

Republic of Mauritius Water Account, Mauritius 2018



Statistics Mauritius

Ministry of Finance, Economic Planning and Development

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Foreword

This report is the third issue prepared by Statistics Mauritius presents and presents Water

Accounts for years 2014 and 2018 based on the UN System of Environment – Economic

Accounts (SEEA).

Other indicators on water covering the period 2005 to 2018 are also presented. Wherever

possible, latest data available are presented and these may be subject to revision in later issues.

All data, unless otherwise stated, refer to the Island of Mauritius.

The report has been prepared with the inputs from the Water Resources Unit of the Ministry of

Minister of Energy and Public Utilities, the Central Water Authority and several other

organisations.

The cooperation and assistance of all these organisations are gratefully acknowledged.

The report, together with other publications released by Statistics Mauritius, is available on the

website http://statsmauritius.govmu.org.

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List of Symbols and Abbreviations

- Nil or negligible

... Not available or not applicable

CPC Central Product Classification

CWA Central Water Authority

m³ Cubic metres

hm³ Hectometre cube (million cubic metres)

inhab Inhabitants

IRWS International Recommendation for Water Statistics

ISIC International Standard Industrial Classification

km Kilometre

KWh Kilowatt hour

L Litre

mm Millimetres

Mm³ Million cubic metres

% Percent

km² Square kilometres

SEEA System of Environmental-Economic Accounting

TRWR Total Renewable Water Resources

UFW Unaccounted For Water

UN United Nations

WRU Water Resources Unit

1. Introduction

This report on Water Accounts shows the stock and flow of water in physical terms between the environment and the different sectors of the economy for the Island of Mauritius. The accounts include rainfall, water abstractions (i.e. withdrawals from reservoirs, rivers and boreholes), water uses, and wastewater, among others.

The Water Accounts are based on the UN System of Environmental-Economic Accounting of Water (SEEA-Water), the System of Environmental-Economic Accounting - Central Framework of 2012 (SEEA-CF) and the International Recommendation for Water Statistics (IRWS).

2. Water resources

In 2018, a total amount of 5,252 Mm3 of water was received from 2,816 mm of rainfall or precipitation whereas in 2017, an amount of 3,991 Mm3 of water is recorded from 2,134 mm of rainfall, showing an increase of around 30% and 40% in excess of the long term mean of 2,011 mm for the period 1971 - 2000.

Out of the water received from precipitation, 60% (3,151 Mm3) went as surface runoff, 10% or 525 Mm3 recharged groundwater resources and the remaining 30% (1,576 Mm3) were evapotranspiration from plants, water bodies and land surfaces.

Total water abstractions decreased slightly over the years by 0.8% in 2017 and 3.9% in 2018. On the other hand, Total Renewable Water Resources (TRWR) increases from 2,475 Mm3 in 2016 to 2,794 Mm3 in 2017 and then to 3,676 Mm3 in 2018. TRWR per capita in 2018 worked out to 3,008 m3, above the threshold of 1,700 m3 for water stress countries.

Total water abstracted from the environment for use within the economy and for households as a proportion of available water declined from 25.1 % in 2016 to 16.1 % in 2018. Table 1 below shows water availability for the years 2016 to 2018.

Table 1: Water Availability, 2016-2018, Island of Mauritius

Water Availability	2016	2017	2018
Precipitation (rainfall in height), mm	1,896	2,134	2,816
Precipitation (rainfall in volume), Mm ³	3,536	3,991	5,252
Surface run off, Mm ³	2,122	2,395	3,151
Evapotranspiration, Mm ³	1,061	1,197	1,576
Net Recharge to Groundwater, Mm ³	353	399	525
Total Renewable Water Resources (TRWR), Mm ³	2,475	2,794	3,676
Total Water abstractions*, Mm ³	620	615	591
Total Water abstracted as proportion of TRWR (%)	25.1	22.0	16.1

^{*}excluding hydroelectricity

3. Physical Water Supply and Use (Figure 1 & 2, Table 3-7)

The physical supply and use tables for water describe the flows of water from the environment to the economy, within the economy, and from the economy to the environment. The balance between the water flows for the whole economy can be written as follows:

Total abstraction + use of water received from other economic units

=

 $Supply\ of\ water\ to\ other\ economic\ units\ +\ total\ returns\ +\ water\ consumption$

OR

 $Total\ abstraction = total\ returns + water\ consumption$

since total supply of water to other economic units is equal to the total water use received from other economic units.

Water consumption gives an indication of the amount of water that is lost by the economy during use, in the sense that the water has entered the economy but has not returned to either water resources or the sea. This happens during use because part of the water is incorporated into products, evaporated, transpired by plants or simply consumed by households or livestocks.

3.1 Water Abstraction

In 2018, 994 Mm3 of water extracted from the environment, compared to 933 Mm3 in 2017. Out of these, 40.0% was taken up for hydropower, 30.6% extracted by agriculture, 28.3% by the water provider (CWA) and the remaining 1.1% by manufacturing sector. Table 2 shows breakdown of water abstracted for the years 2016 to 2018.

