082	4,456,377	4,578,378	4,949,531	4,950,882

### 5.3 Agricultural Water Demand

Agricultural Water Demand was calculated from cultivation areas in and outside irrigation zones multiplied by crop water requirements. Considerations include cropping calendar, crop growth coefficient (Kc), reference crop evapotranspiration (ET<sub>o</sub>), and effective rainfall. Crop data was collected from the Office of Agricultural Economics and land use maps from the Department of Land Development used for area adjustments.

Irrigated agricultural water demand in 2024 is about 101.79 million cubic meters per year. The average irrigated agricultural water demand (2015 - 2024) is approximately 106.31 million cubic meters per year, comprising 71.66 million cubic meters during the dry season and 34.65 million cubic meters during the rainy season. The district ranking for the irrigation zone, from highest to lowest, is Nuea Khlong, Mueang Krabi, and Ao Luek. Annual and monthly analyses by district are presented in Tables 27 and 30

Rainfed agricultural water demand in 2024 is about 5,390.96 million cubic meters per year. The average rainfed agricultural water demand (2015 - 2024) is approximately 5,207.1 million cubic meters per year, with 3,395.1 million cubic meters during the dry season and 1,812.0 million cubic meters during the rainy season. The district ranking for the rainfed zone, from highest to lowest, is Ao Luek, Khlong Thom, and Khao Phanom. Annual and monthly analyses by district are detailed in Tables 28 and 31

Total agricultural water demand for both irrigated and rainfed areas in 2024 is about 5,492.74 million cubic meters per year. The average agricultural water demand (2015 - 2024) is approximately 5,313 million cubic meters per year, with 3,467 million cubic meters during the dry season and 1,847 million cubic meters during the rainy season. The overall district ranking, from highest to lowest, is Ao Luek, Khlong Thom, and Khao Phanom. Annual and monthly analyses by district are presented in Tables 29 and 32

**Table 27 Annual agricultural water demand in Irrigation zones of Krabi Province by district**

Code	District	Agricultural water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	7.82	9.75	8.79	8.27	44.63	11.32	10.36	7.81	10.77	12.29
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8103	Ko Lanta	1.88	2.53	3.33	3.45	5.78	4.35	3.68	2.82	3.61	4.30
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	6.23	7.49	7.38	7.03	46.29	10.07	9.50	7.27	11.11	10.91
8106	Plai Phraya	5.58	7.20	7.78	7.09	24.53	8.46	7.50	6.16	8.40	9.12
8107	Lam Thap	5.68	8.24	7.44	7.70	22.07	9.42	8.50	6.96	8.44	10.60
8108	Nuea Khlong	34.86	43.63	48.03	44.71	182.44	51.03	41.80	36.81	47.59	54.57
Total		62.05	78.84	82.75	78.25	325.73	94.65	81.34	67.82	89.92	101.79

**Table 28 Annual Agricultural Water Demand in Non-Irrigation Zones of Krabi Province by District**

Code	District	Agricultural water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	430.65	533.88	490.51	464.78	1,958.96	607.25	535.29	417.38	580.88	654.10
8102	Khao Phanom	604.35	832.31	725.74	689.82	1,746.23	861.10	776.71	618.72	792.22	981.27
8103	Ko Lanta	77.22	105.09	130.64	138.92	251.79	176.83	152.17	114.70	145.60	172.27
8104	Khlong Thom	637.35	883.26	839.81	839.59	1,683.24	994.34	855.68	687.81	855.19	1,025.92
8105	Ao Luek	553.08	675.78	675.68	637.09	3,312.40	880.80	809.12	627.41	942.97	940.88
8106	Plai Phraya	409.52	522.53	547.84	501.63	1,875.74	616.59	556.02	453.59	617.96	675.33
8107	Lam Thap	241.43	348.71	318.83	328.42	970.79	398.72	357.47	290.81	355.82	448.37
8108	Nuea Khlong	317.10	406.02	430.07	415.91	1,428.95	470.44	390.29	331.52	427.38	492.82
Total		3,270.69	4,307.58	4,159.13	4,016.15	13,228.09	5,006.06	4,432.76	3,541.94	4,718.02	5,390.96

**Table 29 Annual Total Agricultural Water Demand in Irrigation and Non-Irrigation Zones of Krabi Province by District**

Code	District	Agricultural water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	438.47	543.63	499.30	473.04	2,003.59	618.57	545.65	425.19	591.65	666.39
8102	Khao Phanom	604.35	832.31	725.74	689.82	1,746.23	861.10	776.71	618.72	792.22	981.27
8103	Ko Lanta	79.10	107.63	133.97	142.36	257.57	181.18	155.86	117.52	149.21	176.57
8104	Khlong Thom	637.35	883.26	839.81	839.59	1,683.24	994.34	855.68	687.81	855.19	1,025.92
8105	Ao Luek	559.31	683.27	683.06	644.11	3,358.68	890.87	818.62	634.68	954.08	951.79
8106	Plai Phraya	415.10	529.73	555.61	508.72	1,900.27	625.05	563.51	459.75	626.36	684.45
8107	Lam Thap	247.10	356.94	326.27	336.13	992.85	408.14	365.97	297.77	364.27	458.97
8108	Nuea Khlong	351.96	449.65	478.11	460.63	1,611.39	521.48	432.09	368.33	474.97	547.39
Total		3,332.74	4,386.42	4,241.88	4,094.39	13,553.82	5,100.72	4,514.10	3,609.76	4,807.94	5,492.74

**Table 30 Monthly Agricultural Water Demand in Irrigated Zones of Krabi Province by District**

Code	District	Agricultural Water Demand, MCM/year												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	0.56	0.75	1.19	1.61	2.56	2.84	0.86	0.66	0.57	0.51	0.47	0.60	9.51	3.67	13.18
8102	Khao Phanom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8103	Ko Lanta	0.19	0.24	0.43	0.52	0.62	0.34	0.28	0.21	0.21	0.19	0.16	0.17	2.34	1.23	3.57
8104	Khlong Thom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8105	Ao Luek	0.49	0.67	0.99	1.39	2.36	2.88	0.84	0.66	0.54	0.49	0.45	0.57	8.78	3.55	12.33
8106	Plai Phraya	0.44	0.53	0.82	1.14	2.33	0.68	0.75	0.61	0.50	0.47	0.44	0.48	5.93	3.25	9.18
8107	Lam Thap	0.41	0.52	0.83	1.23	1.26	1.57	0.83	0.66	0.57	0.54	0.49	0.58	5.83	3.67	9.50
8108	Nuea Khlong	2.28	3.23	5.10	7.07	10.00	11.59	4.41	3.42	3.10	2.68	2.54	3.14	39.27	19.27	58.55
Total		4.37	5.94	9.36	12.96	19.12	19.90	7.98	6.21	5.49	4.87	4.56	5.54	71.66	34.65	106.31

**Table 31 Monthly Agricultural Water Demand in Non-Irrigation Zones of Krabi Province by District**

Code	District	Agricultural Water Demand, MCM/year												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	29.0	39.9	66.1	88.1	118.8	129.7	47.5	35.8	30.6	26.8	23.8	31.3	471.7	195.7	667.4
8102	Khao Phanom	41.7	52.5	82.5	113.6	157.5	83.8	73.4	60.6	53.0	49.5	42.7	52.1	531.6	331.2	862.8
8103	Ko Lanta	7.5	9.5	17.3	21.5	26.2	13.9	11.9	9.0	8.6	7.6	6.2	7.2	95.9	50.6	146.5
8104	Khlong Thom	44.5	56.9	94.4	131.6	128.0	112.0	83.9	64.0	57.7	51.9	47.6	57.7	567.6	362.7	930.2
8105	Ao Luek	43.5	57.5	87.4	119.9	237.2	152.2	73.1	57.3	47.6	42.3	39.7	47.9	697.6	307.9	1,005.5
8106	Plai Phraya	31.0	38.0	59.4	82.7	177.8	50.3	54.7	44.4	37.0	34.3	32.5	35.7	439.1	238.6	677.7
8107	Lam Thap	17.6	22.2	36.0	52.3	53.0	73.2	34.5	27.2	23.9	22.4	20.0	23.5	254.3	151.6	405.9
8108	Nuea Khlong	21.2	29.0	47.2	65.1	100.3	74.6	40.0	30.9	28.0	24.3	22.7	27.8	337.4	173.7	511.1
Total		236.0	305.5	490.4	674.8	998.8	689.6	419.0	329.2	286.4	259.3	235.3	283.1	3,395.1	1,812.0	5,207.1

**Table 32 Monthly Agricultural Water Demand in Irrigation and Non-Irrigation Zones of Krabi Province by District**

Code	District	Agricultural Water Demand, MCM/year												Dry, MCM	Wet, MCM	Total, MCM
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct			
8101	Mueang Krabi	29.6	40.7	67.3	89.7	121.4	132.5	48.3	36.5	31.1	27.3	24.3	31.9	481.2	199.4	680.5
8102	Khao Phanom	41.7	52.5	82.5	113.6	157.5	83.8	73.4	60.6	53.0	49.5	42.7	52.1	531.6	331.2	862.8
8103	Ko Lanta	7.7	9.7	17.7	22.0	26.9	14.2	12.2	9.2	8.9	7.8	6.4	7.4	98.2	51.8	150.1
8104	Khlong Thom	44.5	56.9	94.4	131.6	128.0	112.0	83.9	64.0	57.7	51.9	47.6	57.7	567.6	362.7	930.2
8105	Ao Luek	44.0	58.2	88.4	121.3	239.5	155.1	73.9	58.0	48.1	42.8	40.2	48.5	706.4	311.5	1017.8
8106	Plai Phraya	31.4	38.5	60.2	83.8	180.1	50.9	55.4	45.0	37.5	34.8	33.0	36.1	445.0	241.9	686.9
8107	Lam Thap	18.0	22.7	36.8	53.6	54.2	74.8	35.4	27.9	24.5	23.0	20.5	24.1	260.1	155.3	415.4
8108	Nuea Khlong	23.5	32.3	52.3	72.2	110.3	86.1	44.4	34.3	31.1	27.0	25.2	31.0	376.6	193.0	569.6
	Total	240	311	500	688	1,018	710	427	335	292	264	240	289	3,467	1,847	5,313

### 5.4 Service Sector Water Demand

In analyzing water demand for service sectors, four user groups were identified:

Schools water demand was calculated by multiplying the number of teachers and students by school days and water usage rate per person. Total school water demand is 0.340 million cubic meters/year. Mueang Krabi district has the highest demand, followed by Khlong Thom and Nuea Khlong districts. There is a water demand decline rate of 0.95% due to decreasing student numbers over the past 10 years. Detailed analysis by district is shown in Table 33

Business enterprise water demand was calculated by multiplying the number of workers by water usage rate per person. Total business establishment water demand is 2.946 million cubic meters/year. Mueang Krabi district has the highest demand, followed by Ko Lanta and Nuea Khlong districts. There is a water demand increase rate of 1.05%. Detailed analysis by district is shown in Table 34

