



Water Accounting in Madagascar



REPUBLIKAN'I MADAGASIKARA
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Wealth Accounting and the Valuation of Ecosystem Services
www.wavespartnership.org



Why WAVES in Madagascar?

- ✓ Madagascar's natural capital accounts for 50% of its total wealth and supports farmers and rural areas and precarious populations.
- ✓ No detailed analysis of the components of this natural wealth and no strategic tool to promote the integration of natural capital in the development of public policies and their implementation.
- ✓ WAVES Madagascar estimated the value of natural resources in key terrestrial and marine and coastal ecosystems.
- ✓ In the long term, WAVES will provide elements of a system of green accounting to monitor and report on the value of natural capital in macroeconomic management.

Large accounts Malagasy natural capital:

- ✓ **In water:** Collection of data of physical stocks of the water, including renewable reserves by year and by geographical distribution.
- ✓ **Forests account:** Collection of data on the volume of timber resources, areas of forest resources, forest types etc.
- ✓ **Ore accounts:** Reports of physical and monetary stocks of cobalt, nickel, chromium and ilmenite.
- ✓ **Macroeconomic indicators:** A note of macroeconomic policy for the integration of natural capital accounting in the management of assets of Madagascar ,.

The context of WA in Madagascar

- ✓ Abundant but spatially unevenly distributed water resources
- ✓ The state is committed to promote a policy of efficient use and preservation of water resources
- ✓ The National Authority for Water and Sanitation (Andea) and basin organizations are responsible for implementing this policy. But Andea remained inoperative.