2016 2017 2018 Sources of abstraction Mm^3 % Mm^3 % Mm^3 **%** 347 304 Agriculture 357 37.1 37.2 30.6 **Manufacturing** 12 1.2 12 1.3 11 1.1 341 **Hydropower** 35.5 312 33.4 398 40.0 **Water Supply** 257 26.7 262 28.1281 28.3 **Industry (CWA)** 994 **TOTAL** 961 933 100.0 100.0 100.0

Table 2: Fresh water abstraction, 2016-2018

^{*}As from year 2016, the total for agriculture includes re-use of treated waste water (Non-Conventional)

Of the 281 Mm3 of water extracted in 2018 by the CWA, around half was from surface water and the other half from groundwater sources. After treatment, 83 Mm3 were distributed to households, 24.1 Mm3 to the manufacturing and services industries, and 1.5 Mm3 to the agriculture industries. The remaining 172.4 Mm3 was lost in distribution because of leakages (Unaccounted for Water - UFW).

Water return to the environment amounted to 764.6 Mm3 of which 398 Mm3 by hydropower generation while water incorporated in products/ evaporation/ transpiration amounted to 229.1Mm3.

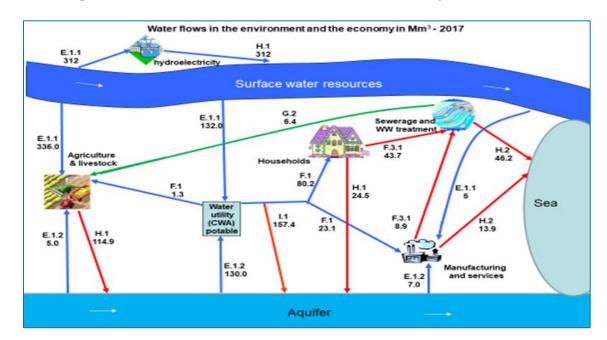
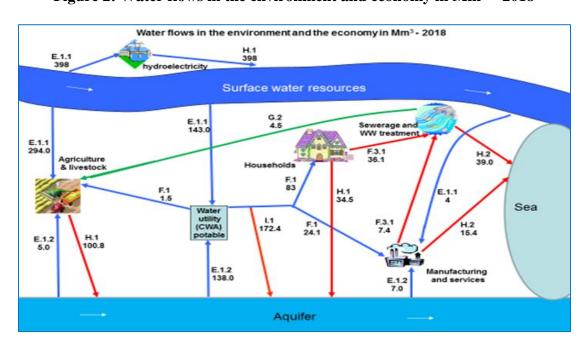


Figure 1: Water flows in the environment and economy in $Mm^3 - 2017$





Directions	Details
E.1.1	Abstraction from surface water
E.1.2	Abstraction from ground water
F.1	Water supplied by resident economic units to resident economic units
F.3.1	Water supplied by resident economic units to resident economic units for treatment or disposal
G.4.2	Wastewater received for further use
H.1	Returns of water to the environment by economic units to inland water resources
H.2	Returns of water to the environment by economic units to the sea
I.1	Losses of water in distribution

3.2 Water utilisation

In 2018, total water utilized amounted to 1145.6 Mm3, 5% more than the 1090.6 Mm3 of 2017. The hydropower generation industries (398 Mm3 or 34.7%) and the agriculture industry (305 Mm3 or 26.6%) are the two largest users of water. They were followed by CWA (281.0 Mm3 or 24.5%) and households (83 Mm3 or 7.2%). The "manufacturing and services industries" is the smallest user with 35.1 Mm3 of water utilised or 3.1% of total.

The corresponding figures for 2017 were:

Agriculture industry: 348 Mm3 or 32%, Electricity industry: 312 Mm3 or 28.6%,

CWA: 262 Mm3 or 24%,

Households: 80.3 Mm3 or 7.4%, and

Manufacturing and services industries: 35.1 Mm3 or 3.2%,

3.3 Water consumption

Water consumption refers to the water incorporated into products, evaporated, transpired by plants or simply consumed by households or livestocks.

In 2018, total water consumption was 229.1 Mm3, a decrease of 2.2% compared to the figure of 257.9 Mm3 for 2017. The highest water consumption was by agriculture industry (305.0 Mm3 or 89 %) whilst both manufacturing sector (12.3 Mm3) and households (12.5 Mm3) each represented 5.4% of total consumption.

The corresponding figures for 2017 were:

Agriculture industries – 233.6 Mm³ or 90.6% Households – 12 Mm³ or 4.7 % and Manufacturing and services industries – 12.3 Mm³ or 4.7%

3.4 Water return to the economy

The total amount of water that is returned to the economy adds up to 764.6 Mm3 in 2018, compared to 675.3 Mm3 in 2017. The electricity industry returned 398 Mm3 (that is all the water which is abstracted for hydropower generation) to the economy, the agricultural sector 100.8 Mm3 as irrigation water and CWA 172.4 Mm3 of water as a result of losses in distribution due to leakages. For the remaining sectors, households returned 70.6 Mm3 of which 36.1 Mm3 through sewerage and water system treatment and 34.5 directly into the environment and manufacturing and services, the remaining 22.8 Mm3.