Hotels and Resorts water demand was calculated by multiplying the number of guests by overnight stays and water usage rate per person. Total hotel and resort water demand is 2.649 million cubic meters/year. Mueang Krabi district has the highest demand, followed by Ko Lanta and Khlong Thom districts. There is a water demand increase rate of 12.38%. Detailed analysis by district is shown in Table 35

Hospitals water demand was calculated by multiplying inpatients and outpatients by overnight stays and water usage rate per person. Total hospital water demand is 0.079 million cubic meters/year. Mueang Krabi district has the highest demand, followed by Khlong Thom and Nuea Khlong districts. There is a water demand decline rate of 1.31%. Detailed analysis by district is shown in Table 36

In 2024, Krabi Province has a total service sector water demand of 6.01 million cubic meters/year. Mueang Krabi district has the highest demand, followed by Ko Lanta and Khlong Thom districts, with an overall water demand increase rate of 1.74%. Detailed analysis by district is shown in Table 37

**Table 33 School water demand**

Code	District	School water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	0.083	0.083	0.084	0.085	0.084	0.084	0.083	0.084	0.083	0.082
8102	Khao Phanom	0.051	0.051	0.052	0.052	0.051	0.051	0.050	0.050	0.049	0.041
8103	Ko Lanta	0.033	0.034	0.034	0.034	0.034	0.033	0.032	0.032	0.030	0.029
8104	Khlong Thom	0.067	0.065	0.067	0.067	0.065	0.065	0.066	0.065	0.064	0.062
8105	Ao Luek	0.046	0.043	0.044	0.043	0.043	0.044	0.044	0.043	0.041	0.040
8106	Plai Phraya	0.027	0.026	0.025	0.024	0.024	0.024	0.024	0.023	0.023	0.022
8107	Lam Thap	0.021	0.021	0.022	0.022	0.023	0.023	0.023	0.023	0.022	0.021
8108	Nuea Khlong	0.044	0.044	0.044	0.045	0.046	0.046	0.045	0.045	0.044	0.043
Total		0.371	0.367	0.371	0.372	0.370	0.370	0.366	0.364	0.356	0.340

**Table 34 Business enterprises water demand**

Code	District	Business enterprises water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	1.963	1.879	2.083	1.954	1.966	1.951	1.936	2.096	2.181	2.130
8102	Khao Phanom	0.051	0.049	0.054	0.051	0.051	0.050	0.050	0.054	0.056	0.055
8103	Ko Lanta	0.409	0.391	0.434	0.407	0.410	0.406	0.403	0.437	0.454	0.444
8104	Khlong Thom	0.047	0.045	0.050	0.047	0.047	0.047	0.046	0.050	0.052	0.051
8105	Ao Luek	0.085	0.082	0.091	0.085	0.086	0.085	0.084	0.091	0.095	0.093
8106	Plai Phraya	0.033	0.032	0.035	0.033	0.034	0.033	0.033	0.036	0.037	0.036
8107	Lam Thap	0.021	0.020	0.022	0.021	0.021	0.021	0.021	0.022	0.023	0.023
8108	Nuea Khlong	0.105	0.101	0.112	0.105	0.105	0.105	0.104	0.112	0.117	0.114
Total		2.715	2.599	2.881	2.702	2.719	2.698	2.677	2.900	3.017	2.946

**Table 35 Hotels and resorts water demand**

Code	District	Hotels and Resorts Water Demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	1.917	1.929	2.130	2.327	2.263	1.064	0.460	0.843	1.871	2.032
8102	Khao Phanom	0.020	0.016	0.016	0.022	0.018	0.015	0.019	0.021	0.024	0.024
8103	Ko Lanta	0.489	0.488	0.524	0.518	0.499	0.214	0.054	0.138	0.384	0.424
8104	Khlong Thom	0.077	0.061	0.062	0.092	0.079	0.061	0.073	0.086	0.098	0.099
8105	Ao Luek	0.020	0.019	0.020	0.021	0.020	0.010	0.005	0.008	0.017	0.018
8106	Plai Phraya	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
8107	Lam Thap	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
8108	Nuea Khlong	0.057	0.055	0.058	0.060	0.056	0.027	0.014	0.023	0.048	0.052
Total		2.580	2.569	2.811	3.042	2.936	1.392	0.626	1.123	2.443	2.649

**Table 36 Hospital water demand**

Code	District	Hospital water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	0.082	0.054	0.053	0.054	0.047	0.065	0.083	0.062	0.069	0.057
8102	Khao Phanom	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.003	0.003
8103	Ko Lanta	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001
8104	Khlong Thom	0.012	0.008	0.008	0.008	0.007	0.010	0.013	0.010	0.010	0.009
8105	Ao Luek	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
8106	Plai Phraya	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
8107	Lam Thap	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
8108	Nuea Khlong	0.008	0.006	0.006	0.006	0.005	0.007	0.009	0.007	0.007	0.006
Total		0.109	0.073	0.073	0.074	0.065	0.087	0.111	0.086	0.093	0.079

**Table 37 Total Service Sector Water Demand**

Code	District	Hospital water demand, MCM/year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
8101	Mueang Krabi	4.04	3.94	4.35	4.42	4.36	3.16	2.56	3.09	4.20	4.30
8102	Khao Phanom	0.12	0.12	0.12	0.13	0.12	0.12	0.12	0.13	0.13	0.12
8103	Ko Lanta	0.93	0.91	0.99	0.96	0.94	0.65	0.49	0.61	0.87	0.90
8104	Khlong Thom	0.20	0.18	0.19	0.21	0.20	0.18	0.20	0.21	0.22	0.22
8105	Ao Luek	0.15	0.15	0.16	0.15	0.15	0.14	0.13	0.14	0.15	0.15
8106	Plai Phraya	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
8107	Lam Thap	0.04	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05
8108	Nuea Khlong	0.22	0.20	0.22	0.22	0.21	0.18	0.17	0.19	0.22	0.21
Total		5.78	5.61	6.14	6.19	6.09	4.55	3.78	4.47	5.91	6.01

## 5.5 Overall Water Demand Summary for Krabi Province

Based on the calculations of water demand for various activities, the summary for 2024 is as follows: Total Water Demand is about 5,325.96 million cubic meters/year included consumption (Domestic Use) 2.00 million cubic meters/year (0.04%), industrial use 4.95 million cubic meters/year (0.09%), agricultural use 5,313.00 million cubic meters/year (99.76%), and service sector 6.01 million cubic meters/year (0.11%). The data clearly shows that agricultural use dominates water demand in Krabi Province, accounting for nearly 99.76% of the total water consumption, while other sectors contribute minimally to the overall water usage.

## 6. Water Accounting for Krabi Province

In this water accounting process, two primary components are developed: Physical Asset Accounts for Water and Physical Supply and Use Tables for Water (PSUT), with the following details:

### 1. Physical Asset Accounts for Water

These are accounts displaying stock data for freshwater and brackish water located in artificial reservoirs, lakes, rivers and streams, including water stored in groundwater and soil water. The study considers seasonal variations (dry season: November-April and rainy season: May-October). The water asset accounts record

included water extraction volumes, water consumption, precipitation amounts, water inflows and outflows between regions, and water flows into the sea. The primary purpose is to evaluate water availability for economic system needs and assess long-term water supply sustainability and demand alignment.

## **2. Physical Supply and Use Tables for Water (PSUT)**

PSUT illustrates water supply and use, reflecting the comprehensive water circulation from environment to economic system and back. It comprises five main components:

- Water extraction from environment is to record water volume drawn from sources and sources include reservoirs, rivers, lakes, groundwater, and soil water.
- Water distribution and use that divided into two primary sections: water used directly by economic units and water distributed to other units, categorized as: intermediate industrial consumption, household final consumption, and water exports.
- Wastewater and Recycling is to track wastewater circulation between economic units. Wastewater can be directly released to environment, discharged into drainage systems, and transferred for reuse.
- Water Return to Environment included recording water released by industries or households, direct release without treatment, water released after treatment, and water losses.
- Water Evaporation included recording water evaporation, water transpiration, and water incorporated into products.

Industry categories are classified according to ISIC standards:

- Subsections 01-03: Agriculture, Forestry, and Fishing
- Subsections 05-33 and 41: Mining, Manufacturing, and Construction
- Subsection 35: Electricity, Gas, Steam, and Air Conditioning
- Subsection 36: Water Supply, Production, and Distribution
- Subsection 37: Wastewater Management
- Subsections 38, 39, and 45-99: Other Industries
- The analysis emphasizes subsections 35, 36, and 37 due to their direct relevance to water supply and use

### **6.1 Water accounting in province level**

Based on the preparation of input data, including water resource volume, water accounts can be prepared for both the dry season and rainy season in Year 2024 as shown in Tables 38

**Table 38 Physical water asset account for Krabi Province in provincial level**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Ponds	River and Canals				
Water Resources Stock at the Beginning	43.25	7.84	0.00	0.00	0.00	0.00	51.09
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	3.15	4.01	2,365.00	2,365.00	0.00	0.00	4,737.16
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	18.44	3.73	2,100.00	236.29	0.00	0.00	2,358.46
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>21.59</b>	<b>7.74</b>	<b>4,465.00</b>	<b>2,601.29</b>	<b>0.00</b>	<b>0.00</b>	<b>7,095.62</b>
Stock Decreases							
Water Extraction	0.78	7.69	9.85	12.77	3,255.08	0.00	3,286.17
Evaporation and Transpiration	3.10	3.70	0.00	0.00	0.00	0.00	6.80
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	2.81	0.00	3.22	0.42	0.00	0.00	6.45
<b>Total Stock Decreases</b>	<b>6.69</b>	<b>11.39</b>	<b>13.07</b>	<b>13.19</b>	<b>3,255.08</b>	<b>0.00</b>	<b>3,299.42</b>
Water Resources Stock at the End	25.18	3.76	0.00	0.00	0.00	0.00	28.94

b) Wet Season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Ponds	River and Canals				
Water Resources Stock at the	22.69	3.37	0.00	0.00	0.00	0.00	26.06
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	6.56	7.77	6,738.00	6,738.00	0.00	0.00	13,490.32
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	38.77	14.25	3,029.00	674.02	0.00	0.00	3,756.04
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>45.33</b>	<b>22.02</b>	<b>9,767.00</b>	<b>7,412.02</b>	<b>0.00</b>	<b>0.00</b>	<b>17,246.37</b>
Stock Decreases							
Water Extraction	0.81	8.94	9.31	12.53	2193.57	0.00	2225.17
Evaporation and Transpiration	2.45	2.82	0.00	0.00	0.00	0.00	5.27
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	4.05	0.00	2.72	0.42	0.00	0.00	7.18
<b>Total Stock Decreases</b>	<b>7.30</b>	<b>11.77</b>	<b>12.03</b>	<b>12.95</b>	<b>2193.57</b>	<b>0.00</b>	<b>2237.62</b>
Water Resources Stock at the End	36.55	5.73	0.00	0.00	0.00	0.00	42.28

