

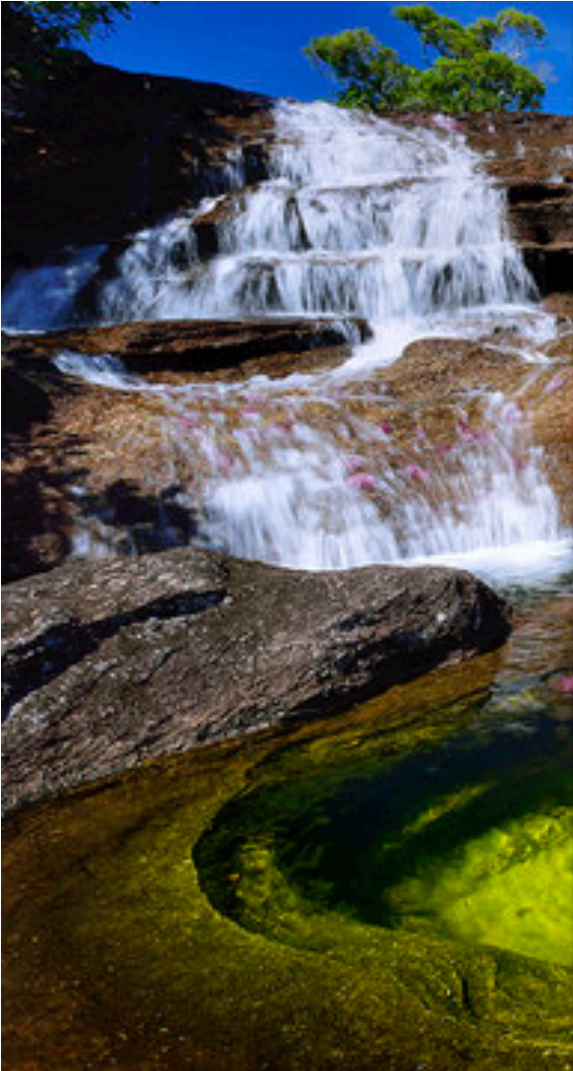


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NATURAL CAPITAL ACCOUNTING FOR BETTER POLICY

WAVES NCA Policy Forum

German Romero
DNP



@DNP_colombia

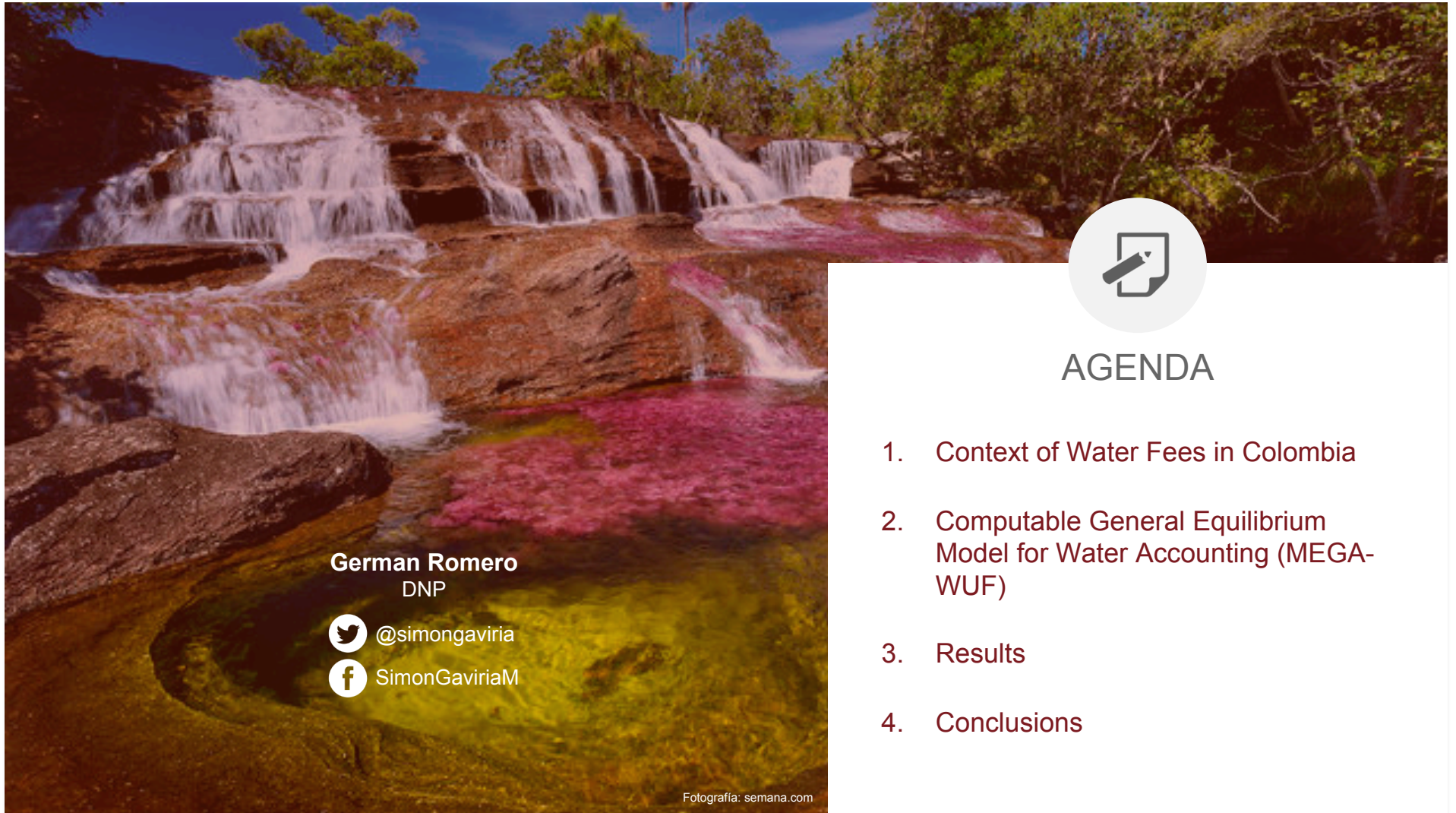


