

- **Sivan ASSOUR is coordinator of Water and Wastewater Statistics** in the Israeli Central Bureau of Statistics (ICBS).
- Sivan has a B.Sc in Environmental Sciences from the Hebrew University in Jerusalem.
- Among her duties, she compiles the **satellite account for the Israel's water sector**.
- Sivan is also a graduate student in the Science, Technology and Society program at the Bar Ilan University, and her thesis deals with air pollution in the southern part of Israel.

Dr. Moshe Yanai is head of Agriculture, Environment and Energy Sector in the Israeli Central Bureau of Statistics (ICBS).

PhD in Ecological Economics from the University of Illinois in Urbana Champaign (2001). During his work in the ICBS (since 2004) he has led the development efforts of several environmental accounts and statistics of air, water, environmental expenditure, waste and material flow.

In 2011 and 2013: visiting professor in the School of Sustainability at the Interdisciplinary Center, Herzliya.

Prepared the second Israeli National Communication on Climate Change for the UNFCCC, whereas he is also certified as a reviewer for GHG inventories (Energy Sector).

One of the **focal points ENP-SEIS project** (2016-2020)



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Water and Environment Support

in the ENI Southern Neighbourhood region



Regional training on Water Accounting / RW- 2-REG

Water Account and Statistics
in Israel

22.10.2020, Jerusalem, Israel

Presented by: Dr. Moshe Yanai & Sivan Assor



The Israeli Water Sector



**Water and
Environment Support**
in the ENI Southern Neighbourhood region

- Shortage of freshwater and fast growing population
- Planned water economy
- Changes in water sources - transition from freshwater to desalinated water and effluents
- In 2010, following a reform of water tariffs, the water subsidies were canceled and the sector was turned financially closed
- 2001-2020- water supply management shifted from the municipalities to water corporations



Selected Data, 2019

Water Sources

Precipitation volume
in rain year 2018/2019

7.84 billion m³



Desalination of sea water

609 million m³

Dead Sea level

-434.31

in December

A decrease of

1.16 meters

compared to 2018



Water Quality

Drinking water



Tests for the presence of coliforms
showed exceedances in

0.6% of the cases

Average salinity
in the Sea of Galilee

296 mg/l

Water Use (2018)