Table 3.1: Detailed Physical Supply and Use, Mauritius - 2014

	_			ISIC 01-03 Agriculture	services	ISIC 3510 Hydroelect ricity	USIC 3600 Water utility (drinking water)	ISIC 3700 Sewerage (sewage collection and treatment)	Total	Househol ds	Total
From the	1.	Total Abst	traction	373	13	275	234		895		895
environm ent	(= 1.a + 1.	b = 1.i + 1.ii	-								
ent		1.a.	Abstraction for own us	373	13	275			661		661
			Hydroelectric power gen			275			275		275
			Irrigation water	373					373		373
			Mine water								
			Urban run-off								
			cooling water Other								
		1.b.	Abstraction for distribu				234		234		234
		1.b. 1.i.	From inland water resc		13	275	234		895		89 5
		1	1.i.1. Surface was	367	7	275	115		764		764
			1.i.2. Ground wa	6	6	2,3	119		131		131
			1.i.3. Soil water	· ·					202		101
		1.ii.	Collection of precipitat	ion							
		1.iii.	Abstraction from the se								
Within the economy	2.	Use of wa economic of which:		6.5	21.3			40.5	68.3	74.2	142.5
		2.a.	Reused water	5.1							
		2.b.	Wastewater to sewerag					40.5	40.5		40.5
		2.c.	Desalinated water								
	3.	Total use	of water (=1 + 2)	379.5	34.3	275	234	40.5	963.3	74.2	1037.5

Table 3.2: Detailed Physical Supply and Use, Mauritius - 2014

B. Physical	- vlaguS	table 2014 (millions of cubic	ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600	ISIC 3700			
metres)	- шрр.,	2024 (Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and treatment)	Total	Households	Total
Within the economy	4.	Supply of water to other economic units of which: 4.a. Reused water		6.9		96.9	,	103.8	33.6	137.4
		4.b. Wastewater to sewer 4.c. Desalinated water		6.9				6.9	33.6	40.5
Into the environm ent	5.	Total returns (= 5.a + 5.b) Hydroelectric power generation Irrigation water Mine water Urban run-off cooling water	125.2 125.2	15.7	275 275	137.1	40.5	593.5 275	29.5	623.0 275
		Losses in distribution because of Treated wastewater Other				137.1	40.5	137.1 40.5 0		137.1 40.5 0
		5.a. To inland water (= 5.a.1 + 5.a.2 +	125.2		275	137.1		537.3	29.5	566.8
		5.a.1. Surface wa 5.a.2. Groundwa 5.a.3. Soil water			275	137.1		275 262.3	29.5	275 291.8
		5.b. To other sources (e.g.	•	15.7			40.5	56.2		56.2
•	6.	Total supply of water (= 4 + 5)	125.2	22.6	275	234	40.5	697.4	63.1	760.4
,	7.	Consumption (= 3 - 6) of which: 7.a. Losses of distribution of leakages	254.3	11.7	0	0	0	266	11.1	277.1

Table 4.1: Detailed Physical Supply and Use, Mauritius – 2015

A. Physical	l Use tabl	le 2015 <i>(n</i>	nillions of cu	ıbic metres)	ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600 Water	ISIC 3700 Sewerage	rage Total age tion d	Households	Total
					Agriculture	Manufactur e and services	Hydroe lectr icity	utility (drinking water)	(sewage collection and treatment)			
From the	1.	Total Al	bstraction		343	14	361	255		973		973
environm	(= 1.a + 1	l.b = 1.i +	3									
ent		1.a.	Abstrac	tion for own us	343	14	36 1			718		718
			Hydroei	lectric power g			361			361		361
			Irrigatio	on water	343					343		343
			Mine w									
			Urban r	1251								
			cooling	water								
		100000	Other	_								
		1.b.		tion for distrib				255		255		255
		1.i.		land water res		14	361	255		973		973
			1.i.1.	Surface wa		7	36 1	122		828		828
			1.i.2.	Ground wa	5	7		133		145		145
		0.20.20	1.i.3.	Soil water								
		1.ii.		on of precipitat								
		1.iii.	Abstrac	tion from the s	ea							
Within	2.	Use of	water receiv	ved from	6	21.8			49.4	77.2	75.1	152.3
the		of which	h:									
economy		2.a.	Reused	water	4.7							
		2.b.	Wastew	ater to sewera					49.4	49.4		49.4
		2.c.	Desalina	ated water								
	3.	Total us	se of water	(=1+2)	349	35.8	361	255	49.4	1050.2	75.1	1125.3

 $\begin{tabular}{ll} Table 4.2: Detailed Physical Supply and Use, Mauritius - 2015 \end{tabular}$

B. Physical S	Physical Supply table 2015 <i>(millions of cubic</i>		ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	1010 0510	ISIC 3600	ISIC 3700			
metres)			Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and treatment)	Total	Households	Total
Within the	4.	Supply of water to other of which:		8.4		98.2		106.6	41.0	147.6
economy		4.a. Reused water4.b. Wastewater to sewer4.c. Desalinated water	c	8.4				8.4	41.0	49.4
Into the environm ent	5.	Total returns (= 5.a + 5.b) Hydroelectric power generation Irrigation water Mine water Urban run-off cooling water	115.2 115.2	15	361 361	156.8	49.4	697.4 361 115.2	22.8	720.2 361 115.2
		Losses in distribution because of Treated wastewater Other	1			156.8	49.4	156.8 49.4 0		156.8 49.4 0
		5.a. To inland water (= 5.a.1 + 5.a.2 + 5.a.1. Surface w	115.2 ater		361 361	156.8		633 361	22.8	655.8 361
		5.a.2. Groundwa 5.a.3. Soil water 5.b. To other sources (e.g.		15.0		156.8	49.4	272.0 64.4	22.8	294.8
•	6.	Total supply of water (= 4 + 5)	115.2	23.4	361	255	49.4	804.0	63.8	867.9
,	7.	Consumption (= 3 - 6) of which: 7.a. Losses of distribution of leakages	233.8	12.4	0	0	0	246	11.3	257.4