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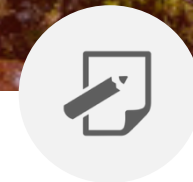


@simongaviria



SimonGaviriaM

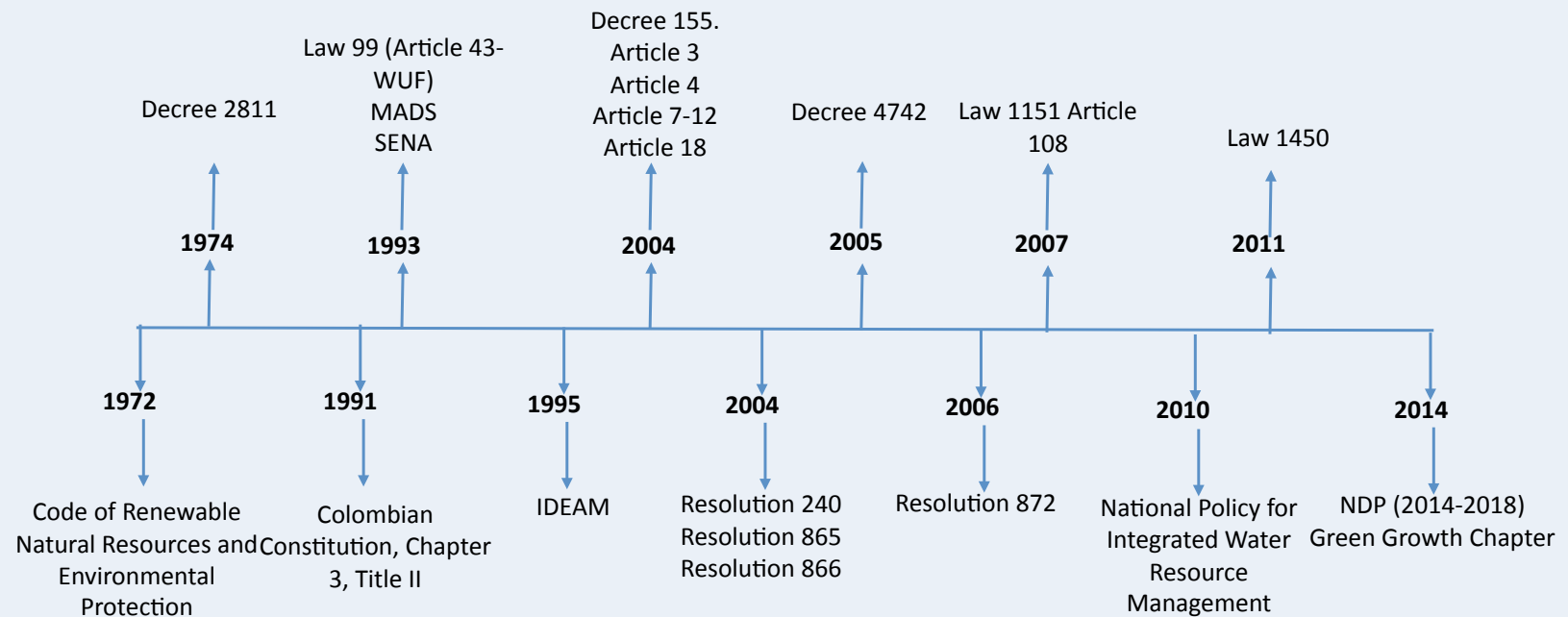
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AGENDA