Total

2.2 billion m³

Household, public,
and industrial consumption

45.8% 

Agricultural consumption

53.2% 

Restored to the environment

1.0% 

Raw Sewage

Raw sewage
in treatment plants

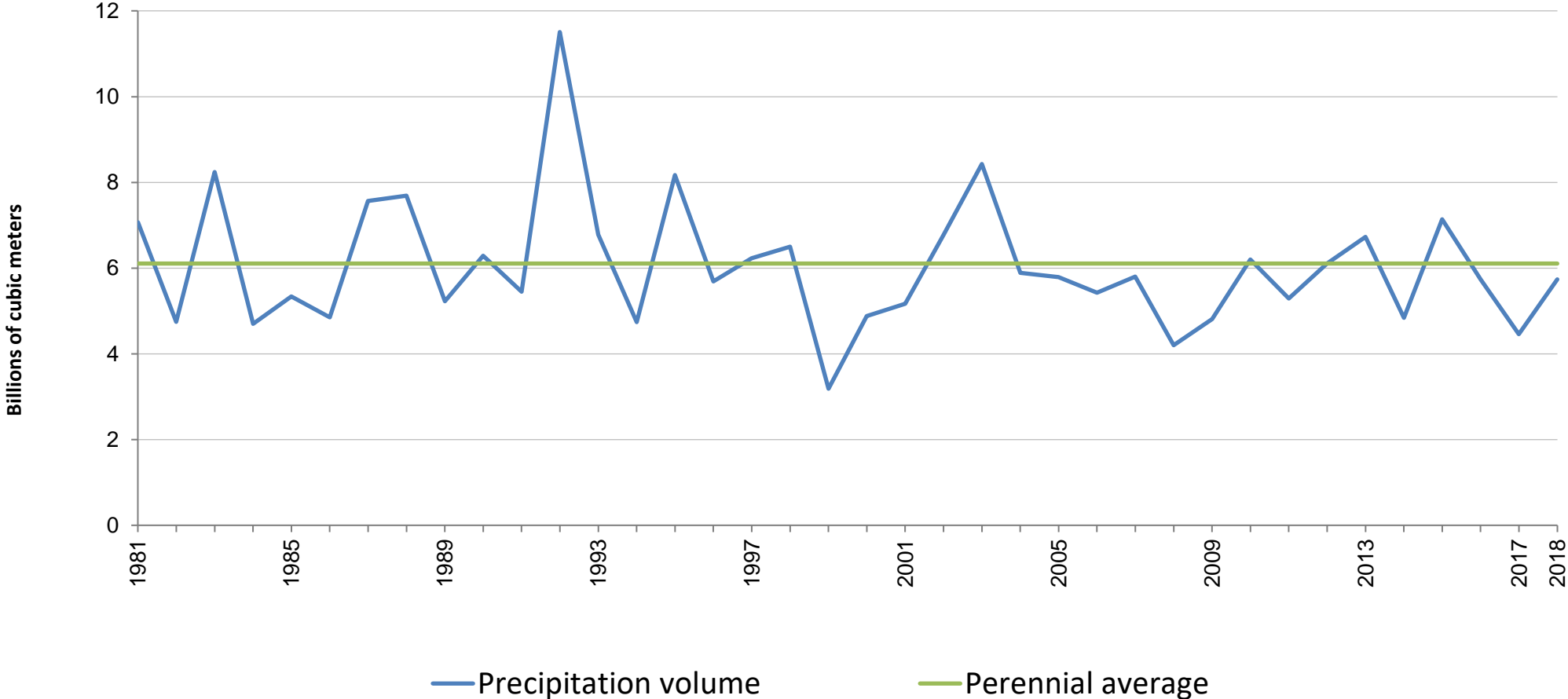
538 million m³



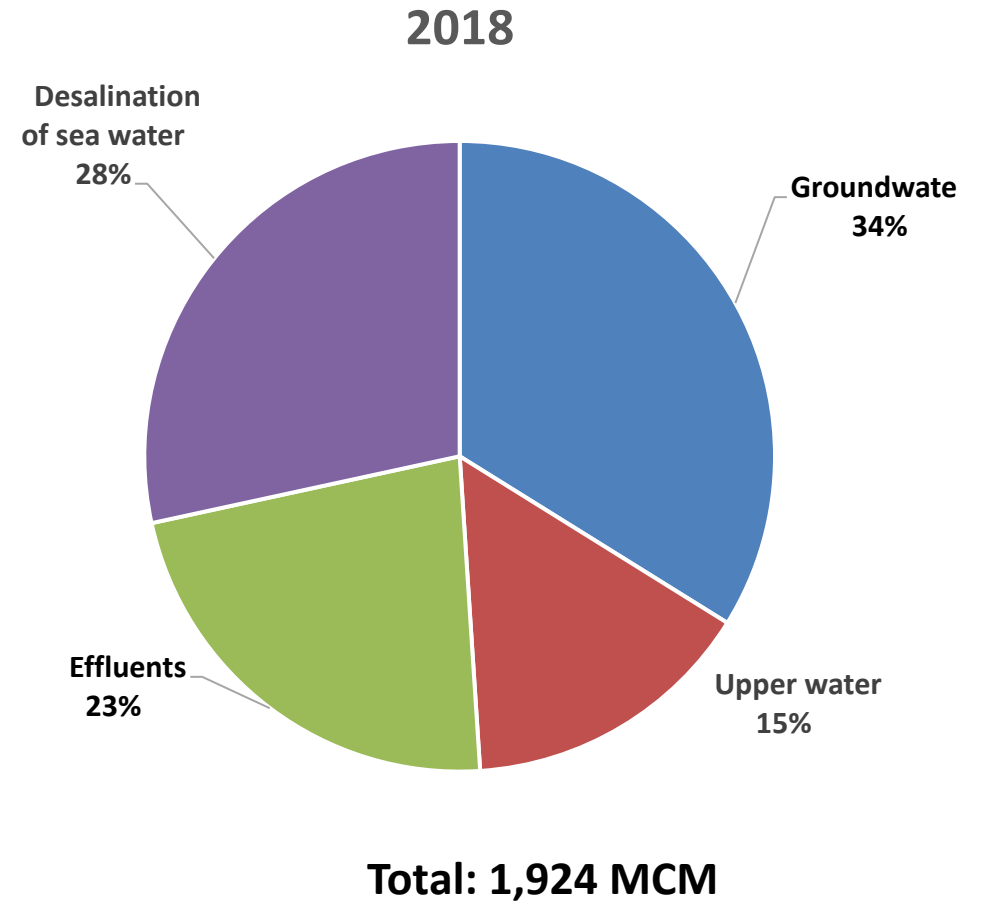
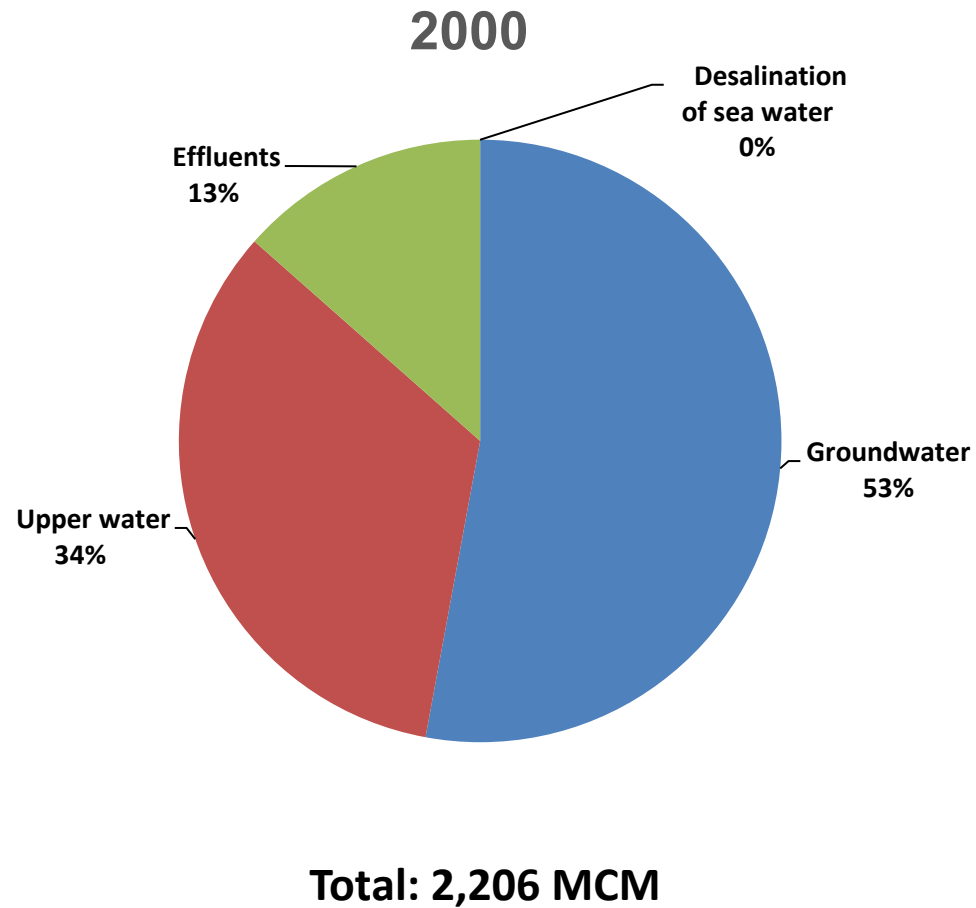
Reclaimed sewage
(effluents) (2018)