 $Table \ 5.1: Detailed \ Physical \ Supply \ and \ Use, Mauritius-2016$

					ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600	ISIC 3700			
A. Physica	l Use tab	le 2016 (n	nillions of cu	ıbic metres)	Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and treatment)	Total	Households	Total
From the	1.	Total Al	bstraction		351	12	341	257		961		961
environm	(= 1.a +	+ 1.b = 1.i + 1.ii) 1.a. Abstraction for own u										
ent		1.a.	Abstract	tion for own us	351	12	341			704		704
			Hydroel	ectric power g			341			341		341
			171	n water	351					351		351
			Mine wo									
			Urban r	157								
			cooling	water								
			Other									
		1.b.		tion for distrib				257		257		257
		1.i.		land water res		12	341	257		961		961
			1.i.1.	Surface wa		5	341	124		814		814
			1.i.2. 1.i.3.	Ground wa Soil water	7	7		133		147		147
		1.ii.		Soil water on of precipitat	ion							
		1.ii. 1.iii.		tion from the s								
		1.111.	Abstract	LIOII II OIII LIIE S	ea							
Within	2.	Use of v	water receiv	red from	7.4	22.6			50.4	80.4	76.3	156.7
the		of which	h:									
economy		2.a.	Reused	water	6.0							
		2.b.	Wastew	ater to sewera					50.4	50.4		50.4
		2.c.	Desalina	ated water								
	3.	Total us	e of water ((=1+2)	358.4	34.6	341	257	50.4	1041.4	76.3	1117.7

Table 5.2: Detailed Physical Supply and Use, Mauritius – 2016

B. Physical S	Physical Supply table 2016 (millions of cubic		ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600	ISIC 3700			
metres)		•	Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and	Total	Households	Total
Within the economy	4.	Supply of water to other of which: 4.a. Reused water		8.6		100.3	treatment)	108.9	41.8	150.7
		4.b. Wastewater to sewer 4.c. Desalinated water	c	8.6				8.6	41.8	50.4
Into the	5.	Total returns (= 5.a + 5.b)	118.3	13.9	341	156.7	50.4	680.3	23.1	703.4
environm ent		Hydroelectric power generation	118.3		341			341 118.3		341 118.3
		Irrigation water Mine water Urban run-off cooling water								
		Losses in distribution because of	1			156.7		156.7		156.7
		Treated wastewater Other					50.4	50.4		50.4
		5.a. To inland water (= 5.a.1 + 5.a.2 +	118.3		341	156.7		616	23.1	639.1
		5.a.1. Surface wa	7/7-7-		341			341		341
		5.a.2. Groundwa 5.a.3. Soil water				156.7		275.0	23.1	298.1
		5.b. To other sources (e.g.		13.9			50.4	64.3		64.3
•	6.	Total supply of water (= 4 + 5)	118.3	22.5	341	257	50.4	789.2	64.9	854.0
,	7.	Consumption (= 3 - 6) of which: 7.a. Losses of distribution	240.1	12.1	0	0	0	252	11.4	263.7

Table 6.1: Detailed Physical Supply and Use, Mauritius – 2017

A. Physica	-		nillions of cu	ıbic metres)	ISIC 01-03 Agriculture	ISIC 05-33, 41- 43,38,39,45- 99 Manufactur e and services	ISIC 3510 Hydroelectr icity	Water utility (drinking water)	ISIC 3700 Sewerage (sewage collection and treatment)	Total	Households	Total
environm	1.				341	12	312	262		927		927
ent		1.a. 1.b. 1.i. 1.ii.	Abstract Hydroel Irrigatio Mine we Urban re cooling Other Abstract From ini 1.i.1. 1.i.2. 1.i.3. Collection	un-off	341 336 5	12 5 7	312 312 312 312	262 132 130		665 312 0 0 927 785 142		0 927 785 142
Within the economy	2.	of which 2.a. 2.b. 2.c.	Reused Wastew		7.7 6.4	23.1			52.6 52.6	83.4 52.6	80.2	163.6 52.6
	3.	Total us	se of water (=1+2)	348.7	35.1	312	262	52.6	1010.4	80.2	1090.6

Table 6.2: Detailed Physical Supply and Use, Mauritius – 2017

B. Physical 9	Supply	able 2017 (millions of cubic	ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600	ISIC 3700			
metres)			Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and treatment)	Total	Households	Total
Within the economy	4.	Supply of water to other of which: 4.a. Reused water		8.9		104.6	n cauncin,	113.5	43.7	157.2
		4.b. Wastewater to sewer 4.c. Desalinated water	c	8.9				8.9	43.7	52.6
Into the environm ent	5.	Total returns (= 5.a + 5.b) Hydroelectric power generation Irrigation water Mine water Urban run-off cooling water	114.9 114.9	13.9	312 312	157.4	52.6	650.8 312 114.9	24.5	675.3 312 114.9
		Losses in distribution because of Treated wastewater Other	ı			157.4	52.6	157.4 52.6		157.4 52.6
		5.a. To inland water (= 5.a.1 + 5.a.2 +	1 14.9		312	157.4		584.3	24.5	608.8
		5.a.1. Surface was 5.a.2. Groundwas 5.a.3. Soil water 5.b. To other sources (e.g.	1 14.9	13.9	312	157.4	52.6	312 272.3 66.5	24.5	312 296.8 66.5
	6.	Total supply of water (= 4 + 5)	115.1	22.8	312	262	52.6	764.5	68.2	832.7
*	7.	Consumption (= 3 - 6) of which: 7.a. Losses of distribution of leakages	233.6	12.3	0	0	0	246	12.0	257.9