Based on the preparation of input data, including water allocation volumes from relevant agencies and self-sourced water volumes, water accounts can be prepared for both the dry season and rainy season as shown in Tables 39

**Table 39 Physical water supply and use table in Krabi Province in provincial level**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.78
Water Use from Reservoirs Outside Irrigation Zones	7.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.69
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	9.85	0.00	0.00	0.00	0.00	9.85
<b>Total</b>	<b>7.69</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.64</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>18.32</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	3.06	1.93	0.00	0.00	0.00	0.00	0.00	4.99
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	1.52
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	1.31	0.79	0.00	0.00	0.00	0.00	0.00	2.10

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Public Wells Outside Irrigation Zones	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	1.16
Pumping from Public Shallow Wells Outside Irrigation Zones	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.81
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>1.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.38</b>	<b>2.72</b>	<b>2.17</b>	<b>0.00</b>	<b>0.00</b>	<b>2.41</b>	<b>0.00</b>	<b>12.77</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	47.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.14	0.09	0.12	0.01	0.12	0.00	0.00	0.73	0.00	0.00	1.21
Water Use Outside Irrigation Zones from Other Surface Water Sources	3204.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3204.22
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.04	0.13	0.00	1.07	0.86	0.00	0.00	0.49	0.00	0.00	2.58
<b>Total</b>	<b>3251.29</b>	<b>0.18</b>	<b>0.22</b>	<b>0.12</b>	<b>1.08</b>	<b>0.98</b>	<b>0.00</b>	<b>0.00</b>	<b>1.22</b>	<b>0.00</b>	<b>0.00</b>	<b>3255.08</b>
Water Distribution												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Provincial Waterworks Authority	0.00	0.01	0.03	0.00	3.33	2.07	0.00	0.00	0.15	4.24	0.00	9.83
Royal Irrigation Department	14.05	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.64	0.78	0.00	15.58
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.00	2.09
<b>Total</b>	<b>14.05</b>	<b>0.03</b>	<b>0.10</b>	<b>0.00</b>	<b>3.33</b>	<b>2.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.79</b>	<b>7.12</b>	<b>0.00</b>	<b>27.49</b>
Self Extraction												
Total Surface Water	7.69	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	7.88
Total Groundwater	1.09	0.00	0.00	0.00	4.38	1.93	0.09	0.00	0.00	2.41	0.00	9.90
Total Water from Other Sources	3251.29	0.18	0.22	0.12	1.08	0.98	0.00	0.00	1.22	0.00	0.00	3255.08
<b>Total from All Sources</b>	<b>3260.07</b>	<b>0.18</b>	<b>0.22</b>	<b>0.12</b>	<b>5.46</b>	<b>2.91</b>	<b>0.28</b>	<b>0.00</b>	<b>1.22</b>	<b>2.41</b>	<b>0.00</b>	<b>3272.86</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	1.20
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.20</b>

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.44	50.44
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5236.57	5236.57
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5287.01	5287.01
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.80	6.80
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	6534.18	0.40	0.54	0.24	14.25	8.67	13.09	1.20	3.23	11.93	5287.01	11874.73

b) Rainy season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.81
Water Use from Reservoirs Outside Irrigation Zones	8.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.94
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	9.31	0.00	0.00	0.00	0.00	9.31
<b>Total</b>	<b>8.94</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>10.12</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>19.06</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	3.14	1.85	0.00	0.00	0.00	0.00	0.00	4.99
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	1.52
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	1.36	0.76	0.00	0.00	0.00	0.00	0.00	2.11
Pumping from Public Wells Outside Irrigation Zones	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	1.16
Pumping from Public Shallow Wells Outside Irrigation Zones	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.56

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Hou seho lds	Recirculation from Environment	Total
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	0.00	0.00	0.00	2.17
Total	0.84	0.00	0.00	0.00	4.50	2.61	2.17	0.00	0.00	2.41	0.00	12.53
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	20.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.45
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.14	0.09	0.12	0.01	0.12	0.00	0.00	0.74	0.00	0.00	1.22
Water Use Outside Irrigation Zones from Other Surface Water Sources	2169.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2169.34
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.04	0.13	0.00	1.10	0.82	0.00	0.00	0.49	0.00	0.00	2.57
Total	2189.78	0.18	0.22	0.12	1.11	0.94	0.00	0.00	1.23	0.00	0.00	2193.57
Water Distribution												
Provincial Waterworks Authority	0.00	0.01	0.03	0.00	3.07	1.80	0.00	0.00	0.14	4.08	0.00	9.11
Royal Irrigation Department	20.23	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.64	0.81	0.00	21.78
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.00	2.09
Total	20.23	0.03	0.10	0.00	3.07	1.80	0.00	0.00	0.77	6.98	0.00	32.98
Self Extraction												
Total Surface Water	8.94	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	9.19

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Groundwater	0.84	0.00	0.00	0.00	4.50	1.85	0.09	0.00	0.00	2.41	0.00	9.69
Total Water from Other Sources	2189.78	0.18	0.22	0.12	1.11	0.94	0.00	0.00	1.23	0.00	0.00	2193.57
Total from All Sources	2199.57	0.18	0.22	0.12	5.61	2.79	0.33	0.00	1.23	2.41	0.00	2212.45
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	1.16
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	1.16
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.95	59.95
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3539.93	3539.93
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3599.87	3599.87
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.27	5.27
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

<b>Water Usage</b>	<b>Agriculture</b>	<b>Agricultural Industries, Forestry, and Fisheries</b>	<b>Mining and Quarrying, Manufacturing, and Construction</b>	<b>Electricity, Gas, Steam, and Air Conditioning</b>	<b>Service Sector</b>	<b>Accommodation</b>	<b>Water Supply, Water Production, and Water Distribution</b>	<b>Wastewater Management</b>	<b>Other Industries</b>	<b>Hou seho lds</b>	<b>Recirculati on from Environm ent</b>	<b>Total</b>
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	4419.37	0.39	0.54	0.24	14.28	8.14	12.63	1.16	3.23	11.79	3599.87	8071.64

## 6.2 Water accounting in district level

Based on the preparation of input data in district level, including water resource volume, water accounts can be prepared for both the dry season and rainy season as shown in Tables 40 to 47

**Table 40 Physical water asset account for Krabi Province in Mueang Krabi**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the	12.57	2.51	0.00	0.00	0.00	0.00	15.08
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.62	0.56	421.00	421.00	0.00	0.00	843.19
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	3.81	0.97	394.00	42.00	0.00	0.00	440.78
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>4.43</b>	<b>1.54</b>	<b>815.00</b>	<b>463.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,283.97</b>
Stock Decreases							
Water Extraction	0.42	2.92	6.52	4.91	410.29	0.00	425.06
Evaporation and Transpiration	0.49	0.43	0.00	0.00	0.00	0.00	0.92
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.34	0.00	2.08	0.05	0.00	0.00	2.47
<b>Total Stock Decreases</b>	<b>1.25</b>	<b>3.35</b>	<b>8.60</b>	<b>4.96</b>	<b>410.29</b>	<b>0.00</b>	<b>428.45</b>
Water Resources Stock at the	6.16	0.74	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	4.82	0.59	0.00	0.00	0.00	0.00	5.40
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.82	0.70	1,082.00	1,082.00	0.00	0.00	2,165.52
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	7.97	5.62	333.00	108.24	0.00	0.00	454.83
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>8.79</b>	<b>6.32</b>	<b>1,415.00</b>	<b>1,190.24</b>	<b>0.00</b>	<b>0.00</b>	<b>2,620.35</b>
Stock Decreases							
Water Extraction	0.43	3.39	6.12	4.87	247.35	0.00	262.16
Evaporation and Transpiration	0.33	0.29	0.00	0.00	0.00	0.00	0.62
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.47	0.00	1.76	0.05	0.00	0.00	2.29
Total Stock Decreases	1.23	3.68	7.88	4.92	247.35	0.00	265.07
Water Resources Stock at the End	6.56	1.13	0.00	0.00	0.00	0.00	7.69

**Table 41 Physical water asset account for Krabi Province in Khao Phanom**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	14.98	1.29	0.00	0.00	0.00	0.00	16.27
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.81	0.70	357.00	357.00	0.00	0.00	715.51
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	5.72	0.57	416.00	35.69	0.00	0.00	457.98
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Stock Increases	6.53	1.28	773.00	392.69	0.00	0.00	1,173.50
Stock Decreases							
Water Extraction	0.00	1.15	0.53	0.91	562.49	0.00	565.07
Evaporation and Transpiration	0.88	0.65	0.00	0.00	0.00	0.00	1.53
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.00	0.00	0.17	0.05	0.00	0.00	0.22
Total Stock Decreases	0.88	1.80	0.70	0.96	562.49	0.00	566.82
Water Resources Stock at the End	8.84	0.66	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the	8.15	0.60	0.00	0.00	0.00	0.00	8.75
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	1.47	1.19	920.00	920.00	0.00	0.00	1,842.66

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	16.19	2.32	977.00	92.07	0.00	0.00	1,087.58
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>17.66</b>	<b>3.51</b>	<b>1,897.00</b>	<b>1,012.07</b>	<b>0.00</b>	<b>0.00</b>	<b>2,930.24</b>
Stock Decreases							
Water Extraction	0.00	1.47	0.51	0.87	416.70	0.00	419.54
Evaporation and Transpiration	0.65	0.48	0.00	0.00	0.00	0.00	1.13
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.00	0.00	0.15	0.05	0.00	0.00	0.20
<b>Total Stock Decreases</b>	<b>0.65</b>	<b>1.95</b>	<b>0.66</b>	<b>0.92</b>	<b>416.70</b>	<b>0.00</b>	<b>420.88</b>
Water Resources Stock at the End	14.37	1.07	0.00	0.00	0.00	0.00	15.44

**Table 42 Physical water asset account for Krabi Province in Ko Lanta**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	0.00	0.02	0.00	0.00	0.00	0.00	0.02
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.01	0.08	153.00	153.00	0.00	0.00	306.09
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	0.00	0.02	43.00	15.20	0.00	0.00	58.22
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.01</b>	<b>0.10</b>	<b>196.00</b>	<b>168.20</b>	<b>0.00</b>	<b>0.00</b>	<b>364.31</b>
Stock Decreases							
Water Extraction	0.05	0.02	0.00	1.64	115.35	0.00	117.06
Evaporation and Transpiration	0.01	0.09	0.00	0.00	0.00	0.00	0.10
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.13	0.00	0.00	0.05	0.00	0.00	0.18
<b>Total Stock Decreases</b>	<b>0.19</b>	<b>0.11</b>	<b>0.00</b>	<b>1.69</b>	<b>115.35</b>	<b>0.00</b>	<b>117.34</b>
Water Resources Stock at the End	0.00	0.01	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.02	0.21	470.00	470.00	0.00	0.00	940.23
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	0.00	0.04	60.00	46.97	0.00	0.00	107.01
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.02</b>	<b>0.25</b>	<b>530.00</b>	<b>516.97</b>	<b>0.00</b>	<b>0.00</b>	<b>1,047.24</b>
Stock Decreases							
Water Extraction	0.05	0.02	0.00	1.64	62.14	0.00	63.85
Evaporation and Transpiration	0.01	0.07	0.00	0.00	0.00	0.00	0.08
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.15	0.00	0.00	0.05	0.00	0.00	0.19
<b>Total Stock Decreases</b>	<b>0.20</b>	<b>0.09</b>	<b>0.00</b>	<b>1.69</b>	<b>62.14</b>	<b>0.00</b>	<b>64.12</b>
Water Resources Stock at the	0.00	0.02	0.00	0.00	0.00	0.00	0.02