514 million m³

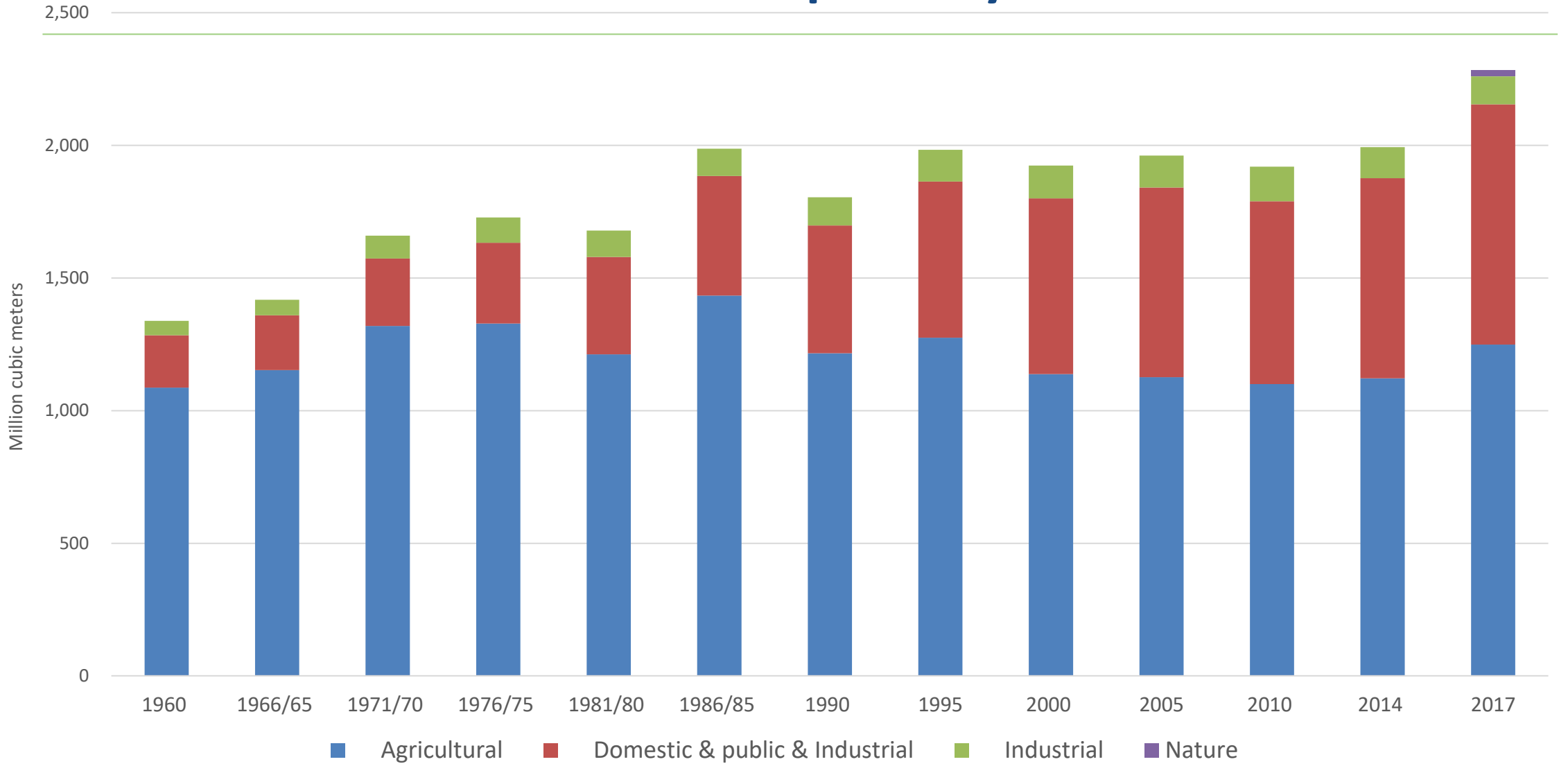
Precipitation Volume 2018-1981



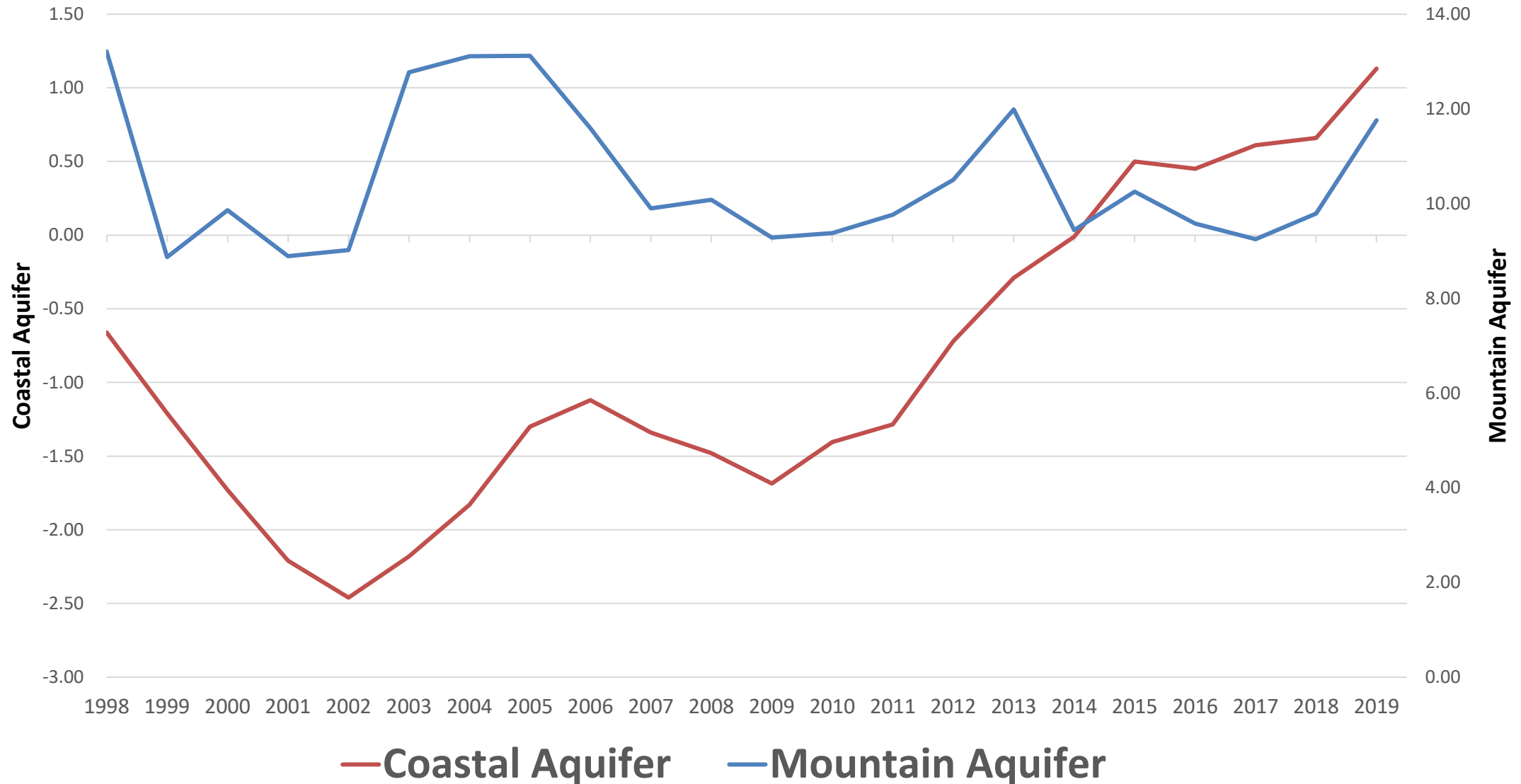
Water consumption by source



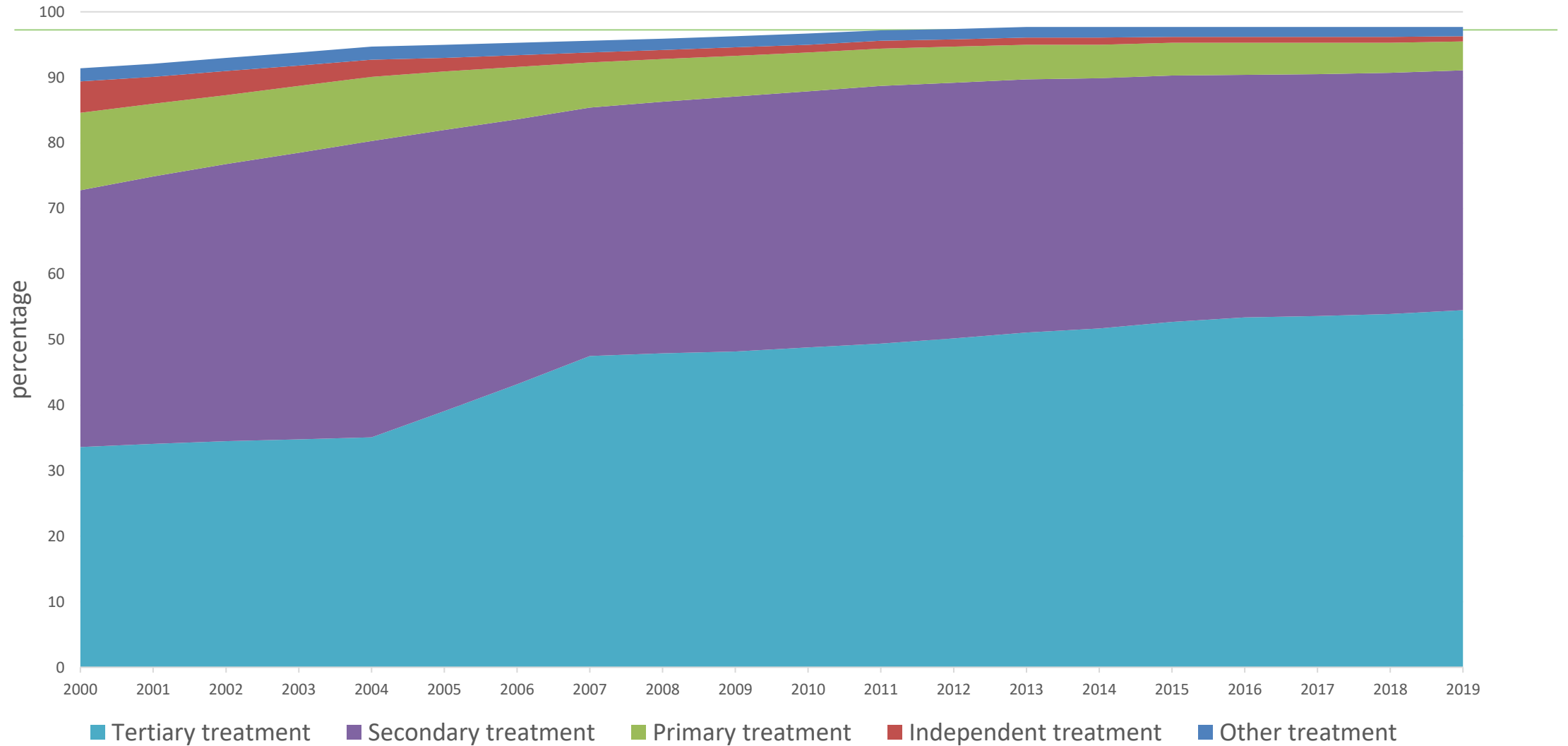
Water Consumption by User



Levels of the Mountain Aquifer and the Coastal Aquifer, 1998-2019



Wastewater by level of treatment 2000 to 2019



Water Satellite Account in Israel

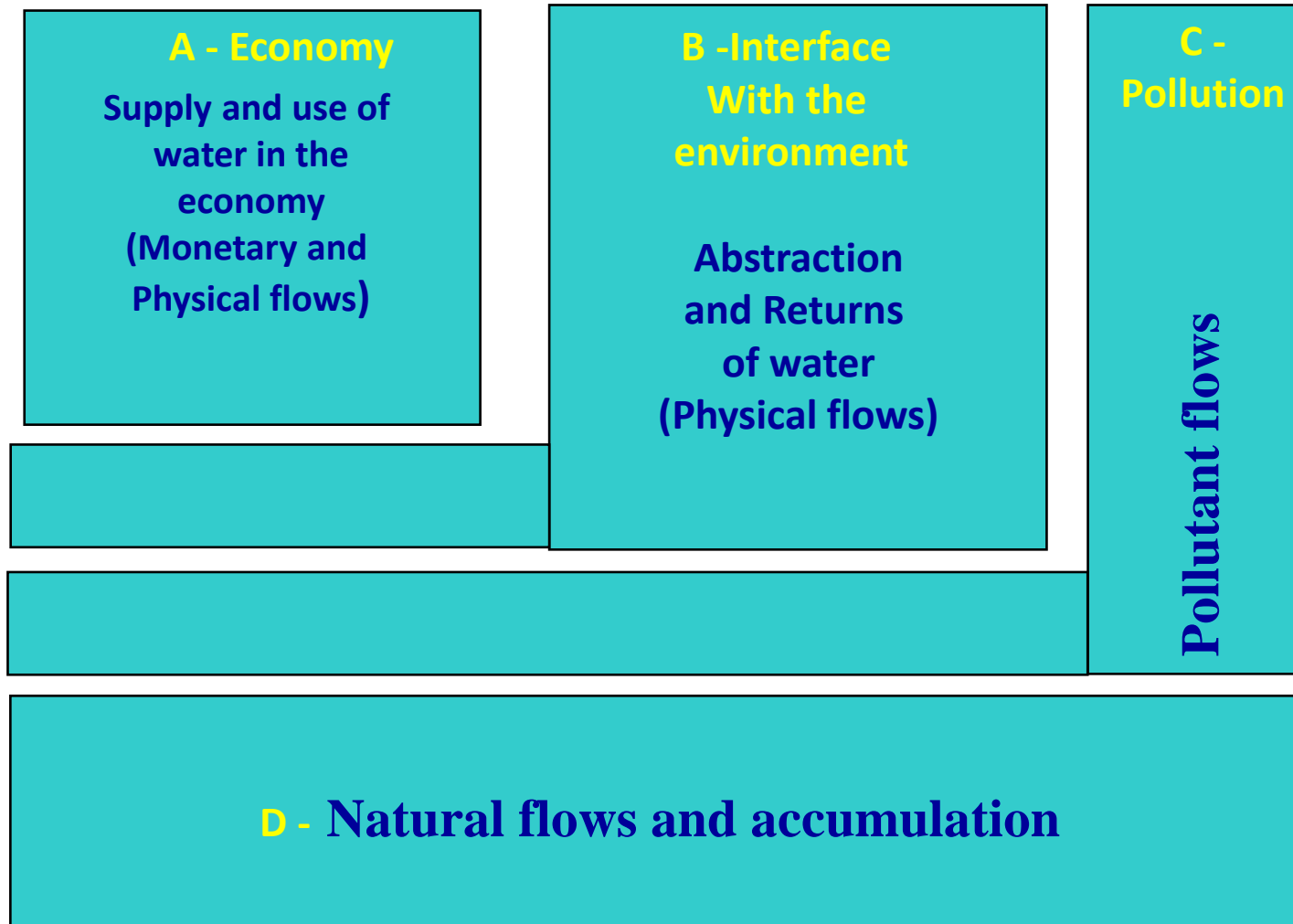
Major Goals of the Water Account:

- Establish an economic and environmental framework for presenting data on water regarding:
 - Physical (Abstraction, distribution) and monetary water flows (costs)
 - Sources and uses of different types of water
 - Water expenditure by industry
 - Economic Account of the water industries
 - Pollution loads by industry

The History of the Account

- 2005- Study visit in Spain
- 2005- Establishment of steering committee
- 2006-2010- Development of IT System, methodology adjustments and data collection
- 2011- Publication of the first account for 2006
- 2012- Publication of the accounts for 2007-2008
- 2013-2018- Employee turnover, IT system support issues, training, data deficiencies, changes in data collection methodology, changes in the water economy structure
- 2018- 2020- compilation of the 2009-2010 accounts
- 2020- Publication of the 2009-2010 accounts (expected in the following month)