Table 7.1: Detailed Physical Supply and Use, Mauritius – 2018

A. Physical	A. Physical Use table 2018 (millions of cubic metres)				ISIC 05-33, 41- 43,38,39,45- 99 Manufactur e and services	ISIC 3510 Hydroelectr icity	ISIC 3600 Water utility (drinking water)	ISIC 3700 Sewerage (sewage collection and treatment)	Total	Households	Total
From the	1.	Total Al	bstraction	299	11	398	281	treatment,	989		989
environm	(= 1.a + 1	l.b = 1.i +	1.ii)								
ent		1.a.	Abstraction for own	us 299	11	398			708		708
			Hydroelectric power	gı		398			398		398
			Irrigation water						0		0
			Mine water								
			Urban run-off								
			cooling water								
			Other								
		1.b.	Abstraction for distr						0		0
		1.i.	From inland water r		11	398			708		708
			1.i.1. Surface v		4	398	143		839		839
			1.i.2. Ground		7		138		150		150
			1.i.3. Soil wate								
		1.ii.	Collection of precipit								
		1.iii.	Abstraction from the	e sea							
Within	2.	Use of	water received from	6.0	24.1			43.5	73.6	83	156.6
the		of whic	h:								
economy		2.a.	Reused water	4.5							
		2.b.	Wastewater to sewe	ra				43.5	43.5		43.5
		2.c.	Desalinated water								
,	3.	Total us	se of water (=1 + 2)	305	35.1	398	281	43.5	1062.6	83	1145.6

Table 7.2: Detailed Physical Supply and Use, Mauritius – 2018

B. Physical	Supply	able 2018 (millions of cubic	ISIC 01-03	ISIC 05-33, 41- 43,38,39,45- 99	ISIC 3510	ISIC 3600	ISIC 3700			
metres)	Supply :	ane 2010 (mmono of casie	Agriculture	Manufactur e and services	Hydroelectr icity	Water utility (drinking water)	Sewerage (sewage collection and treatment)	Total	Households	Total
Within the economy	4.	Supply of water to other of which: 4.a. Reused water		7.4		108.6		116	36.1	152.1
		4.b. Wastewater to sewel 4.c. Desalinated water	rc	7.4				7.4	36.1	43.5
Into the environm ent	5.	Total returns (= 5.a + 5.b) Hydroelectric power generation Irrigation water Mine water Urban run-off cooling water	100.8	15.4	398 398	172.4	43.5	730.1 398 100.8	34.5	764.6 398 100.8
		Losses in distribution because of Treated wastewater Other	-1			172.4	43.5	172.4 43.5		172.4 43.5
		5.a. To inland water (= 5.a.1 + 5.a.2 + 5.a.1. Surface w	100.8		398 398	172.4		671.2 0 398	34.5	705.7 0.0 398
		5.a.2. Groundw 5.a.3. Soil water 5.b. To other sources (e.g	at 100.8	15.4	330	172.4	43.5	273.2	34.5	307.7 58.9
•	6.	Total supply of water (= 4 + 5)	100.7	22.8	398	281	43.5	846.0	70.6	916.5
,	7.	Consumption (= 3 - 6) of which: 7.a. Losses of distribution of leakages	204.4	12.3	0	0	0	217	12.5	229.1

4. Water Asset Accounts

Water Asset Accounts show the stocks of water resources and their changes during a particular period, linking water use by the economy (abstraction and returns) and the natural flows of water to the stocks of water in the country. They can be represented as follows:

- a) Opening and closing stocks, which are the stock levels at the beginning and the end of the period;
- b) Increases in stocks, which include those due to human activity (returns) and natural causes, such as precipitation;
- c) Decreases in stocks, which include those due to human activity (abstraction) and natural causes, such as evaporation/evapotranspiration and outflows.

In the absence of data on stocks at the beginning and end of the year, simplified accounts have been prepared where it is assumed that the total addition to stock and the reduction in stock of water are the same. The physical asset accounts for water resources in Mauritius for 2016 - 2018 are shown below.

Table 8: Water Asset Account 2016

				Туро	e of water reso	urce		
				Surface water				TOTAL
			Artificial reservoirs	Lakes	Rivers and streams	Groundwater	Soil water	
Openi	ng		Opening A.1.1	Opening A.1.2		Opening A.2		Opening A.1 + Opening A.2
Additi	Additions to							
	Retur	ns		341		298		639
	Pre ci p	oitation		2,122			1,414	3,536
	Inflov	vs from other territories						0
	Inflov	vs from other inland water resources				353		353
	Disco	veries of water in aquifers						0
	Total o	additions to stock		2,463		651	1,414	4,528
Reduc	tions							
	Abstra	actions	338	470	5	147		961
		for hydro power generation		341				341
		for cooling water						0
	Evapo	ration & actual evapotranspiration					1,061	1,061
	Outflo	ows to other territories						0
	Outflo	ows to the sea		1,649		504		2,153
	Outflo	ows to other inland water resources	_				353	353
	Total r	reductions in stock		2,463		651	1,414	4,528
Closin	Closing		Closing A.1.1	Closing A.1.2		Closing A.2		Closing A.1 + Closing A.2