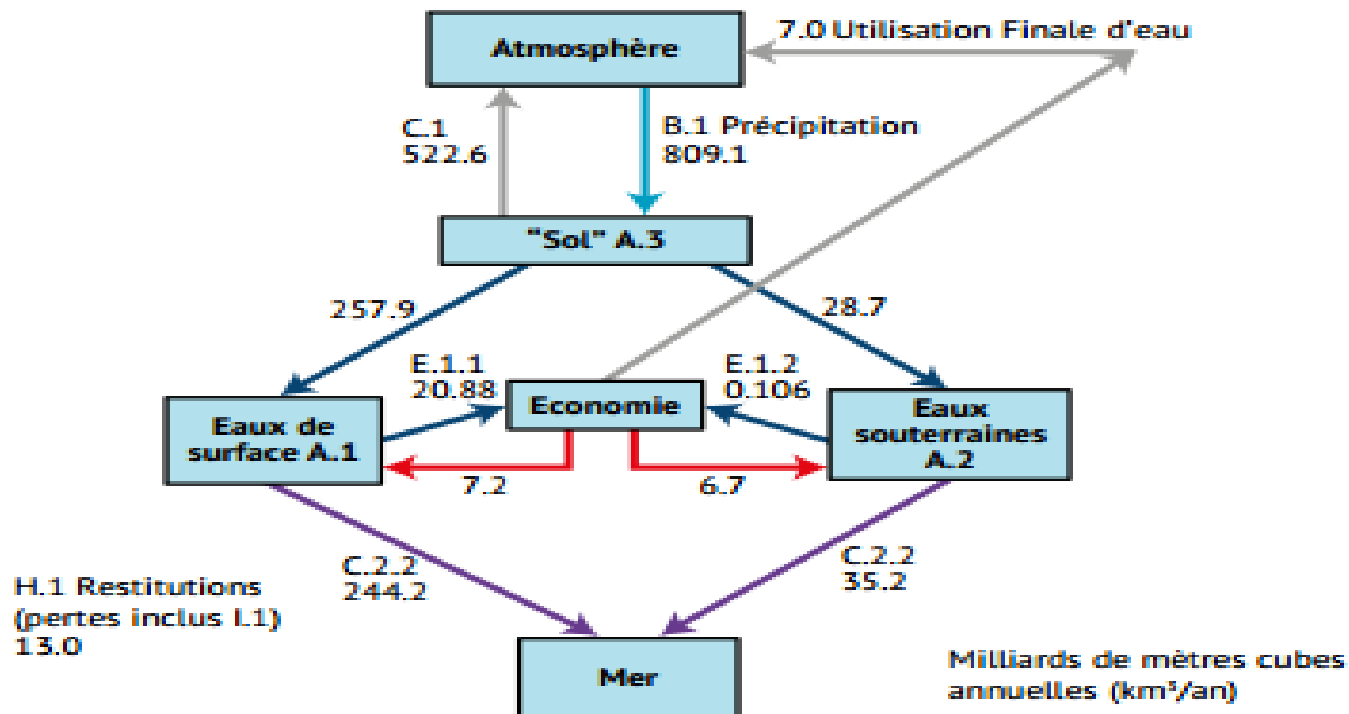
Water, an economic and social issue

- ✓ The lack of clear bases calculations on determination of water abstraction charges make them reluctant traders.
- ✓ Sector institutions demanding a clarification of the context of use of the funds.
- ✓ The low income of users does not allow them to honor their contributions.

Progress made with WA in Madagascar

- ✓ Methodology to develop renewable water stock and flow accounts
- ✓ Getting to and control of data and tools used for developing these accounts
- ✓ Development of accounts of physical and monetary flows of two watersheds Marovoay and Lac Alaotra.

Water cycle in Madagascar (simplified model)



A.1, A.2, A.3, B.1, C.1, C.2.2, H.1, E.1 sont codes des RISE

Year 2012

Preliminary accounts assets (2012)

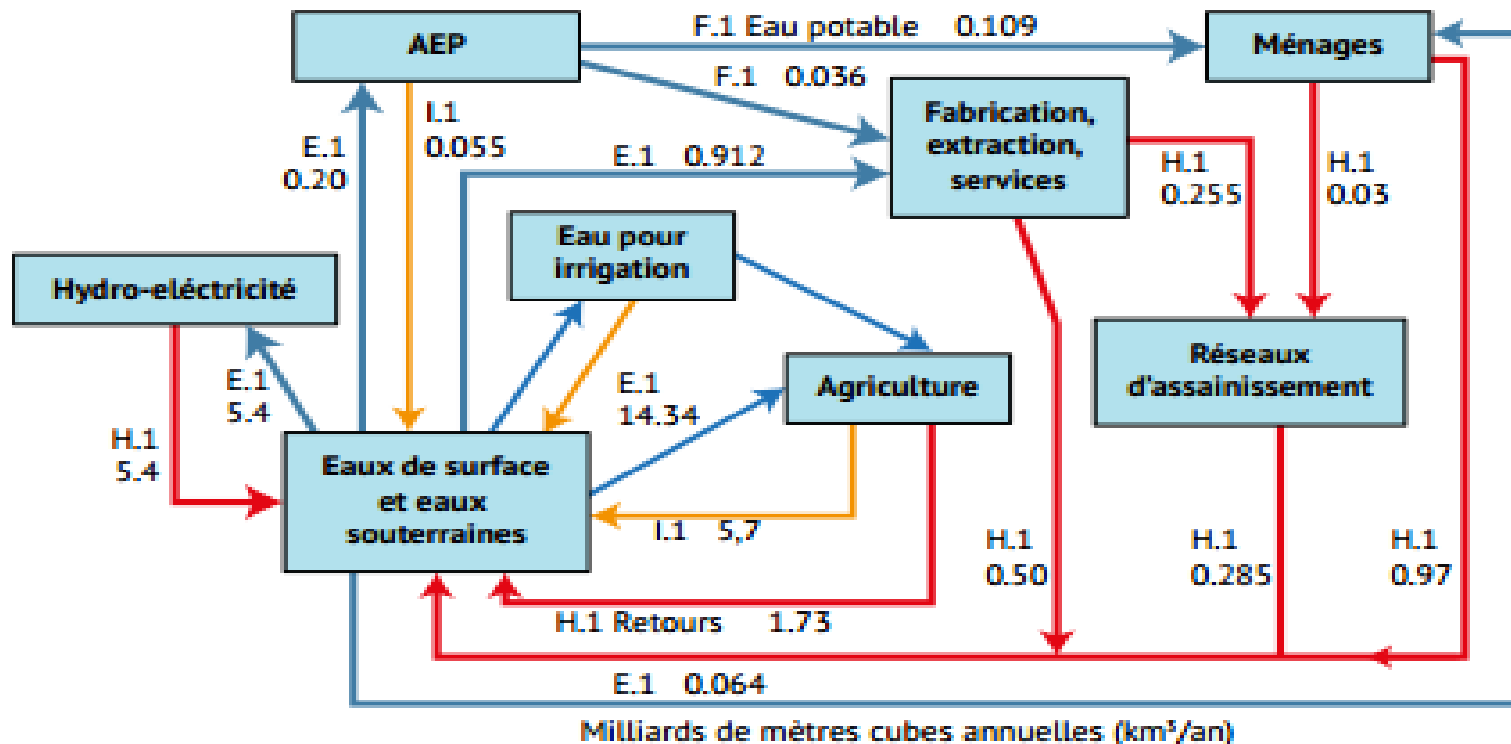
	Type de ressources en eau			Total
	Eaux de surface A.1	Eaux souterraines A.2	Eau du sol A.3	
Stock d'ouverture des ressources en eau				
Entrées en stock (+)				
Restitutions d'eau par des unités économiques (H.1)	7 164	6 666		13 830
Précipitations (B.1)			809 140	809 140
Flux en provenance d'autres territoires (B.2)				0
Flux en provenance d'autres ressources en eau intérieures	257 895	28 655		286 550
Total, entrées en stock	265 059	35 321	809 140	1 109 520
Sorties de stock (-)				
Prélèvements (E.1)	20 881	106		20 987
aux fins de la production d'hydroélectricité*	5 470			5 470
aux fins de l'irrigation**	14 340			14 340
pour autres usages	1 072	106		1 177
Évaporation et évapotranspiration effective (C.1)			522 590	522 590
Flux vers d'autres territoires (C.2.1)				0
Flux vers la mer (C.2.2)	244 179	35 215		279 394
Flux vers d'autres ressources en eau intérieures			286 550	286 550
Total, sorties de stock	265 060	35 321	809 140	1 109 521
Stock de clôture des ressources en eau				
Variation de stock	- 1	1	0	0

