

Pilot Physical Water Flow Accounts (PWFA) KENYA

KENYA NATIONAL BUREAU OF STATISTICS

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Legal Framework

Introduction:

The Constitution of Kenya, 2010 acknowledges access to clean and safe water as a basic human right and assigns the responsibility for water supply and sanitation service provision to 47 newly established counties

In particular, regulation, management and development of water resources, water and sewerage services; and other connected purposes are anchored under the Water Act, 2016 (No. 43 of 2016)

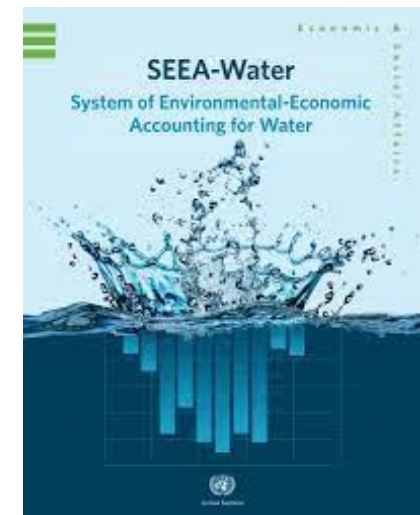
Similarly, the National Water Master plan, 2030 goal is to assess and evaluate availability, reliability, quality, and vulnerability of country's water resources up to around 2050 taking into consideration climate change

Methodology

These accounts were produced following the **System of Environmental Economic Accounting (SEEA)-Central Framework Standard**



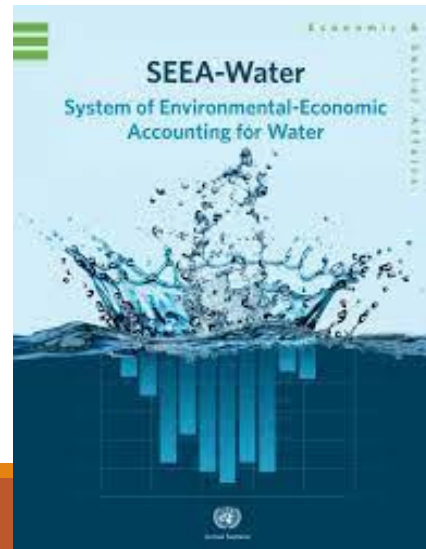
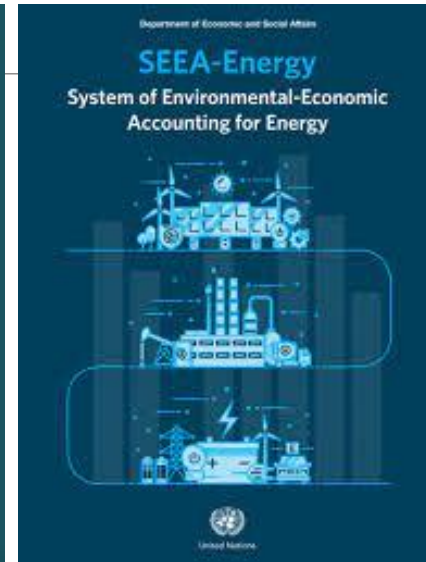
System of Environmental-Economic Accounting (SEEA) is a framework to compile data linking the environment to National Accounts (extended GDP). The **SEEA framework** follows a similar accounting structure as the System of National Accounts (SNA).