Table 9: Water Asset Account 2017

				Турс	e of water reso	urce		
				Surface water				TOTAL
			Artificial reservoirs	Lakes	Rivers and streams	Groundwater	Soil water	IOIAL
Openin	ng		Opening A.1.1	Opening A.1.2		Opening A.2		Opening A.1 + Opening A.2
Additio	Additions to							
	Retur	ns		312		297		609
	Precip	pitation		2,395			1,596	3,991
	Inflov	vs from other territories						0
	Inflov	ws from other inland water resources				399		399
	Disco	veries of water in aquifers						0
	Total (additions to stock		2,707		696	1,596	4,999
Reduct	tions							
	Abstra	actions	302	483	3	142		927
		for hydro power generation		312				312
		for cooling water						0
	Evapo	oration & actual evapotranspiration					1,197	1,197
	Outflo	ows to other territories						0
	Outflo	ows to the sea		1,922		554		2,476
	Outflo	ows to other inland water resources					399	399
	Total ı	reductions in stock		2,707		696	1,596	4,999
Closing	3		Closing A.1.1	Closing A.1.2		Closing A.2		Closing A.1 + Closing A.2

Table 10: Water Asset Account 2018

Opening		Opening A.1.1	Opening A.1.2		Opening	A.2		Opening A.1 + Opening A.2
Additions	to							
Ret	turns		398		312			710
Pre	cipitation		3,151				2,101	5,252
Inf	flows from other territories							0
Inf	flows from other inland water resources				525			525
Dis	scoveries of water in aquifers							0
Tot	tal additions to stock		3,549		837		2,101	6,487
Reduction	ns							
Abs	stractions	386	453	3	150			989
	for hydro power generation		398					398
	for cooling water							0
Eva	aporation & actual evapotranspiration						1,576	1,576
Out	tflows to other territories							0
Out	tflows to the sea		2,710		687			3,397
Out	tflows to other inland water resources						525	525
Tot	tal reductions in stock		3,549		837		2,101	6,487
Closing	Closing		Closing A.1.2		Closing A.2			Closing A.1 + Closing A.2

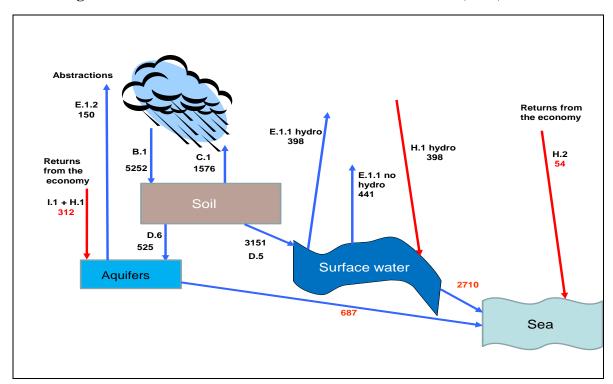


Figure 3: Water flows to and from inland water resources $(2018) - Mm^3$

Note: red numbers are rough estimates or balancing numbers.

Total addition to stock in 2018 was 6,487 Mm³ was 30 % higher than that 4,999 Mm³ of 2014 and comprised 3549 Mm³ from rivers, reservoirs and lakes (surface water) and 837 Mm³ from groundwater, in addition to the 2,101 Mm³ of soil water consisting of water from the uppermost belt of soil.

Total reduction is explained by evaporation/evapotranspiration (1,576 Mm³); abstraction including hydropower (989 Mm³); outflows to the sea (3,397 Mm³) and outflows to other inland water resources (525 Mm³).

Contact Person

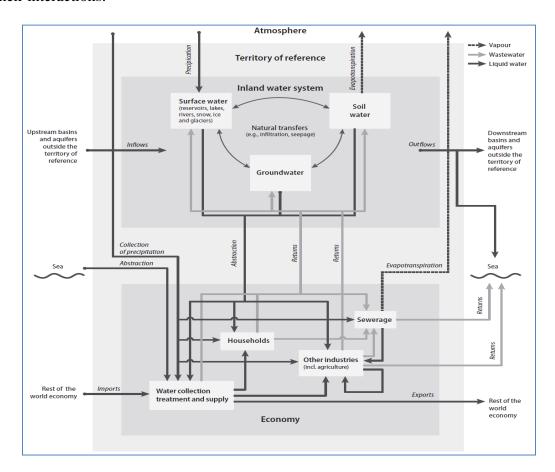
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^{*} Surface water include artificial reservoirs, lakes, and rivers and streams

Concepts and Methodologies

Water accounts: Water accounts are a set of statistical data representing the water stocks and flow in a country in both physical and monetary terms. The framework commonly adopted for water accounting is the SEEA-Water which provides a conceptual framework for organizing hydrological and economic information in a coherent and consistent manner in order to enable the study of the interactions between the economy and the environment.

SEEA-Water: System of Environmental and Economic Accounts for Water is presented in simplified diagrammatic form below, which shows the economy, the system of water resources and their interactions.



Source: SEEA-Water, 2012

The <u>economy</u> and the <u>inland</u> water <u>resource</u> system of a territory, referred to as "territory of reference", are represented in the figure as two separate boxes. The inland water resource system of a territory is composed of all water resources in the territory (surface water, groundwater and soil water) and the natural flows between and among them. The economy of a territory consists of residential water users that abstract water for production and consumption purposes and put in place the infrastructure to store, treat, distribute and discharge water.