**Table 43 Physical water asset account for Krabi Province in Khlong Thom**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	10.03	1.06	0.00	0.00	0.00	0.00	11.08
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.47	0.62	494.00	494.00	0.00	0.00	989.09
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	2.05	0.54	210.00	49.51	0.00	0.00	262.10
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>2.52</b>	<b>1.16</b>	<b>704.00</b>	<b>543.51</b>	<b>0.00</b>	<b>0.00</b>	<b>1,251.19</b>
Stock Decreases							
Water Extraction	0.00	0.84	0.64	1.44	617.34	0.00	620.26
Evaporation and Transpiration	0.51	0.64	0.00	0.00	0.00	0.00	1.14
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.00	0.00	0.14	0.11	0.00	0.00	0.25
<b>Total Stock Decreases</b>	<b>0.51</b>	<b>1.48</b>	<b>0.78</b>	<b>1.55</b>	<b>617.34</b>	<b>0.00</b>	<b>621.66</b>

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the End	7.11	0.73	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the	6.39	0.66	0.00	0.00	0.00	0.00	7.05
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	1.14	1.46	1,516.00	1,516.00	0.00	0.00	3,034.60
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	5.74	1.45	450.00	151.70	0.00	0.00	608.89
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>6.88</b>	<b>2.91</b>	<b>1,966.00</b>	<b>1,667.70</b>	<b>0.00</b>	<b>0.00</b>	<b>3,643.50</b>
Stock Decreases							
Water Extraction	0.00	0.94	0.60	1.42	407.16	0.00	410.12
Evaporation and Transpiration	0.41	0.49	0.00	0.00	0.00	0.00	0.90
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.00	0.00	0.10	0.11	0.00	0.00	0.21
<b>Total Stock Decreases</b>	<b>0.41</b>	<b>1.43</b>	<b>0.70</b>	<b>1.52</b>	<b>407.16</b>	<b>0.00</b>	<b>411.23</b>
Water Resources Stock at the	10.11	1.05	0.00	0.00	0.00	0.00	11.16

**Table 44 Physical water asset account for Krabi Province in Ao Luek**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	0.00	0.39	0.00	0.00	0.00	0.00	0.39
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.08	0.69	391.00	391.00	0.00	0.00	782.77
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	0.00	0.15	441.00	39.04	0.00	0.00	480.19
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.08</b>	<b>0.84</b>	<b>832.00</b>	<b>430.04</b>	<b>0.00</b>	<b>0.00</b>	<b>1,262.96</b>
Stock Decreases							
Water Extraction	0.05	0.45	0.57	1.21	565.89	0.00	568.16

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Evaporation and Transpiration	0.06	0.51	0.00	0.00	0.00	0.00	0.56
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.29	0.00	0.27	0.05	0.00	0.00	0.61
Total Stock Decreases	0.40	0.96	0.83	1.26	565.89	0.00	569.34
Water Resources Stock at the End	0.00	0.11	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the	0.00	0.09	0.00	0.00	0.00	0.00	0.09
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.13	1.15	1,132.00	1,132.00	0.00	0.00	2,265.28
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	0.00	0.86	377.00	113.32	0.00	0.00	491.18
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Stock Increases	0.13	2.01	1,509.00	1,245.32	0.00	0.00	2,756.46
Stock Decreases							
Water Extraction	0.05	0.52	0.55	1.14	381.54	0.00	383.80
Evaporation and Transpiration	0.04	0.36	0.00	0.00	0.00	0.00	0.40
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.43	0.00	0.23	0.05	0.00	0.00	0.71
Total Stock Decreases	0.52	0.88	0.77	1.19	381.54	0.00	384.91
Water Resources Stock at the	0.00	0.17	0.00	0.00	0.00	0.00	0.17

Table 45 Physical water asset account for Krabi Province in Plai Phraya

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	5.68	0.44	0.00	0.00	0.00	0.00	6.12
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.79	0.49	248.00	248.00	0.00	0.00	497.28

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	6.86	0.66	342.00	24.70	0.00	0.00	374.22
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>7.65</b>	<b>1.15</b>	<b>590.00</b>	<b>272.70</b>	<b>0.00</b>	<b>0.00</b>	<b>871.50</b>
Stock Decreases							
Water Extraction	0.02	0.71	0.46	0.80	393.46	0.00	395.46
Evaporation and Transpiration	0.65	0.38	0.00	0.00	0.00	0.00	1.04
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.24	0.00	0.22	0.03	0.00	0.00	0.49
<b>Total Stock Decreases</b>	<b>0.91</b>	<b>1.10</b>	<b>0.68</b>	<b>0.83</b>	<b>393.46</b>	<b>0.00</b>	<b>396.98</b>
Water Resources Stock at the End	3.06	0.24	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	3.34	0.26	0.00	0.00	0.00	0.00	3.60
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	1.95	1.12	713.00	713.00	0.00	0.00	1,429.07
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water	8.87	0.93	333.00	71.28	0.00	0.00	414.08
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>10.82</b>	<b>2.05</b>	<b>1,046.00</b>	<b>784.28</b>	<b>0.00</b>	<b>0.00</b>	<b>1,843.15</b>
Stock Decreases							
Water Extraction	0.02	0.68	0.45	0.78	287.20	0.00	289.13
Evaporation and Transpiration	0.59	0.34	0.00	0.00	0.00	0.00	0.93
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water	0.37	0.00	0.18	0.03	0.00	0.00	0.58
<b>Total Stock Decreases</b>	<b>0.98</b>	<b>1.02</b>	<b>0.63</b>	<b>0.81</b>	<b>287.20</b>	<b>0.00</b>	<b>290.64</b>
Water Resources Stock at the	5.51	0.43	0.00	0.00	0.00	0.00	5.94

**Table 46 Physical water asset account for Krabi Province in Lam Thap**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	0.00	0.94	0.00	0.00	0.00	0.00	0.94
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.03	0.36	125.00	125.00	0.00	0.00	250.38
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	0.00	0.44	131.00	12.47	0.00	0.00	143.91
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.03</b>	<b>0.79</b>	<b>256.00</b>	<b>137.47</b>	<b>0.00</b>	<b>0.00</b>	<b>394.29</b>
Stock Decreases							
Water Extraction	0.14	0.75	0.23	0.78	262.78	0.00	264.68
Evaporation and Transpiration	0.03	0.33	0.00	0.00	0.00	0.00	0.36
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	0.27	0.00	0.05	0.02	0.00	0.00	0.35
<b>Total Stock Decreases</b>	<b>0.44</b>	<b>1.08</b>	<b>0.28</b>	<b>0.80</b>	<b>262.78</b>	<b>0.00</b>	<b>265.38</b>
Water Resources Stock at the End	0.00	0.56	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at Beginning	0.00	0.51	0.00	0.00	0.00	0.00	0.51
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.05	0.62	318.00	318.00	0.00	0.00	636.66
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland	0.00	1.55	332.00	31.77	0.00	0.00	365.32
Discovery of Water in	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.05</b>	<b>2.16</b>	<b>650.00</b>	<b>349.77</b>	<b>0.00</b>	<b>0.00</b>	<b>1,001.98</b>
Stock Decreases							
Water Extraction	0.15	1.00	0.22	0.77	190.70	0.00	192.83
Evaporation and	0.02	0.25	0.00	0.00	0.00	0.00	0.27
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Outflow to Other Inland	0.46	0.00	0.04	0.02	0.00	0.00	0.52
Total Stock Decreases	0.63	1.25	0.26	0.79	190.70	0.00	193.62
Water Resources Stock at the End	0.00	0.90	0.00	0.00	0.00	0.00	0.90

**Table 47 Physical water asset account for Krabi Province in Nuea Khlong**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	0.00	1.19	0.00	0.00	0.00	0.00	1.19
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.33	0.51	176.00	176.00	0.00	0.00	352.84
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland Water Resources	0.00	0.39	123.00	17.68	0.00	0.00	141.07
Discovery of Water in Aquifers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Stock Increases	0.33	0.89	299.00	193.68	0.00	0.00	493.90
Stock Decreases							
Water Extraction	0.11	0.85	0.90	1.08	327.49	0.00	330.42
Evaporation and Transpiration	0.49	0.67	0.00	0.00	0.00	0.00	1.15
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland Water Resources	1.53	0.00	0.29	0.07	0.00	0.00	1.89
Total Stock Decreases	2.13	1.51	1.19	1.14	327.49	0.00	333.46
Water Resources Stock at the End	0.00	0.70	0.00	0.00	0.00	0.00	0.00

b) Wet season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Water Resources Stock at the Beginning	0.00	0.65	0.00	0.00	0.00	0.00	0.65
Stock Increases							
Return flow	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Precipitation	0.98	1.32	587.00	587.00	0.00	0.00	1,176.29

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Pond	River and Canals				
Inflow from Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Other Inland	0.00	1.49	167.00	58.67	0.00	0.00	227.16
Discovery of Water in	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Stock Increases</b>	<b>0.98</b>	<b>2.81</b>	<b>754.00</b>	<b>645.67</b>	<b>0.00</b>	<b>0.00</b>	<b>1,403.45</b>
Stock Decreases							
Water Extraction	0.11	0.92	0.86	1.03	200.80	0.00	203.73
Evaporation and	0.40	0.54	0.00	0.00	0.00	0.00	0.94
Outflow to Other Territories	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to the Sea	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Outflow to Other Inland	2.16	0.00	0.25	0.07	0.00	0.00	2.48
<b>Total Stock Decreases</b>	<b>2.68</b>	<b>1.46</b>	<b>1.11</b>	<b>1.10</b>	<b>200.80</b>	<b>0.00</b>	<b>207.16</b>
Water Resources Stock at the	0.00	0.95	0.00	0.00	0.00	0.00	0.95

Based on the preparation of input data in district level, including water allocation volumes from relevant agencies and self-sourced water volumes, water accounts can be prepared for both the dry season and rainy season as shown in Tables 48 to 55

**Table 48 Physical water supply and use table in Krabi Province in Mueang Krabi**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.42
Water Use from Reservoirs Outside Irrigation Zones	2.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	6.52	0.00	0.00	0.00	0.00	6.52
<b>Total</b>	<b>2.92</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>6.94</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>9.86</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	1.94	1.84	0.00	0.00	0.00	0.00	0.00	3.78
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.28	0.09	0.00	0.00	0.00	0.00	0.00	0.37
Pumping from Public Wells Outside Irrigation Zones	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.10
Pumping from Public Shallow Wells Outside Irrigation Zones	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.28
<b>Total</b>	<b>0.17</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.22</b>	<b>1.93</b>	<b>0.28</b>	<b>0.00</b>	<b>0.00</b>	<b>0.31</b>	<b>0.00</b>	<b>4.91</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.69
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.00	0.27	0.00	0.00	0.40