Satellite Account of Water in Israel - NAMEA

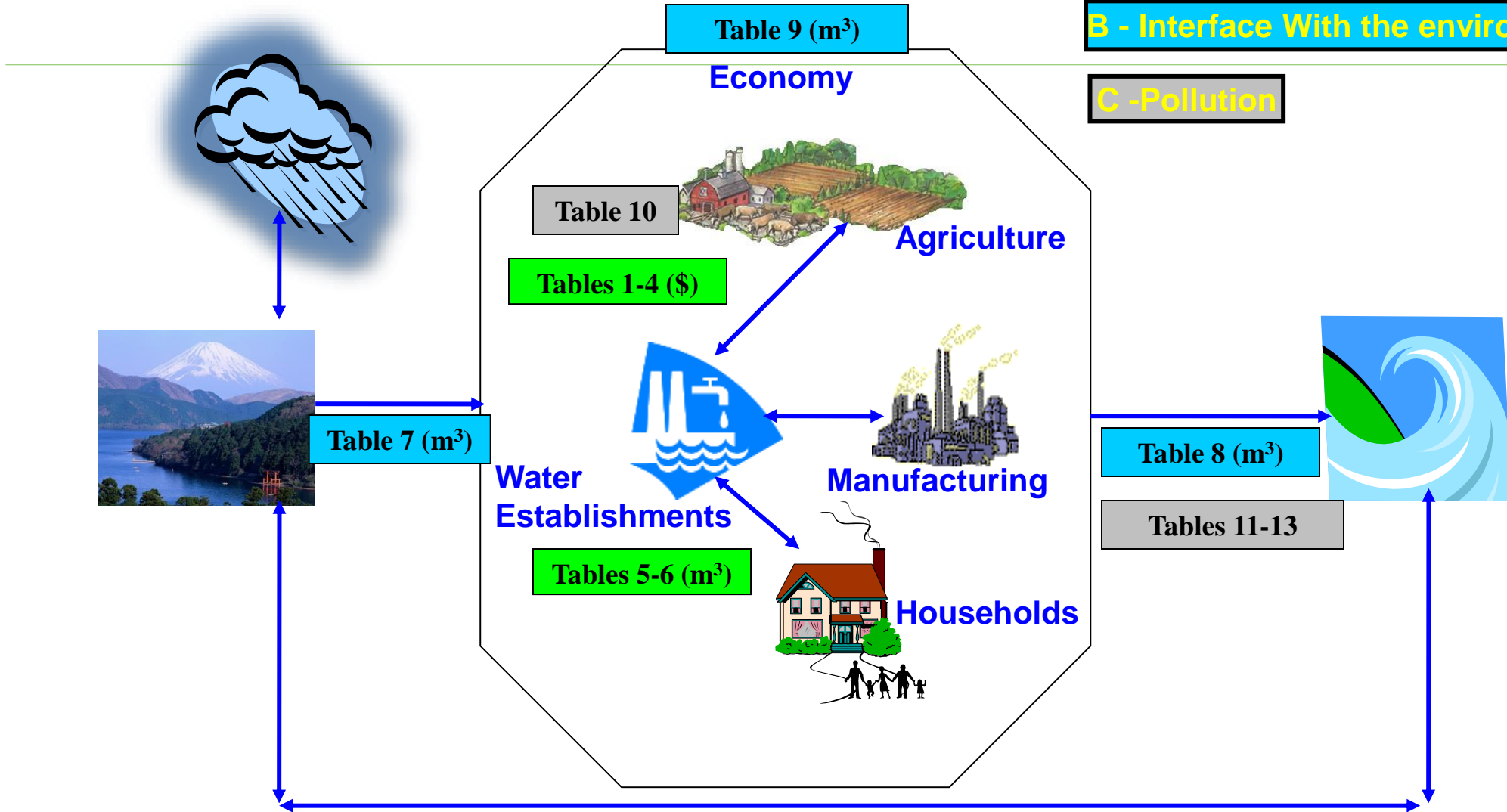


Set of Tables

A - Economy

B - Interface With the environment

C - Pollution



NAMEA

TABLE 6b.- PHYSICAL FLOWS OF WATER CORRESPONDING TO ECONOMIC USES RECORDED IN TABLE 2, 2010

Millions m ³		2010, זרמים פיזיים של מים המקבילים לשימושים כלכליים בלוח 2, 2010											
Industry code	Type of product/Activity Flow code	Received water הקבלת מים שתיקבלו			Drinking and Non-drinking water מים שתישקפו כמים שתישתו			Grand total סה"כ	Collection and treatment of sewage אסוף וטיפול במשפכים	סוג מנהל/פעילות סמל זרמים	מיליוני מ"ק		
		Operation of Irrigation systems 01.41.11 PU1			41.00.11 PU2		41.00.12 PU3					41.00 PU4=PU2+PU3	90.00.11 PU6
		Drinking water ⁽²⁾	Effluents	Other Non-drinking water ⁽¹⁾	Drinking water ⁽²⁾	Non-drinking water	Total					סך הכל	
1-3.9	Agriculture	580.30	305.49	214.22				1,100.00	2.80	חקלאות	1-3.9		
13	Other mining and quarrying				1.81	0.13	1.74	1.74	0.35	כרייה וחציבה אחרות	13		
14-16	Manufacture of food products, beverages and tobacco				22.78	0.01	22.77	22.77	14.38	תעשיית מזון, משקאות חריפים וקלים ומצורי סוכן	14-16		
17-18	Manufacture of textiles and textiles products				4.52	0.01	4.53	4.53	2.85	תעשיית טקסטיל ומצורי	17-18		
21-22	Manufacture of paper and paper products, publishing and printing				4.20	-	4.20	4.20	2.65	תעשיית נייר ומצורי, הוצאה לאור ודפוס	21-22		
23	Manufacture of refined petroleum and its products and nuclear fuel				4.51	0.03	4.54	4.54	0.92	תעשיית זיקוק נפט ומצורי ודלק גרעיני	23		
24-26	Manufacture of chemicals and chemical products, plastic and rubber products and non-metallic mineral products				31.11	4.99	36.11	36.11	9.71	תעשיית כימיקלים ומצורים כימיים, מצורי פלסטיק וגומי ומצורים מינרליים אל-מתכיים	24-26		
27-28	Manufacture of basic metals and metal products				2.70	0.08	2.78	2.78	0.55	תעשיית מתכת בסיסית ומצורי מתכת	27-28		
40	Production and distribution of electricity				7.81	0.00	7.82	7.82	0.15	ייצור חשמל וחלוקתו	40		
45-46	Building and civil engineering works				11.46		11.46	11.46	6.77	בנייה ועבודות הנדסה אזרחית	45-46		
50-53	Motor vehicles, motorcycles and bicycles, wholesale and retail trade and repairs				83.12	-	83.12	83.12	50.75	כלי רכב מנועים, אופנועים ואופניים, מסחר סימוני, מסחר קמעוני ותקונים של סוכן	50-53		