Definition from the IRWS

- 1. **Inland water stocks** The volume of water contained in surface water, groundwater and soil water within the territory of reference at a particular point in time. This includes freshwater, brackish water and saline water and all types of water quality.
- 2. **Groundwater stocks** -The volume of water in porous and permeable underground layers, known as aquifers that can yield significant quantities of water to wells and springs.
- 3. **Precipitation** The volume of water that flows from the atmosphere to inland water resources via rain, snow, sleet, hail, dew, mist, etc., per year.
- 4. **Run-off (i.e., surface run-off)** The volume of water that flows from the atmosphere via rain, snow, sleet, hail, dew, mist, etc., and upon reaching the Earth's surface, either lands in surface water or flows overland into surface water bodies, per year.
- 5. **Evapotranspiration from inland water resources** The volume of water from land and water surfaces that enters the atmosphere by vaporization of water into a gas and through evaporation and transpiration from plants, per year.
- 6. **Abstraction of water (E)** is the volume of water that is removed or collected by economic units directly from the environment. The abstraction of water is disaggregated by the source of water: inland water resources (E.1), collection of precipitation (E.2) and abstraction of water from the sea (E.3).
- 7. **Abstraction from inland water resources (E.1)** The volume of water that is removed by economic units from surface water, groundwater and soil water within the territory of reference, per year. This includes the abstraction of inland waters that are fresh, brackish, saline or polluted. This excludes abstraction of water from the sea or ocean, since these are not inland water resources
- 8. **Abstraction from surface water (E.1.1)** The volume of water removed by economic units from artificial reservoirs, lakes, rivers, wetlands and snow, ice and glaciers within the territory of reference, per year. Bank filtration is considered an abstraction of surface water
- 9. **Abstraction from groundwater (E.1.2)** The volume of water removed by economic units from aquifers and springs within the territory of reference, per year
- 10. Water supplied to other economic units (F) is the volume of water that is provided by one economic unit to another economic unit through mains, artificial open channels, sewers, drains, trucks or other means. Water supplied to other economic units (F) excludes the losses of water in distribution that are included in data item I and the supply of bottled water (CPC, Ver. 2, 2441), which is one of the supplementary data items.

- 11. Water supplied by resident economic units to resident economic units (F.1) The volume of water (CPC 18000) that is provided by resident economic units, typically of the water supply industry (ISIC 36), to other resident economic units through mains, artificial open channels, sewers, drains, trucks or other means, per year.
- 12. Water supplied by resident economic units to resident economic units for treatment or disposal (F.3.1) The volume of water discharged into drains or sewers by resident economic units for treatment or disposal by other resident economic units, per year.
- 13. Water received from other economic units (G) Water received from other economic units (G) consists of G.1 water (CPC 18000) received by resident economic units from other resident economic units; G.2 water (CPC 18000) received by resident economic units from the rest of the world (water imports); G.3 wastewater received by resident economic units from other resident economic units; and G.4 wastewater received by resident economic units from the rest of the world (wastewater imports). Wastewater (G.3 and G.4) is further divided into wastewater received for treatment and disposal (G.3.1 and G.4.1) and wastewater received not for treatment and disposal (for further use, G.3.2 and G.4.2).
- 14. **Returns of water to the environment by economic units (H)** The volume of water that flows from economic units directly to inland water resources, the sea or to land, within the territory of reference, per year. This includes urban storm water, losses due to leakage and burst pipes, irrigation water that infiltrates into groundwater or ends up in surface water, and the discharges of cooling water and water used for hydroelectricity generation. It excludes evaporation because evaporation is consumption.
- 15. **Returns of water to the environment by economic units to inland water resources** (H.1) The volume of water that flows from economic units directly to surface water or groundwater within the territory of reference, per year.
- 16. **Returns of water to the environment by economic units to the sea (H.2)** The volume of water that flows from economic units directly into the sea or ocean, within the territory of reference, per year. These discharges may occur near the coast or further offshore.
- 17. **Losses of water (I)** The volume of water that is lost in distribution or lost when sent for treatment and disposal, within the territory of reference, per year. This includes water (CPC 18000) and wastewater.
- 18. Losses of water in distribution (I.1) The volume of water (CPC, Ver. 2, 1800) that is lost during distribution and transportation, between the point of abstraction and the point of use or between the points of use and reuse (e.g., from mains, artificial open channels and trucks). Losses of water sent for treatment or disposal in collection (I.2) consists of water lost from the system used to collect, treat or dispose of discharged water, including artificial open channels and trucks used to collect discharged water.