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Irrigation Zones from Other Surface Water Sources	403.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403.66
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.34	0.20	0.00	0.00	0.00	0.00	0.00	0.54
Total	409.35	0.00	0.00	0.00	0.35	0.32	0.00	0.00	0.27	0.00	0.00	410.29
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	2.30	1.95	0.00	0.00	0.12	2.13	0.00	6.51
Royal Irrigation Department	1.69	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.35	0.42	0.00	2.51
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.27
Total	1.69	0.00	0.05	0.00	2.30	1.95	0.00	0.00	0.47	2.82	0.00	9.28
Self Extraction												
Total Surface Water	2.92	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	3.05
Total Groundwater	0.17	0.00	0.00	0.00	2.22	1.84	0.01	0.00	0.00	0.31	0.00	4.55
Total Water from Other Sources	409.35	0.00	0.00	0.00	0.35	0.32	0.00	0.00	0.27	0.00	0.00	410.29
Total from All Sources	412.44	0.00	0.00	0.00	2.57	2.15	0.14	0.00	0.27	0.31	0.00	417.89
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	1.20
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	1.20
Water Recirculation, Water Returning to Environment												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.33	17.33
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	668.63	668.63
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	685.96	685.96
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.92
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	826.58	0.01	0.06	0.00	7.44	6.35	7.36	1.20	1.01	3.43	685.96	1539.39

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.43
Water Use from Reservoirs Outside Irrigation Zones	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.39
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	6.12	0.00	0.00	0.00	0.00	6.12
Total	3.39	0.00	0.00	0.00	0.00	0.00	6.55	0.00	0.00	0.00	0.00	9.94
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	2.02	1.76	0.00	0.00	0.00	0.00	0.00	3.78
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.29	0.09	0.00	0.00	0.00	0.00	0.00	0.37
Pumping from Public Wells Outside Irrigation Zones	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.10
Pumping from Public Shallow Wells Outside Irrigation Zones	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.28
<b>Total</b>	<b>0.13</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.31</b>	<b>1.85</b>	<b>0.28</b>	<b>0.00</b>	<b>0.00</b>	<b>0.31</b>	<b>0.00</b>	<b>4.87</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.00	0.27	0.00	0.00	0.41
Water Use Outside Irrigation Zones from Other Surface Water Sources	243.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243.87
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.34	0.19	0.00	0.00	0.00	0.00	0.00	0.52
<b>Total</b>	<b>246.42</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.35</b>	<b>0.31</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.00</b>	<b>0.00</b>	<b>247.35</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	2.13	1.70	0.00	0.00	0.11	2.05	0.00	6.00
Royal Irrigation Department	2.36	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.35	0.43	0.00	3.18
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.27
<b>Total</b>	<b>2.36</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>2.13</b>	<b>1.70</b>	<b>0.00</b>	<b>0.00</b>	<b>0.46</b>	<b>2.75</b>	<b>0.00</b>	<b>9.45</b>
Self Extraction												
Total Surface Water	3.39	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	3.55

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Groundwater	0.13	0.00	0.00	0.00	2.31	1.76	0.01	0.00	0.00	0.31	0.00	4.52
Total Water from Other Sources	246.42	0.00	0.00	0.00	0.35	0.31	0.00	0.00	0.27	0.00	0.00	247.35
Total from All Sources	249.94	0.00	0.00	0.00	2.65	2.07	0.17	0.00	0.27	0.31	0.00	255.42
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	1.16
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	1.16
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.41	17.41
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	408.67	408.67
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	426.08	426.08
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.62
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	502.24	0.01	0.06	0.00	7.44	5.91	7.00	1.16	1.01	3.37	426.08	954.27

**Table 49 Physical water supply and use table in Krabi Province in Khao Phanom**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use from Reservoirs Outside Irrigation Zones	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.53
<b>Total</b>	<b>1.15</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.53</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.68</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.11
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Pumping from Public Wells Outside Irrigation Zones	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.15
Pumping from Public Shallow Wells Outside Irrigation Zones	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27
<b>Total</b>	<b>0.22</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.11</b>	<b>0.01</b>	<b>0.27</b>	<b>0.00</b>	<b>0.00</b>	<b>0.30</b>	<b>0.00</b>	<b>0.91</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.15

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Irrigation Zones from Other Surface Water Sources	562.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	562.02
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.31	0.00	0.00	0.32
<b>Total</b>	<b>562.02</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.41</b>	<b>0.00</b>	<b>0.00</b>	<b>562.49</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	0.10	0.03	0.00	0.00	0.02	0.37	0.00	0.53
Royal Irrigation Department	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.26
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.63</b>	<b>0.00</b>	<b>0.79</b>
Self Extraction												
Total Surface Water	1.15	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.16
Total Groundwater	0.22	0.00	0.00	0.00	0.11	0.01	0.01	0.00	0.00	0.30	0.00	0.65
Total Water from Other Sources	562.02	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.41	0.00	0.00	562.49
<b>Total from All Sources</b>	<b>563.39</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.11</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>0.41</b>	<b>0.30</b>	<b>0.00</b>	<b>564.30</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	1.48
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	902.87	902.87

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	904.36	904.36
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	1.53
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	1126.78	0.00	0.12	0.00	0.33	0.06	0.82	0.00	0.83	1.22	904.36	2034.51

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use from Reservoirs Outside Irrigation Zones	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.51
Total	1.47	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	1.98
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.11
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Pumping from Public Wells Outside Irrigation Zones	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.15
Pumping from Public Shallow Wells Outside Irrigation Zones	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27
<b>Total</b>	<b>0.19</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.11</b>	<b>0.01</b>	<b>0.27</b>	<b>0.00</b>	<b>0.00</b>	<b>0.30</b>	<b>0.00</b>	<b>0.87</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.15
Water Use Outside Irrigation Zones from Other Surface Water Sources	416.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.23
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.31	0.00	0.00	0.32
<b>Total</b>	<b>416.23</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.41</b>	<b>0.00</b>	<b>0.00</b>	<b>416.70</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	0.09	0.02	0.00	0.00	0.02	0.36	0.00	0.50
Royal Irrigation Department	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.26
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.09</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.62</b>	<b>0.00</b>	<b>0.76</b>
Self Extraction												
Total Surface Water	1.47	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.48
Total Groundwater	0.19	0.00	0.00	0.00	0.11	0.01	0.01	0.00	0.00	0.30	0.00	0.62
Total Water from Other Sources	416.23	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.41	0.00	0.00	416.70
<b>Total from All Sources</b>	<b>417.88</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.11</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>0.41</b>	<b>0.30</b>	<b>0.00</b>	<b>418.79</b>
Wastewater and Recycled Water												
Wastewater												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	1.41
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	670.06	670.06
<b>Total Recirculation</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>671.48</b>	<b>671.48</b>
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	1.13
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Usage</b>	<b>835.76</b>	<b>0.00</b>	<b>0.12</b>	<b>0.00</b>	<b>0.32</b>	<b>0.05</b>	<b>0.80</b>	<b>0.00</b>	<b>0.83</b>	<b>1.21</b>	<b>671.48</b>	<b>1510.57</b>

**Table 50 Physical water supply and use table in Krabi Province in Ko Lanta**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05
Water Use from Reservoirs Outside Irrigation Zones	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.66	0.65	0.00	0.00	0.00	0.00	0.00	1.31
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08
Pumping from Public Shallow Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.24
<b>Total</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.66</b>	<b>0.65</b>	<b>0.24</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>1.64</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use Outside Irrigation Zones from Other Surface Water Sources	111.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	111.99
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.60	0.59	0.00	0.00	0.00	0.00	0.00	1.19
<b>Total</b>	<b>114.16</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.60</b>	<b>0.59</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>115.35</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Royal Irrigation Department	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.70
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23
<b>Total</b>	<b>0.65</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>0.00</b>	<b>0.93</b>
Self Extraction												
Total Surface Water	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Total Groundwater	0.02	0.00	0.00	0.00	0.66	0.00	0.01	0.00	0.00	0.07	0.00	0.76
Total Water from Other Sources	114.16	0.00	0.00	0.00	0.60	0.59	0.00	0.00	0.00	0.00	0.00	115.35
<b>Total from All Sources</b>	<b>114.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.26</b>	<b>0.59</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>116.13</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	1.66
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.81	185.81
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.47	187.47
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	229.05	0.00	0.00	0.00	2.52	1.83	0.30	0.00	0.00	0.41	187.47	421.58

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05
Water Use from Reservoirs Outside Irrigation Zones	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.07
Groundwater												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.69	0.62	0.00	0.00	0.00	0.00	0.00	1.32
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08
Pumping from Public Shallow Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.24
<b>Total</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.69</b>	<b>0.62</b>	<b>0.24</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>1.64</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use Outside Irrigation Zones from Other Surface Water Sources	60.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.20
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.62	0.57	0.00	0.00	0.00	0.00	0.00	1.19
<b>Total</b>	<b>60.94</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.62</b>	<b>0.57</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>62.14</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Royal Irrigation Department	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.79
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23
<b>Total</b>	<b>0.74</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>0.00</b>	<b>1.02</b>
Self Extraction												
Total Surface Water	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Groundwater	0.02	0.00	0.00	0.00	0.69	0.00	0.01	0.00	0.00	0.07	0.00	0.79
Total Water from Other Sources	60.94	0.00	0.00	0.00	0.62	0.57	0.00	0.00	0.00	0.00	0.00	62.14
Total from All Sources	60.99	0.00	0.00	0.00	1.32	0.57	0.01	0.00	0.00	0.07	0.00	62.95
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	1.82
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.72	100.72
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	102.54	102.54
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	122.71	0.00	0.00	0.00	2.64	1.76	0.30	0.00	0.00	0.41	102.54	230.36

**Table 51 Physical water supply and use table in Krabi Province in Khlong Thom**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use from Reservoirs Outside Irrigation Zones	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.64
<b>Total</b>	<b>0.84</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.64</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.48</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.34	0.04	0.00	0.00	0.00	0.00	0.00	0.37
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08
Pumping from Public Shallow Wells Outside Irrigation Zones	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.55
<b>Total</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.36</b>	<b>0.04</b>	<b>0.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>	<b>0.00</b>	<b>1.44</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.17

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Irrigation Zones from Other Surface Water Sources	617.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	617.08
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.02	0.00	0.00	0.09
<b>Total</b>	<b>617.08</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.02</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.18</b>	<b>0.00</b>	<b>0.00</b>	<b>617.34</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.24	0.02	0.00	0.00	0.00	0.38	0.00	0.64
Royal Irrigation Department	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.53
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.24</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.91</b>	<b>0.00</b>	<b>1.17</b>
Self Extraction												
Total Surface Water	0.84	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.85
Total Groundwater	0.09	0.00	0.00	0.00	0.36	0.04	0.02	0.00	0.00	0.40	0.00	0.91
Total Water from Other Sources	617.08	0.00	0.01	0.00	0.02	0.05	0.00	0.00	0.18	0.00	0.00	617.34
<b>Total from All Sources</b>	<b>618.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.38</b>	<b>0.08</b>	<b>0.03</b>	<b>0.00</b>	<b>0.18</b>	<b>0.40</b>	<b>0.00</b>	<b>619.10</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	2.12
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	990.56	990.56