Withdrawals from surface water and groundwater

Use Of the water	Surface water	Groundwater	Total In million m ³
Agriculture	10 424	3 630	14 186
Potable Water	37	93	130
Industry	81	1	82
Total	10 542	3724	15 393

Source: Calculations from the AED

Water flow in the economy



AEP= Approvisionnement d'eau potable. E.1, H.1, F.1, F.3, I.1 sont codes des RISE.

Key indicators

Population	21 263 403
PIB	9,92 milliard US\$
Piby/hab	445 US\$
Les ressources naturelles	
Total des ressources en eau renouvelables (TRWR)*	286 550 hm ³ / an
TRWR/habitant	13 169 m ³ / personne / an
Précipitations par zone	
Proportion des précipitations dans la moitié humide de l'année	12%
Total des effectifs des ressources en eau renouvelable (RHRAT)*	286 550 hm ³ / an
Évapotranspiration en proportion des précipitations	65%
Indicateurs de dépendance de l'eau	
Dépendance des précipitations	100%
Les développements concernant l'eau	
Prélèvements hors cours d'eau comme proportion de TRWR	5,4%
Proportion des prélèvement hors cours d'eau qui est en eau douce	100%
Total des prélèvements comme proportion de TRWR	7%
Proportion des prélèvement pour l'agriculture hors cours d'eau	92%
Proportion des prélèvement pour boire hors cours d'eau	2%
L'efficacité physique	
Les pertes en proportion des prélèvement hors cours	37%
Gestion des eaux usées	
Proportion des eaux usées collectées qui est généré par les ménages et les industries	32%

* TRWR/RHART = Total Renewable Water Resources.

Steps for 2016

- ✓ Share results and strengthen the sector database
- ✓ Communication at different levels on the usefulness of accounting natural heritage and exploitation of results and indicators
- ✓ Training and exchanges with other countries
- ✓ Assess approach towards institutionalization of NCA

Beyond 2016

- ✓ Continue to provide information to meet the needs of implementation of water policy:
 - Determination of different tariffs (fees, taxes ...)
 - Allocation and adequate allocation of funds for water management
 - Application of different mechanisms in the water management
 - Thematic programs: the fight against pollution, restoration of the aquatic environment, economic valuation, etc.

Thank you for your
attention.

<http://www.wavespartnership.org/waves>
<http://unstats.un.org/unsd/statcom>