55-56	Hotels and restaurants				20.99	-	20.99	20.99	12.42	שירותי אירוח ואוכל	55-56		
60-66	Transport, storage and communication				10.49	-	10.49	10.49	6.18	תחבורה, אחסנה ותקשורת	60-66		
72-73	Computer and related services and R&D				7.30	-	7.30	7.30	4.61	שירותי מחשב, מחקר ופיתוח	72-73		
77-79	Public administration, excl. establishments dealing in the field of water				45.54	-	45.54	45.54	27.40	מינהל ציבורי, למעט גופים העוסקים בתחום המים	77-79		
80	Education				32.91	-	32.91	32.91	19.40	חינוך	80		
85-86	Health services and welfare and social work				9.45	-	9.45	9.45	5.74	שירותי בריאות ושירותי רווחה וסעד	85-86		
91-95	Community, social and personal and other services				11.55	-	11.55	11.55	7.03	שירותים קהילתיים, חברתיים, אישיים ואחרים	91-95		
98, 99	Other manufacturing and personal services				1.45	-	1.45	1.45	0.91	שירותים ותעשייה - אחר	98, 99		
	Water for the environment ⁽²⁾	10.40						10.40		מים למטע ⁽²⁾			
	Public gardening ⁽²⁾				89.73	3.35	93.08	93.08	54.27	גינות ציבורי ובריכה אחרות ⁽²⁾			
90	Collection and treatment of sewage (sanitizing services, excl. waste)									איסוף וטיפול במשפכים (שירותי תברואה, למעט אשפה)	90		
41	Collection, purification and distribution of water									איסוף, טיהור וחלכת של מים	41		
	Water abstractors and reclamation plants									מפיקי מים ומפעלי השבה			
	Water association in agriculture									אגודות מים בחקלאות			
	Water corporations									תאגדי מים וביוב			
	Municipalities - water public administration									עיריות - מינהל ציבורי של משק המים			
	Local councils - water public administration									מועצות מקומיות - מינהל ציבורי של משק המים			
	Regional councils - water public administration									מועצות אזוריות - מינהל ציבורי של משק המים			
	Total intermediate consumption	590.70	305.49	214.22	403.22	8.59	411.81	1,522.20	229.82		זריכת ביניים - סך הכל		
	Total final consumption				396.40		396.40	396.40	260.19		זריכה סופית - סך הכל		
	by government										על ידי הממשלה		
	by households				396.40	-	396.40	396.40	260.19		על ידי משקי בית		
	Of which: water loss of local authorities				73.86	-	73.86	73.86	-		מזהה: פחת ברשויות מקומיות		
	Changes in inventories	-	-	-	-	-	-	-	-		שינוי במלאי		
	Exports	-	-	-	100.17	-	100.17	100.17	-		צוא		
	Total uses at purchaser's price	590.70	305.49	214.22	899.78	8.59	908.37	2,018.77	490.01		שימוש במים - סך הכל		