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	992.68	992.68
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	1.14
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	1236.02	0.00	0.03	0.00	1.00	0.19	1.22	0.00	0.36	1.70	992.68	2233.21

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use from Reservoirs Outside Irrigation Zones	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60
Total	0.94	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	1.55
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.34	0.04	0.00	0.00	0.00	0.00	0.00	0.37
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	House holds	Recirculation from Environment	Total
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08
Pumping from Public Shallow Wells Outside Irrigation Zones	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.55
<b>Total</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.36</b>	<b>0.04</b>	<b>0.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>	<b>0.00</b>	<b>1.42</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.17
Water Use Outside Irrigation Zones from Other Surface Water Sources	406.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	406.90
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.02	0.00	0.00	0.09
<b>Total</b>	<b>406.90</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.02</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.18</b>	<b>0.00</b>	<b>0.00</b>	<b>407.16</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.21	0.02	0.00	0.00	0.00	0.36	0.00	0.59
Royal Irrigation Department	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.53
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.21</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.89</b>	<b>0.00</b>	<b>1.12</b>
Self Extraction												
Total Surface Water	0.94	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.96
Total Groundwater	0.06	0.00	0.00	0.00	0.36	0.04	0.02	0.00	0.00	0.40	0.00	0.88
Total Water from Other Sources	406.90	0.00	0.01	0.00	0.02	0.05	0.00	0.00	0.18	0.00	0.00	407.16
<b>Total from All Sources</b>	<b>407.90</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.38</b>	<b>0.08</b>	<b>0.04</b>	<b>0.00</b>	<b>0.18</b>	<b>0.40</b>	<b>0.00</b>	<b>409.00</b>
Wastewater and Recycled Water												
Wastewater												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	House holds	Recirculation from Environment	Total
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	654.40	654.40
<b>Total Recirculation</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>656.40</b>	<b>656.40</b>
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.90
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Usage</b>	<b>815.81</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.97</b>	<b>0.19</b>	<b>1.19</b>	<b>0.00</b>	<b>0.36</b>	<b>1.68</b>	<b>656.40</b>	<b>1476.63</b>

**Table 52 Physical water supply and use table in Krabi Province in Ao Luek**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05
Water Use from Reservoirs Outside Irrigation Zones	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.57
<b>Total</b>	<b>0.45</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.61</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.06</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.04
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.21	0.02	0.00	0.00	0.00	0.00	0.00	0.23
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.33
Pumping from Public Shallow Wells Outside Irrigation Zones	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.21
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25
<b>Total</b>	<b>0.22</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.24</b>	<b>0.03</b>	<b>0.25</b>	<b>0.00</b>	<b>0.00</b>	<b>0.46</b>	<b>0.00</b>	<b>1.21</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.96
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.13

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Irrigation Zones from Other Surface Water Sources	560.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	560.63
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.08	0.00	0.04	0.01	0.00	0.00	0.05	0.00	0.00	0.18
<b>Total</b>	<b>565.59</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.04</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.18</b>	<b>0.00</b>	<b>0.00</b>	<b>565.89</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.26	0.03	0.00	0.00	0.00	0.27	0.00	0.57
Royal Irrigation Department	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	1.52
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.24
<b>Total</b>	<b>1.47</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.26</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.56</b>	<b>0.00</b>	<b>2.33</b>
Self Extraction												
Total Surface Water	0.45	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.46
Total Groundwater	0.22	0.00	0.00	0.00	0.24	0.01	0.01	0.00	0.00	0.46	0.00	0.94
Total Water from Other Sources	565.59	0.00	0.08	0.00	0.04	0.01	0.00	0.00	0.18	0.00	0.00	565.89
<b>Total from All Sources</b>	<b>566.25</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.29</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>0.18</b>	<b>0.46</b>	<b>0.00</b>	<b>567.29</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.34	4.34
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	907.67	907.67

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	912.01	912.01
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	1133.98	0.00	0.15	0.00	0.84	0.08	0.89	0.00	0.36	1.49	912.01	2049.80

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05
Water Use from Reservoirs Outside Irrigation Zones	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.55
Total	0.52	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	1.11
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.14
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.21	0.02	0.00	0.00	0.00	0.00	0.00	0.23

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.33
Pumping from Public Shallow Wells Outside Irrigation Zones	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.15
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25
Total	0.15	0.00	0.00	0.00	0.25	0.03	0.25	0.00	0.00	0.46	0.00	1.14
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.13
Water Use Outside Irrigation Zones from Other Surface Water Sources	378.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	378.92
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.08	0.00	0.04	0.01	0.00	0.00	0.05	0.00	0.00	0.18
Total	381.23	0.00	0.08	0.00	0.04	0.01	0.00	0.00	0.18	0.00	0.00	381.54
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.25	0.03	0.00	0.00	0.00	0.26	0.00	0.54
Royal Irrigation Department	2.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	2.21
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.24
Total	2.16	0.00	0.00	0.00	0.25	0.03	0.00	0.00	0.00	0.55	0.00	2.99
Self Extraction												
Total Surface Water	0.52	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.53
Total Groundwater	0.15	0.00	0.00	0.00	0.25	0.00	0.01	0.00	0.00	0.46	0.00	0.88
Total Water from Other Sources	381.23	0.00	0.08	0.00	0.04	0.01	0.00	0.00	0.18	0.00	0.00	381.54
Total from All Sources	381.91	0.00	0.08	0.00	0.29	0.01	0.02	0.00	0.18	0.46	0.00	382.95
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.49	5.49
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	612.72	612.72
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	618.21	618.21
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.40
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	765.97	0.00	0.15	0.00	0.83	0.07	0.87	0.00	0.36	1.48	618.21	1387.95

**Table 53 Physical water supply and use table in Krabi Province in Plai Phraya**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02
Water Use from Reservoirs Outside Irrigation Zones	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.46
<b>Total</b>	<b>0.71</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.48</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.20</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.36
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Pumping from Public Wells Outside Irrigation Zones	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.13
Pumping from Public Shallow Wells Outside Irrigation Zones	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
<b>Total</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>	<b>0.01</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.15</b>	<b>0.00</b>	<b>0.80</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	4.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.14	0.00	0.12	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.30
Water Use Outside Irrigation Zones from Other Surface Water Sources	388.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	388.93

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.04	0.05	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.13
Total	393.03	0.18	0.05	0.12	0.01	0.00	0.00	0.00	0.08	0.00	0.00	393.46
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.34	0.00	0.46
Royal Irrigation Department	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.24
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
Total	1.22	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.49	0.00	1.83
Self Extraction												
Total Surface Water	0.71	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.72
Total Groundwater	0.10	0.00	0.00	0.00	0.40	0.01	0.01	0.00	0.00	0.15	0.00	0.67
Total Water from Other Sources	393.03	0.18	0.05	0.12	0.01	0.00	0.00	0.00	0.08	0.00	0.00	393.46
Total from All Sources	393.84	0.18	0.05	0.12	0.41	0.01	0.01	0.00	0.08	0.15	0.00	394.85
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42	3.42
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	631.77	631.77
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	635.19	635.19

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.04
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Usage</b>	<b>788.91</b>	<b>0.36</b>	<b>0.10</b>	<b>0.23</b>	<b>0.94</b>	<b>0.02</b>	<b>0.63</b>	<b>0.00</b>	<b>0.16</b>	<b>0.80</b>	<b>635.19</b>	<b>1427.33</b>

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02
Water Use from Reservoirs Outside Irrigation Zones	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.45
<b>Total</b>	<b>0.68</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.15</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.36
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.06
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Pumping from Public Wells Outside Irrigation Zones	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.13
Pumping from Public Shallow Wells Outside Irrigation Zones	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
<b>Total</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>	<b>0.01</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.15</b>	<b>0.00</b>	<b>0.78</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.14	0.00	0.12	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.30
Water Use Outside Irrigation Zones from Other Surface Water Sources	284.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	284.82
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.04	0.05	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.13
<b>Total</b>	<b>286.77</b>	<b>0.18</b>	<b>0.05</b>	<b>0.12</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>287.20</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.32	0.00	0.44
Royal Irrigation Department	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.87
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
<b>Total</b>	<b>1.85</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>2.45</b>
Self Extraction												
Total Surface Water	0.68	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.70
Total Groundwater	0.08	0.00	0.00	0.00	0.40	0.01	0.01	0.00	0.00	0.15	0.00	0.65
Total Water from Other Sources	286.77	0.18	0.05	0.12	0.01	0.00	0.00	0.00	0.08	0.00	0.00	287.20
<b>Total from All Sources</b>	<b>287.53</b>	<b>0.18</b>	<b>0.05</b>	<b>0.12</b>	<b>0.41</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>0.08</b>	<b>0.15</b>	<b>0.00</b>	<b>288.54</b>
Wastewater and Recycled Water												
Wastewater												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	4.50
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	461.67	461.67
<b>Total Recirculation</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>466.17</b>	<b>466.17</b>
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.93
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Usage</b>	<b>576.92</b>	<b>0.36</b>	<b>0.10</b>	<b>0.23</b>	<b>0.94</b>	<b>0.02</b>	<b>0.62</b>	<b>0.00</b>	<b>0.16</b>	<b>0.78</b>	<b>466.17</b>	<b>1046.29</b>

**Table 54 Physical water supply and use table in Krabi Province in Lam Thap**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
Water Use from Reservoirs Outside Irrigation Zones	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.23
<b>Total</b>	<b>0.75</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.38</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.12</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.29
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Pumping from Public Wells Outside Irrigation Zones	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.24
Pumping from Public Shallow Wells Outside Irrigation Zones	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10
<b>Total</b>	<b>0.12</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>	<b>0.00</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.46</b>	<b>0.00</b>	<b>0.78</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03
Water Use Outside Irrigation Zones from Other Surface Water Sources	258.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	258.05
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
<b>Total</b>	<b>262.70</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>262.78</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.14	0.00	0.23
Royal Irrigation Department	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.14	0.00	1.80
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
<b>Total</b>	<b>1.37</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.29</b>	<b>0.38</b>	<b>0.00</b>	<b>2.13</b>
Self Extraction												
Total Surface Water	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75
Total Groundwater	0.12	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.46	0.00	0.68
Total Water from Other Sources	262.70	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.03	0.00	0.00	262.78
<b>Total from All Sources</b>	<b>263.57</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.14</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.03</b>	<b>0.46</b>	<b>0.00</b>	<b>264.21</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	3.75
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	422.73	422.73
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	426.49	426.49
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.36
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	528.51	0.01	0.00	0.00	0.37	0.01	0.49	0.00	0.35	1.29	426.49	957.50