Annex A

Table A1: Selected water indicators, 2010-2018

INDICATORS	UNITS	LTA*	2010	2011	2012	2013	2014	2015	2016	2017	2018
Main Indicators											
Population density	inhab/km ²		649	669	652	653	654	653	654	654	654
Hydroelectricity as proportion of electricity	%		4%	2%	3%	3%	3%	4%	3%	3%	4%
Electricity generated per capita	KWh/inhab		2,195	2,232	2,275	2,341	2,378	2,422	2,458	2,519	2,527
Hydrologic Information											
Precipitation in height	mm/year	2,011	1,806	1,948	1,621	2,126	2,094	2,377	1,896	2,134	2,816
Total Renewable Water Resources (TRWR)	hm³/year	2,625	2,358	2,539	2,101	2,675	2,733	3,103	2,475	2,794	3,676
TRWR per capita	m³/inhab		1,948	2,095	1,729	2,197	2,242	2,542	2,027	2,286	3,008
Artificial reservoir capacity per capita	m³/inhab		73	73	73	73	74	74	74	74	74
Water in the economy											
Total water abstracted	hm ³ /year		637	571	582	608	620	612	620	615	591
Water abstracted per capita	m³/inhab		526	471	479	499	509	501	508	503	484
Water abstraction as proportion of TRWR	%		27	23	28	23	23	20	25	22	16
Water abstracted for drinking water per capita	L/inhab/day		505	459	485	488	515	550	586	554	639
Proportion of abstraction by water utilities that is lost	%		55	53	54	56	59	62	61	60	61
Water received in households per capita	L/inhab/day		173	167	164	165	167	168	171	180	186
Water-related social-demographic data items											
Proportion of population using safely managed drinking water services ¹	%			99.6							
Proportion of population with improved sanitation; that is, availability of flush toilet or pit latrines, excluding shared facilities ¹	%			94.9							

LTA: Long term Average (1971 – 2000)

¹ Source: Housing and Population Census

Table A2: Water Supply by sector, Island of Mauritius, 2005-2018

	Units	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Potable Water supply to															
Households	Mm^3	73.1	73.2	73.0	72.1	75.1	76.5	73.7	72.9	73.4	74.2	75.1	76.3	80.2	83.0
Non households	Mm^3	20.6	21.1	22.1	21.9	22.7	23.8	22.8	22.3	22.5	22.7	23.1	24.0	24.5	25.6
Agriculture and	Mm^3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.3	1.4	1.3	1.4	1.4	1.5
livestock	Nim	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.3	1.4	1.3	1.4	1.4	1.5
Manufacturing	Mm^3	4.8	4.7	4.8	4.0	4.1	4.3	4.8	3.9	3.8	3.6	3.7	3.8	3.7	3.7
Accommodation	Mm^3	4.1	4.3	4.4	4.6	4.7	5.1	5.2							
Services Other commons		10.0	10.6		11.9	12.5	12.9	11.9	17.1	17.4	17.7	18.1	18.8	19.3	20.4
Other services	Mm^3			11.4					0.7.0	0=0	0 < 0	00.	100.0	40.4	400 6
Total Potable Water Supply	Mm^3	93.7	94.3	95.1	94.0	97.8	100.3	96.4	95.2	95.9	96.9	98.2	100.3	104.6	108.6
Non Potable Water supply to															
Agriculture and	Mm^3	9.0	8.9	7.5	8.9	7.3	9.2	10.9	10.4	10.0	9.6	9.6	12.0	9.6	9.3
livestock	Mm	9.0	8.9	1.5	8.9	1.3	9.2	10.9	10.4	10.0	9.0	9.0	12.0	9.0	9.3
Manufacturing	Mm^3	5.2	5.4	4.5	5.9	5.2	5.5	6.0	5.7	5.5	5.3	5.3	6.5	5.3	5.1
Total Non Potable	Mm^3	14.2	14.3	12.0	14.8	12.5	14.7	16.9	16.1	15.5	14.9	14.9	18.5	14.9	14.4
Total Sales of water	Mm ³	107.9	108.6	107.2	108.8	110.2	115.0	113.3	111.3	111.4	111.8	113.0	118.9	119.6	123.0

Source: CWA

Table A3: Water abstraction, Island of Mauritius, 2005 – 2018

INDICATORS	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abstractions															
Surface water	Mm^3	541	528	518	497	511	513	449	460	487	489	467	473	473	441
from reservoirs	Mm^3	154	146	145	137	150	152	104	121	136	141	157	158	144	154
from rivers and streams	Mm ³	387	382	373	360	361	361	345	339	351	348	310	315	329	287
Groundwater	Mm^3	150	154	112	119	121	124	122	122	121	131	145	147	142	150
Total abstraction (excluding hydroelectricity)	Mm ³	691	682	630	616	632	637	571	582	608	620	612	620	615	591
Abstraction per capita	m ³ / person	581	570	525	511	523	526	471	479	499	508	501	508	503	484
Hydroelectricity	Mm^3	331	236	254	331	368	298	181	218	280	275	361	341	312	398
Total abstraction (including hydroelectricity)	Mm ³	1,022	918	884	947	1,000	935	752	800	888	895	973	961	927	989
Water abstraction by CWA f	or distribution	l													
Surface water	Mm^3	94	96	101	102	109	109	94	97	112	115	122	124	132	143
Groundwater	Mm^3	101	91	105	107	110	114	111	109	108	119	133	133	130	138
Total water abstracted by CWA	Mm ³	195	187	206	209	220	223	205	206	220	234	255	257	262	281
% Abstracted by CWA	%	28	27.4	32.6	34.0	34.7	35.1	35.5	35.4	36.2	37.6	41.7	41.5	42.6	47.5
Unaccounted For Water	•	-	-	•	•	-	-		•			•	•	•	•
"Losses" Unaccounted For	Mm ³	101	93	110	115	122	123	109	111	124	137	157	157	157	172
Water (UFW)	%	52	49.5	53.7	55.1	55.5	55.1	53.0	53.8	56.4	58.6	61.5	61.0	60.1	61.3

Source: CWA and WRU