SEEA

TABLE 11b.- ABSTRACTION AND SUPPLY OF WATER BY SEEA, 2010

לוח 11ב.- הפקה ואספקה של מים, לפי SEEA, 2010

Millions m ³		Industries (by ISIC3 categories)						ענפי כלכלה לפי סיווג ISIC3			משקי בית	ייצוא	סך כולל	מיליוני מ"ק		
		1-3	5-33, 41-43	35	36			37	38,39, 45-99	סך הכל	House-holds	Export	Total			
					רשויות מקומיות	אגודות מים בחקלאות	ספקי ותאגידי מים ומפעלי השבה									
					Local authorities	Water association in agriculture	Water abstractors, corporations and reclamation									
From the environment	1. Total abstraction (=1.a+1.b=1.i+1.ii)	-	14.08	0.31	29.43	124.87	1,450.34	-	0.31	1,619.34	-	-	1,619.34	1. סך הכל הפקה (=1.a+1.b=1.i+1.ii)		
	1.a. Abstraction for own use	-	14.08	0.31	-	-	-	-	0.31	14.70	-	-	14.70	1.a הפקה לצריכה עצמית		
	Hydroelectric power generation	-	-	-	-	-	-	-	-	-	-	-	-	ייצור חשמל בתחנות הידרואלקטריות		
	Irrigation water	-	-	-	-	-	-	-	-	-	-	-	-	השקיה		
	Mine water	-	-	-	-	-	-	-	-	-	-	-	-	מכרות		
	Urban runoff	-	-	-	-	-	-	-	-	-	-	-	-	מי נגר עירוני		
	Cooling water	-	-	-	-	-	-	-	-	-	-	-	-	מים לקירור		
	Other	-	-	-	-	-	-	-	-	-	-	-	-	אחר		
	1.b. Abstraction for distribution	-	-	-	29.43	124.87	1,450.34	-	-	1,604.64	-	-	-	1,604.64	1.b הפקה להולכה	
	1.i. From water resources	-	12.51	0.31	29.43	97.16	1,385.12	-	0.31	1,524.84	-	-	-	1,524.84	1.i מקורות מים	
1.i.1 Surface water	-	0.48	-	-	95.40	454.28	-	0.02	550.18	-	-	-	550.18	1.i.1 עיליים		
1.i.2 Ground water	-	12.04	0.31	29.43	1.76	726.76	-	0.29	770.58	-	-	-	770.58	1.i.2 תהום		
1.i.3 Soil water	-	-	-	-	-	-	-	-	-	-	-	-	-	1.i.3 מי אדמה		
1.ii. From other sources	-	1.57	-	-	27.71	204.08	-	-	233.36	-	-	-	233.36	1.ii ממקורות נוספים		
1.ii.1 Collection of precipitation	-	1.57	-	-	-	-	-	-	1.57	-	-	-	1.57	1.ii.1 איסוף מי גשמים		
1.ii.2 De-salinated water	-	-	-	-	-	204.08	-	-	204.08	-	-	-	204.08	1.ii.2 מים מותפלים		
Within the economy	2. Use of water received from other economic units of which:	1,110.40	74.03	7.51	-	-	-	490.01	315.57	1,997.52	396.40	100.17	2,494.09	2. מים מענפי כלכלה אחרים		
	2.a. Reused water	394.60	0.04	-	-	-	-	-	1.55	396.19	-	-	396.19	2.a מים לשימוש חוזר		
	3. Total use of water (=1+2)	1,110.40	88.11	7.82	29.43	124.87	1,450.34	490.01	315.89	3,616.86	396.40	100.17	4,113.43	3. סך הכל שימוש במים (=1+2)		
Within the economy	4. Supply of water to other economic units of which:	2.80	38.22	0.15	238.42	140.15	849.05	339.83	188.70	1,797.32	260.19	-	2,057.51	4. אספקת מים לענפי כלכלה אחרים		
	4.a. Reused water	-	-	-	-	-	-	337.38	-	337.38	-	-	337.38	4.a מים לשימוש חוזר		
	4.b. De-salinated water	-	-	-	-	-	259.75	-	-	259.75	-	-	259.75	4.b מים מותפלים		
	4.c. Wastewater to sewage	2.80	38.22	0.15	-	-	-	-	188.70	229.87	260.19	-	490.06	4.c שפכים למערכת ביוב		
To the environment	5. Total returns (=5.a+5.b)	26.00	0.52	-	-	-	101.00	46.10	51.22	224.84	15.15	-	239.99	5. סך הכל חזרה של מים (=5.a+5.b)		
	Hydroelectric power generation	-	-	-	-	-	-	-	-	-	-	-	-	ייצור חשמל בתחנות הידרואלקטריות		
	Irrigation water	26.00	-	-	-	-	-	-	-	26.00	-	-	26.00	השקיה		
	Mine water	-	-	-	-	-	-	-	-	-	-	-	-	מכרות		
	Urban runoff	-	-	-	-	-	-	-	-	-	-	-	-	מי נגר עירוני		
	Cooling water	-	-	-	-	-	-	-	-	-	-	-	-	מים לקירור		
	Losses in distribution because of leakages	-	-	-	-	-	101.00	-	-	101.00	-	-	-	101.00	פחת בהולכה עקב דליפות	
	Treated wastewater	-	-	-	-	-	-	46.10	51.22	97.32	-	-	-	97.32	שפכים מטופלים	
	Other	26.00	0.53	-	-	-	-	-	-	26.53	15.15	-	-	41.68	אחר	
	5.a. To water resources	-	0.49	-	-	-	101.00	46.10	51.22	198.81	15.15	-	-	213.96	5.a מקורות מים	
5.a.1 Surface water	-	0.49	-	-	-	-	46.10	51.22	97.81	15.15	-	-	112.96	5.a.1 עיליים		
5.a.2 Ground water	-	-	-	-	-	101.00	-	-	127.00	-	-	-	127.00	5.a.2 תהום		
5.a.3 Soil water	-	-	-	-	-	-	-	-	-	-	-	-	-	5.a.3 מי אדמה		
5.b. To other sources (e.g. sea water)	-	0.04	-	-	-	-	-	-	0.04	-	-	-	0.04	5.b מקורות נוספים (ים)		
	6. Total supply of water (=4+5)	28.80	38.74	0.15	238.42	140.15	950.05	385.93	239.92	2,022.16	250.65	-	2,272.82	6. סך הכל אספקת מים (=4+5)		
	7. Consumption (=3-6)	1,081.60	49.37	7.66	(208.99)	(15.28)	500.29	104.08	75.96	1,594.70	146.53	100.17	1,841.39	7. צריכה (=3-6)		
	of which:													מזה:		

Table 7

Table 6

Table 6

Table 8

Data Sources

Administrative data	ICBS
Water Authority (Quantities)	Business Division– Financial statements
The Ministry of Environmental Protection (Quantities)	Local Authorities Profile (Quantities and Monetary)
Ministry of Finance (Monetary)	Waste and Wastewater survey in the manufacturing Industry (Quantities)

Challenges and Plans for the Future

1. Produce updated 2015-2017 Accounts
2. Switch to ISIC IV
3. New IT system development
4. Budget Constraints
5. Training and methodology updates
6. Pollution by industry (survey and administrative data)



**Water and
Environment Support**
in the ENI Southern Neighbourhood region

Thank you for your attention!