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.15
Water Use from Reservoirs Outside Irrigation Zones	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.22
Total	1.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	1.37
Groundwater												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.29
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Pumping from Public Wells Outside Irrigation Zones	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.24
Pumping from Public Shallow Wells Outside Irrigation Zones	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10
<b>Total</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>	<b>0.00</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.46</b>	<b>0.00</b>	<b>0.77</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03
Water Use Outside Irrigation Zones from Other Surface Water Sources	188.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.35
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
<b>Total</b>	<b>190.62</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>190.70</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.13	0.00	0.21
Royal Irrigation Department	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.15	0.00	2.73
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
<b>Total</b>	<b>2.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>0.38</b>	<b>0.00</b>	<b>3.05</b>
Self Extraction												
Total Surface Water	1.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.00

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Groundwater	0.11	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.46	0.00	0.67
Total Water from Other Sources	190.62	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.03	0.00	0.00	190.70
Total from All Sources	191.73	0.00	0.00	0.00	0.14	0.00	0.01	0.00	0.03	0.46	0.00	192.37
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	5.39
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	307.80	307.80
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	313.19	313.19
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	385.76	0.01	0.00	0.00	0.36	0.00	0.48	0.00	0.35	1.29	313.19	701.44

**Table 55 Physical water supply and use table in Krabi Province in Nuea Khlong**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11
Water Use from Reservoirs Outside Irrigation Zones	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.90
<b>Total</b>	<b>0.85</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.85</b>
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.27	0.03	0.00	0.00	0.00	0.00	0.00	0.30
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
Pumping from Public Shallow Wells Outside Irrigation Zones	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.34
<b>Total</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>0.05</b>	<b>0.34</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.00</b>	<b>1.08</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	25.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.49
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Use Outside Irrigation Zones from Other Surface Water Sources	301.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	301.88
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.07	0.00	0.00	0.10
<b>Total</b>	<b>327.37</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>	<b>327.49</b>
Water Distribution												
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	0.22	0.03	0.00	0.00	0.00	0.62	0.00	0.88
Royal Irrigation Department	7.65	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.00	7.82
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
<b>Total</b>	<b>7.65</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.22</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>1.06</b>	<b>0.00</b>	<b>9.03</b>
Self Extraction												
Total Surface Water	0.85	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.87
Total Groundwater	0.14	0.00	0.00	0.00	0.28	0.03	0.01	0.00	0.00	0.27	0.00	0.73
Total Water from Other Sources	327.37	0.00	0.02	0.00	0.02	0.02	0.00	0.00	0.07	0.00	0.00	327.49
<b>Total from All Sources</b>	<b>328.36</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.29</b>	<b>0.05</b>	<b>0.03</b>	<b>0.00</b>	<b>0.07</b>	<b>0.27</b>	<b>0.00</b>	<b>329.09</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.34	16.34
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	526.54	526.54

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Recirculation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	542.88	542.88
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.15
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	664.36	0.03	0.08	0.00	0.81	0.14	1.38	0.00	0.16	1.59	542.88	1211.41

b) Wet season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn												
Surface Water												
Irrigation Water Use in Irrigation Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11
Water Use from Reservoirs Outside Irrigation Zones	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
Pumping Water for Water Supply (PWA)	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.86
Total	0.92	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	1.89
Groundwater												
Pumping from Private Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.27	0.03	0.00	0.00	0.00	0.00	0.00	0.30

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Public Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21
Pumping from Public Shallow Wells in Water Supply Zones	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pumping from Private Wells Outside Water Supply Zones	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03
Pumping from Public Wells Outside Irrigation Zones	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.06
Pumping from Public Shallow Wells Outside Irrigation Zones	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Pumping Water for Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.34
<b>Total</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>0.05</b>	<b>0.34</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.00</b>	<b>1.03</b>
Water from Other Sources												
Water Use in Irrigation Zones from Other Surface Water Sources	10.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.62
Water Use in Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03
Water Use Outside Irrigation Zones from Other Surface Water Sources	190.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.06
Water Use Outside Water Supply Zones from Other Surface Water Sources	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.07	0.00	0.00	0.10
<b>Total</b>	<b>200.68</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>	<b>200.80</b>
Water Distribution												

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Provincial Waterworks Authority	0.00	0.00	0.01	0.00	0.20	0.02	0.00	0.00	0.00	0.60	0.00	0.83
Royal Irrigation Department	10.82	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.00	10.99
Village Water Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
<b>Total</b>	<b>10.82</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.20</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>1.04</b>	<b>0.00</b>	<b>12.15</b>
Self Extraction												
Total Surface Water	0.92	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.94
Total Groundwater	0.10	0.00	0.00	0.00	0.28	0.03	0.01	0.00	0.00	0.27	0.00	0.69
Total Water from Other Sources	200.68	0.00	0.02	0.00	0.02	0.02	0.00	0.00	0.07	0.00	0.00	200.80
<b>Total from All Sources</b>	<b>201.70</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.30</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>0.07</b>	<b>0.27</b>	<b>0.00</b>	<b>202.43</b>
Wastewater and Recycled Water												
Wastewater												
Wastewater Received from Other Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Recycled Water												
Reused Water Distribution	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Water Recirculation, Water Returning to Environment												
To Inland Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.93	21.93
To Other Water Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	323.89	323.89
<b>Total Recirculation</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>345.82</b>	<b>345.82</b>

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products												
Evaporation of Drawn Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.94
Transpiration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Incorporated in Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Usage	414.21	0.03	0.08	0.00	0.79	0.13	1.35	0.00	0.16	1.57	345.82	764.13

## 7. The Monetary value of water account

The conversion of Physical Supply and Use Tables (PSUT) into monetary water accounts for the year 2024 was conducted to determine the economic value of water resources, thereby supporting the formulation of water management policies and strategic plans. The values presented in the tables represent preliminary estimates developed by the research team. Detailed valuations for water assets and water supply and use for both the dry and rainy seasons are provided in Tables 56 and 57.

The valuation of water resources encompasses water asset accounts and water supply and use tables, with values derived from specific tariff rates or unit costs for each water category. For instance, the raw water tariff is calculated at a recommended utilization fee of 1.49 baht per cubic meter.

Within the supply and use framework, water consumption is valued across seven sectors: services, accommodation, households, wastewater management, other industries, agriculture, and environmental recirculation. Consumption volumes are multiplied by sector-specific prices—based on established tariff schedules and regulatory fee structures—to derive their respective monetary values:

- Households: Valued at 16.6 baht per cubic meter, reflecting the average tariff for Type 1 users by the Krabi Provincial Waterworks Authority.
- Service Sector: Assigned a rate of 20.8 baht per cubic meter, corresponding to the average tariff for Type 2 users.
- Accommodation and Other Industries: Valued at 26.84 baht per cubic meter, consistent with the average tariff for Type 3 users.
- Wastewater Management: Priced at 15 baht per cubic meter, in line with the 20-Year Community Wastewater Management Plan (2018–2037).
- Agriculture and Environmental Recirculation: Valued at 0.5 baht per cubic meter, in accordance with the irrigation fee schedule established by the 2021 Ministerial Regulation issued by the Royal Irrigation Department

**Table 56 Monetary values water asset account for Krabi Province**

a) Dry Season

Dry season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Ponds	River and Canals				
Water Resources Stock at the Beginning	64.44	11.68	-	-	-	-	76.12
Stock Increases							
Return flow	-	-	-	-	-	-	-
Precipitation	4.69	5.97	3,523.85	3,523.85	-	-	7,058.37
Inflow from Other Territories	-	-	-	-	-	-	-
Inflow from Other Inland Water Resources	27.48	5.56	3,129.00	352.07	-	-	3,514.11
Discovery of Water in Aquifers	-	-	-	-	-	-	-
<b>Total Stock Increases</b>	<b>32.17</b>	<b>11.53</b>	<b>6,652.85</b>	<b>3,875.92</b>	<b>-</b>	<b>-</b>	<b>10,572.47</b>
Stock Decreases	-	-	-	-	-	-	-
Water Extraction	1.16	11.46	14.68	19.03	4,850.07	-	4,896.39
Evaporation and Transpiration	4.62	5.51	-	-	-	-	10.13
Outflow to Other Territories	-	-	-	-	-	-	-
Outflow to the Sea	-	-	-	-	-	-	-
Outflow to Other Inland Water Resources	4.19	-	4.80	0.63	-	-	9.61
<b>Total Stock Decreases</b>	<b>9.97</b>	<b>16.97</b>	<b>19.47</b>	<b>19.65</b>	<b>4,850.07</b>	<b>-</b>	<b>4,916.14</b>
Water Resources Stock at the End	37.52	5.60	-	-	-	-	43.12

b) Wet Season

Wet season	Type of water resources						Total
	Surface water			Groundwater	Others	Soil water	
	Reservoirs	Ponds	River and Canals				
Water Resources Stock at the	33.81	5.02	-	-	-	-	38.83
Stock Increases	-	-	-	-	-	-	-
Return flow	-	-	-	-	-	-	-
Precipitation	9.77	11.58	10,039.62	10,039.62	-	-	20,100.58
Inflow from Other Territories	-	-	-	-	-	-	-
Inflow from Other Inland Water	57.77	21.23	4,513.21	1,004.29	-	-	5,596.50
Discovery of Water in Aquifers	-	-	-	-	-	-	-
Total Stock Increases	67.54	32.81	14,552.83	11,043.91	-	-	25,697.09
Stock Decreases	-	-	-	-	-	-	-
Water Extraction	1.21	13.32	13.87	18.67	3,268.42	-	3,315.50
Evaporation and Transpiration	3.65	4.20	-	-	-	-	7.85
Outflow to Other Territories	-	-	-	-	-	-	-
Outflow to the Sea	-	-	-	-	-	-	-
Outflow to Other Inland Water	6.03	-	4.05	0.63	-	-	10.70
Total Stock Decreases	10.88	17.54	17.92	19.30	3,268.42	-	3,334.05
Water Resources Stock at the End	54.46	8.54	-	-	-	-	63.00

**Table 57 Monetary values water supply and use table in Krabi Province**

a) Dry season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation Water Use in Irrigation Zones	-	-	-	-	-	-	1.16	-	-	-	-	1.16
Water Use from Reservoirs Outside Irrigation Zones	3.85	-	-	-	-	-	-	-	-	-	-	3.85
Pumping Water for Water Supply (PWA)	-	-	-	-	-	-	14.68	-	-	-	-	14.68
<b>Total</b>	<b>3.85</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15.85</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>19.70</b>
Groundwater	-	-	-	-	-	-	-	-	-	-	-	-
Pumping from Private Wells in Water Supply Zones	-	-	-	-	63.65	51.80	-	-	-	-	-	115.45
Pumping from Public Wells in Water Supply Zones	-	-	-	-	-	-	-	-	-	25.23	-	25.23
Pumping from Public Shallow Wells in Water Supply Zones	-	-	-	-	-	-	-	-	-	0.33	-	0.33
Pumping from Private Wells Outside Water Supply Zones	-	-	-	-	27.25	21.20	-	-	-	-	-	48.45