SEEA Central Framework (CF)

Some Central Framework Accounts include:

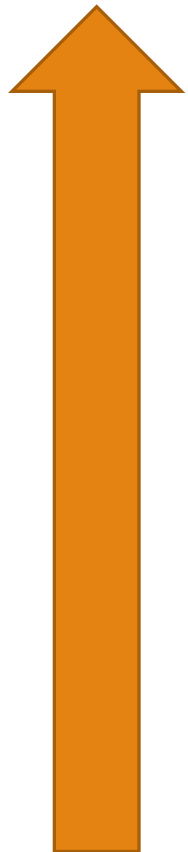
- **Water Accounts**
- Air emissions Accounts
- **Energy Accounts**
- Mineral Accounts
- Economy Wide Material flow Accounts
- Waste Accounts
- Environmental Taxes & subsidies Accounts
- Environmental protection and management expenditure Accounts
- Environmental Goods and Services Sector Accounts
- Agriculture/forestry/fisheries Accounts
- Land Accounts



PWFA Goal

To publish a Physical Water Flow Account for Kenya, using the existing resources of KNBS and its partners, which quantifies the water economy of Kenya at a sufficient level of disaggregation, which is useful to users, and which can be updated on a regular basis

Roadmap



Publication

Verification and recommendations

Compilation of Accounts – iterative process

Conduct data mining with partners

Design the structure of the account

Consider the applications / uses of the account

Build a partnership between data providers / KNBS / users

Design and Structure of the Account

The Accounts presented today comprise the Supply and Use of Water in Physical terms.

The base year used for compilation was 2021

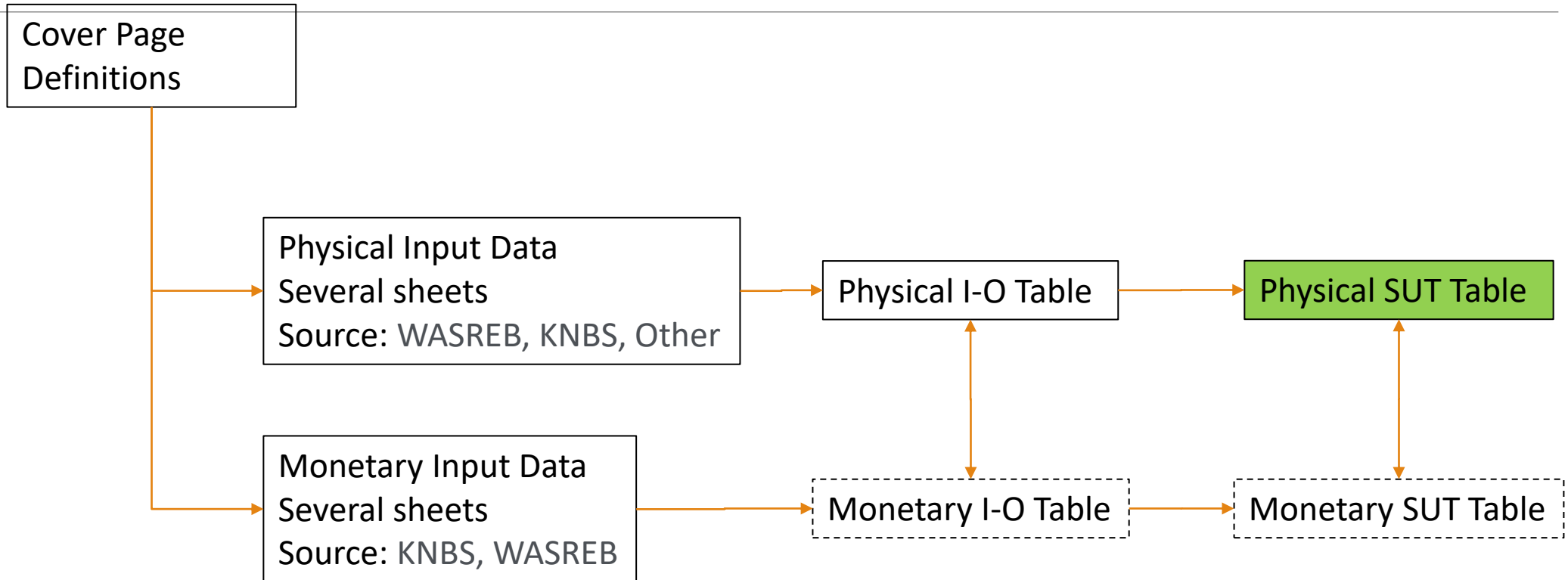
Architecture:

- Started with a **water balance (in cubic metres) and then** transferred this into a **water Physical Supply and Use Tables (PSUTs)**

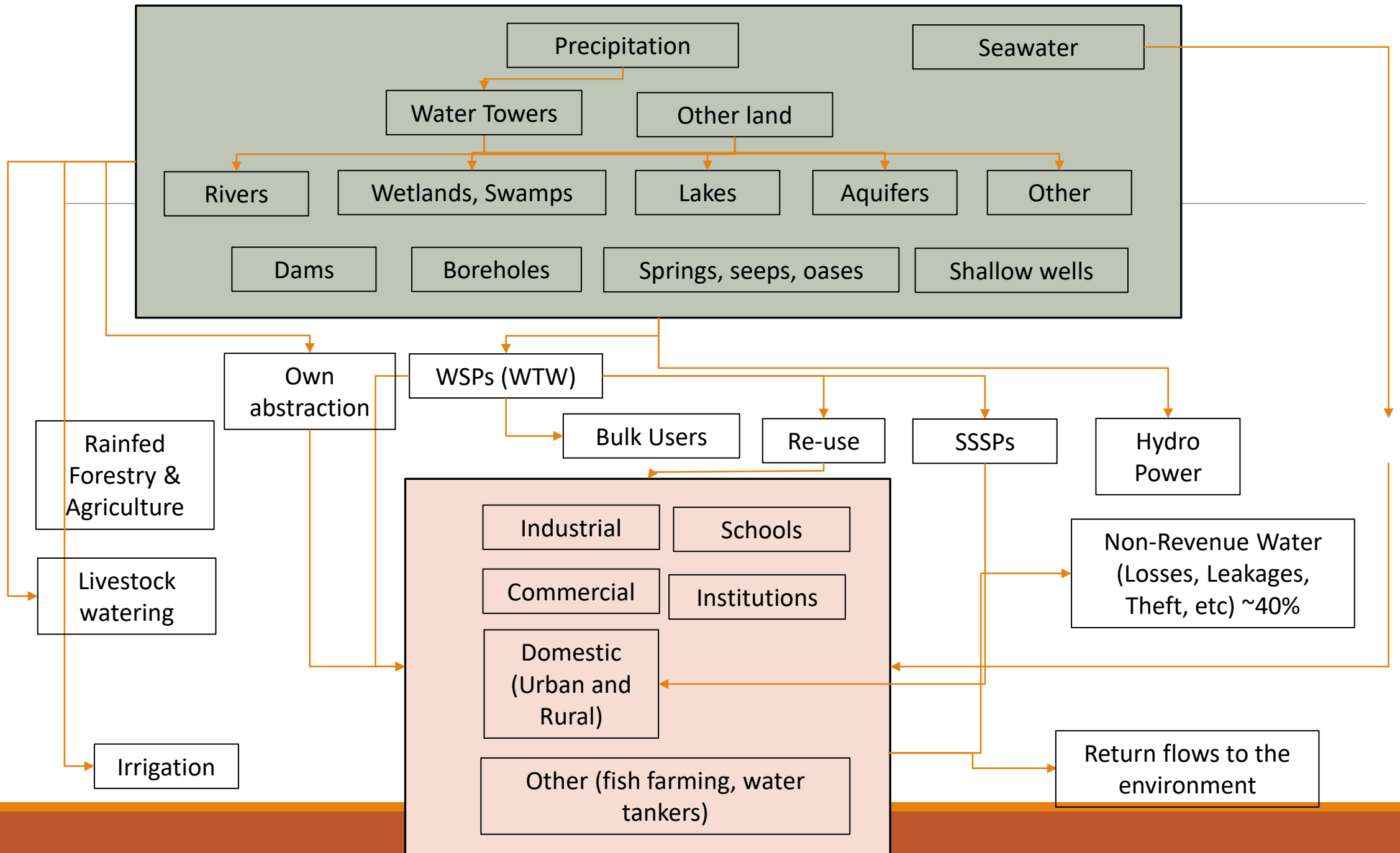
Structure:

- Full representation and understanding of the water value chain and the **flow of water**
- Accurate and disaggregated **classification** of water sources; products and users

Design and Structure of the Account



High level schematic of the Kenya Water Balance



Physical Supply Use Tables for Water

The Physical Supply and Use Tables (PSUT) measure;

- a) The flows of water (i.e. volume) entering the economy, which are either abstracted from the environment or imported;
- b) The flows of water between different economic units within the economy
- c) Return flows of water from the economy to the environment (example via sewerage treatment plants).

Physical Supply Use Tables for Water

The SEEA – Central Framework PSUT for Water is divided into five components:

- a) The abstraction of water from the environment;
- b) The distribution and use of abstracted water across enterprises and households;
- c) Flows of waste water and reused water (between households and enterprises);
- d) Return flows of water to the environment; and
- e) Evaporation, transpiration and water incorporated into products.

Initial Development Tasks

- Identification of all **transactions**, in cubic meters
- Identified **source data and their custodians**
- **Mapped stakeholders and formed a Water Accounts Technical Working Committee**
- Described **meta-data**: type, collection method, contact person, units, frequency, date of availability, etc
- Proceeded with **data-mining**

Stakeholders/Sources of Data

- Ministry of Environment, Climate Change and Policy
- Ministry of Water, Sanitation and Irrigation
- **Water Services and Regulatory Board**
- Water Resources Authority
- National Irrigation Authority
- Kenya Water Towers Agency
- **Kenya Meteorological Department**
- **National Water Harvesting and Storage Authority**
- **Kenya National Bureau of Statistics**

Physical Water Supply Table

PHYSICAL SUPPLY TABLE	Industries (by ISIC)	Households	Flows from the Rest of the World (Imports)	Flows from the Environment	Total Supply
1. Sources of Abstracted Water: Surface Water Groundwater Other Water Sources Total Supply Abstracted Water					
2. Water: Distribution of abstracted water Own use of abstracted water					
3. Wastewater and re-used water: Wastewater to treatment Own treatment of wastewater Re-used water produced (for distribution)					
4. Return flows of water: To inland water resources To other sources Losses in distribution					
5. Evaporation of abstracted water, transpiration and water incorporated into products: Total water evaporated, transpired and incorporated into products					
TOTAL SUPPLY					

Physical Water Use Table

PHYSICAL SUPPLY TABLE	Industries (by ISIC)	Households	Flows to the Rest of the World (Exports)	Flows to the Environment	Total USE
1. Total Abstraction					
Abstraction for Own Use					
Abstraction for distribution					
From inland water sources					
Surface water					
Groundwater					
Soil Water					
Collection of precipitation					
Abstraction from the sea					
Total Supply Abstracted Water					
2. Use of water received from other economic units					
of which:					
Reused water					
Waste water to sewerage					
Own use of abstracted water					
TOTAL USE OF WATER					

Main Takeaways from the Pilot Water Accounts

- About 3 billion cubic meters of water supplied and used in 2021
- Main source of supply: Surface water
- Main users: Agriculture and electricity sectors

Data Harmonization and Validation

- In line with KNBS role of coordinating, monitoring and supervising the National Statistical System (NSS);
- KNBS established the Water Accounts Technical Working Committee
- All our data providers (institutions) are members of this committee. The committee met to compare data across institutions and explain data variability. It also (the committee) agreed on the structure of the Water PSUTs
- Most of these providers have already been sensitized on PWFA as part of SEEA accounts and are already looking forward to the final products.




PARTNERS/STAKEHOLDERS



Accounting for every Drop!





Thank you!

Sincerely,
Future Generations