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping from Public Wells Outside Irrigation Zones	0.16	-	-	-	-	-	-	-	-	14.28	-	14.43
Pumping from Public Shallow Wells Outside Irrigation Zones	0.40	-	-	-	-	-	-	-	-	0.33	-	0.73
Pumping Water for Village Water Supply	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>0.55</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>91.10</b>	<b>73.00</b>	<b>3.23</b>	<b>-</b>	<b>-</b>	<b>40.01</b>	<b>-</b>	<b>207.89</b>
Water from Other Sources	-	-	-	-	-	-	-	-	-	-	-	-
Water Use in Irrigation Zones from Other Surface Water Sources	23.53	-	-	-	-	-	-	-	-	-	-	23.53
Water Use in Water Supply Zones from Other Surface Water Sources	-	0.07	2.42	3.22	0.21	3.22	-	-	19.59	-	-	28.73
Water Use Outside Irrigation Zones from Other Surface Water Sources	1,602.11	-	-	-	-	-	-	-	-	-	-	1,602.11
Water Use Outside Water Supply Zones from Other Surface Water Sources	-	0.02	3.49	-	22.26	23.08	-	-	13.15	-	-	62.00
<b>Total</b>	<b>1,625.65</b>	<b>0.09</b>	<b>5.90</b>	<b>3.22</b>	<b>22.46</b>	<b>26.30</b>	<b>-</b>	<b>-</b>	<b>32.74</b>	<b>-</b>	<b>-</b>	<b>1,716.37</b>
Water Distribution	-	-	-	-	-	-	-	-	-	-	-	-

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Provincial Waterworks Authority	-	0.01	0.81	-	69.26	55.56	-	-	4.03	70.38	-	200.04
Royal Irrigation Department	7.03	0.02	1.88	-	-	-	-	-	17.18	12.95	-	39.04
Village Water Supply	-	-	-	-	-	-	-	-	-	34.69	-	34.69
<b>Total</b>	<b>7.03</b>	<b>0.02</b>	<b>2.68</b>	<b>-</b>	<b>69.26</b>	<b>55.56</b>	<b>-</b>	<b>-</b>	<b>21.20</b>	<b>118.19</b>	<b>-</b>	<b>273.94</b>
Self Extraction	-	-	-	-	-	-	-	-	-	-	-	-
Total Surface Water	3.85	-	-	-	-	-	0.30	-	-	-	-	4.14
Total Groundwater	0.55	-	-	-	91.10	51.80	0.13	-	-	40.01	-	183.59
Total Water from Other Sources	1,625.65	0.09	5.90	3.22	22.46	26.30	-	-	32.74	-	-	1,716.37
<b>Total from All Sources</b>	<b>1,630.04</b>	<b>0.09</b>	<b>5.90</b>	<b>3.22</b>	<b>113.57</b>	<b>78.10</b>	<b>0.42</b>	<b>-</b>	<b>32.74</b>	<b>40.01</b>	<b>-</b>	<b>1,904.09</b>
Wastewater and Recycled Water	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Received from Other Units	-	-	-	-	-	-	-	18.00	-	-	-	18.00
Self Treatment	-	-	-	-	-	-	-	-	-	-	-	-
Recycled Water	-	-	-	-	-	-	-	-	-	-	-	-
Reused Water Distribution	-	-	-	-	-	-	-	-	-	-	-	-
Self Use	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>18.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>18.00</b>

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Recirculation, Water Returning to Environment	-	-	-	-	-	-	-	-	-	-	-	-
To Inland Water Resources	-	-	-	-	-	-	-	-	-	-	75.16	75.16
To Other Water Sources	-	-	-	-	-	-	-	-	-	-	7,802.49	7,802.49
<b>Total Recirculation</b>	-	-	-	-	-	-	-	-	-	-	<b>7,877.64</b>	<b>7,877.64</b>
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products	-	-	-	-	-	-	-	-	-	-	-	-
Evaporation of Drawn Water	-	-	-	-	-	-	-	-	-	-	10.13	10.13
Transpiration	-	-	-	-	-	-	-	-	-	-	-	-
Water Incorporated in Products	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Usage</b>	<b>3,267.09</b>	<b>0.20</b>	<b>14.49</b>	<b>6.44</b>	<b>296.40</b>	<b>232.70</b>	<b>19.50</b>	<b>18.00</b>	<b>86.69</b>	<b>198.04</b>	<b>7,877.64</b>	<b>12,017.21</b>

b) Rainy season

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Sources Drawn	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation Water Use in Irrigation Zones	-	-	-	-	-	-	1.21	-	-	-	-	1.21
Water Use from Reservoirs Outside Irrigation Zones	4.47	-	-	-	-	-	-	-	-	-	-	4.47
Pumping Water for Water Supply (PWA)	-	-	-	-	-	-	13.87	-	-	-	-	13.87
<b>Total</b>	<b>4.47</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15.08</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>19.55</b>
Groundwater	-	-	-	-	-	-	-	-	-	-	-	-
Pumping from Private Wells in Water Supply Zones	-	-	-	-	65.31	49.65	-	-	-	-	-	114.97
Pumping from Public Wells in Water Supply Zones	-	-	-	-	-	-	-	-	-	25.23	-	25.23
Pumping from Public Shallow Wells in Water Supply Zones	-	-	-	-	-	-	-	-	-	0.33	-	0.33
Pumping from Private Wells Outside Water Supply Zones	-	-	-	-	28.29	20.40	-	-	-	-	-	48.69
Pumping from Public Wells Outside Irrigation Zones	0.16	-	-	-	-	-	-	-	-	14.28	-	14.43
Pumping from Public Shallow Wells Outside Irrigation Zones	0.27	-	-	-	-	-	-	-	-	0.33	-	0.60

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Pumping Water for Village Water Supply	-	-	-	-	-	-	3.23	-	-	-	-	3.23
Total	0.42	-	-	-	93.60	70.05	3.23	-	-	40.01	-	207.31
Water from Other Sources	-	-	-	-	-	-	-	-	-	-	-	-
Water Use in Irrigation Zones from Other Surface Water Sources	10.23	-	-	-	-	-	-	-	-	-	-	10.23
Water Use in Water Supply Zones from Other Surface Water Sources	-	0.07	2.42	3.22	0.21	3.22	-	-	19.86	-	-	29.00
Water Use Outside Irrigation Zones from Other Surface Water Sources	1,084.67	-	-	-	-	-	-	-	-	-	-	1,084.67
Water Use Outside Water Supply Zones from Other Surface Water Sources	-	0.02	3.49	-	22.88	22.01	-	-	13.15	-	-	61.55
Total	1,094.89	0.09	5.90	3.22	23.09	25.23	-	-	33.01	-	-	1,185.44
Water Distribution	-	-	-	-	-	-	-	-	-	-	-	-
Provincial Waterworks Authority	-	0.01	0.81	-	63.86	48.31	-	-	3.76	67.73	-	184.46
Royal Irrigation Department	10.12	0.02	1.88	-	-	-	-	-	17.18	13.45	-	42.63
Village Water Supply	-	-	-	-	-	-	-	-	-	34.69	-	34.69
Total	10.12	0.02	2.68	-	63.86	48.31	-	-	20.67	115.87	-	261.52
Self Extraction	-	-	-	-	-	-	-	-	-	-	-	-
Total Surface Water	4.47	-	-	-	-	-	0.37	-	-	-	-	4.84
Total Groundwater	0.42	-	-	-	93.60	49.65	0.13	-	-	40.01	-	183.81

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Total Water from Other Sources	1,094.89	0.09	5.90	3.22	23.09	25.23	-	-	33.01	-	-	1,185.44
Total from All Sources	1,099.79	0.09	5.90	3.22	116.69	74.88	0.49	-	33.01	40.01	-	1,374.08
Wastewater and Recycled Water	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Received from Other Units	-	-	-	-	-	-	-	17.40	-	-	-	17.40
Self Treatment	-	-	-	-	-	-	-	-	-	-	-	-
Recycled Water	-	-	-	-	-	-	-	-	-	-	-	-
Reused Water Distribution	-	-	-	-	-	-	-	-	-	-	-	-
Self Use	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	17.40	-	-	-	17.40
Water Recirculation, Water Returning to Environment	-	-	-	-	-	-	-	-	-	-	-	-
To Inland Water Resources	-	-	-	-	-	-	-	-	-	-	89.33	89.33
To Other Water Sources	-	-	-	-	-	-	-	-	-	-	5,274.50	5,274.50
Total Recirculation	-	-	-	-	-	-	-	-	-	-	5,363.81	5,363.81
Evaporation of Drawn Water, Transpiration, and Water Incorporated in Products	-	-	-	-	-	-	-	-	-	-	-	-
Evaporation of Drawn Water	-	-	-	-	-	-	-	-	-	-	7.85	7.85
Transpiration	-	-	-	-	-	-	-	-	-	-	-	-

Water Usage	Agriculture	Agricultural Industries, Forestry, and Fisheries	Mining and Quarrying, Manufacturing, and Construction	Electricity, Gas, Steam, and Air Conditioning	Service Sector	Accommodation	Water Supply, Water Production, and Water Distribution	Wastewater Management	Other Industries	Households	Recirculation from Environment	Total
Water Incorporated in Products	-	-	-	-	-	-	-	-	-	-	-	-
Total Usage	2,209.69	0.20	14.49	6.44	297.02	218.48	18.82	17.40	86.69	195.71	5,363.81	8,428.75

## 8. Integrating the provincial NCA into the national WRSA

This section of the study involves synthesizing data on Krabi Province’s water-related natural capital to support 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 Krabi Province Natural Capital Account (NCA).

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:

- **Water Resource Availability:** Reservoirs, small-scale water sources, and runoff.
- **Water Allocation:** Volumes distributed through irrigation and municipal water supply systems.
- **Self-Supplied Water:** Extraction volumes from groundwater and shallow wells.
- **Sectoral Water Demand:** Annual consumption across household, industrial, agricultural, and service sectors, with a specific focus on the tourism industry.

### 2. Analysis of Input Data and Inventory Compilation

This phase analyzes water allocation, self-supply metrics, and sectoral demand to establish a robust water resource inventory for Krabi Province. This inventory serves as the empirical foundation for broader natural capital assessments.

### 3. Limitations in Data Integration (NCA and WRSA)

The integration of NCA and WRSA frameworks in Krabi Province is constrained by the following:

- **Water Quality Monitoring Gaps:** Existing monitoring infrastructure is insufficient. There are only two monitoring points for freshwater sources and 24 for seawater and coastal water. Furthermore, current systems capture only 5% of total wastewater discharge, limiting the scope of environmental impact assessments.
- **Lack of National Standardization:** Thailand currently lacks a formalized national water resource inventory. While a manual exists under the SEEA framework, the absence of a standardized national protocol complicates provincial-level implementation.

#### 4. Recommendations

To improve the alignment between NCA and WRSA frameworks and enhance data utility, the following actions are recommended:

- **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.

## 9. References

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