1. Context of Water Fees in Colombia
2. Computable General Equilibrium Model for Water Accounting (MEGA-WUF)
3. Results
4. Conclusions

Contex of the Water Fee



Fuente: BID-CEPAL 2012

Contex of the Water Fee in Colombia

- People and firms that use water for public or private purposes will pay a fee set by the National Government.
- The revenues shall be used to pay for the cost of water resources protection.
- Water resources protection requires COP\$412 billions annually pesos to finance 46% of these which would guarantee the demand for water resources
- Nowadays revenues from the Water Fee amount to only COP\$21 billions pesos, that is 5% of required.

Fuente: BID-CEPAL 2012

Water Fee in other countries

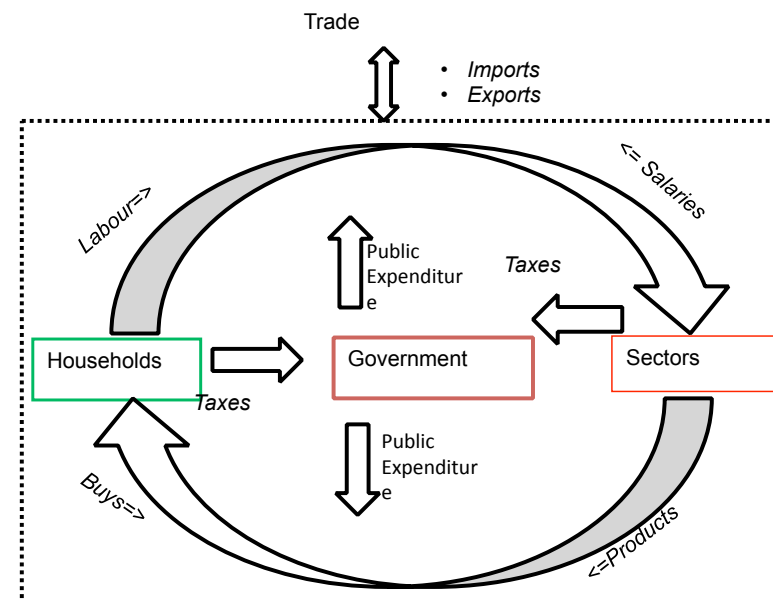
The current economic signal is very low:

Economic sector	Colombia		Costa Rica	Brasil
	Current (COP\$/m3)	Propouse (COP\$/m3)	(COP\$/m3)	(COP\$/m3)
Agricultural	0,84	3,00	5,27	4,63
Households	0,84	10,00	5,97	9,26
Others	0,84	10,00	10,79	555,50

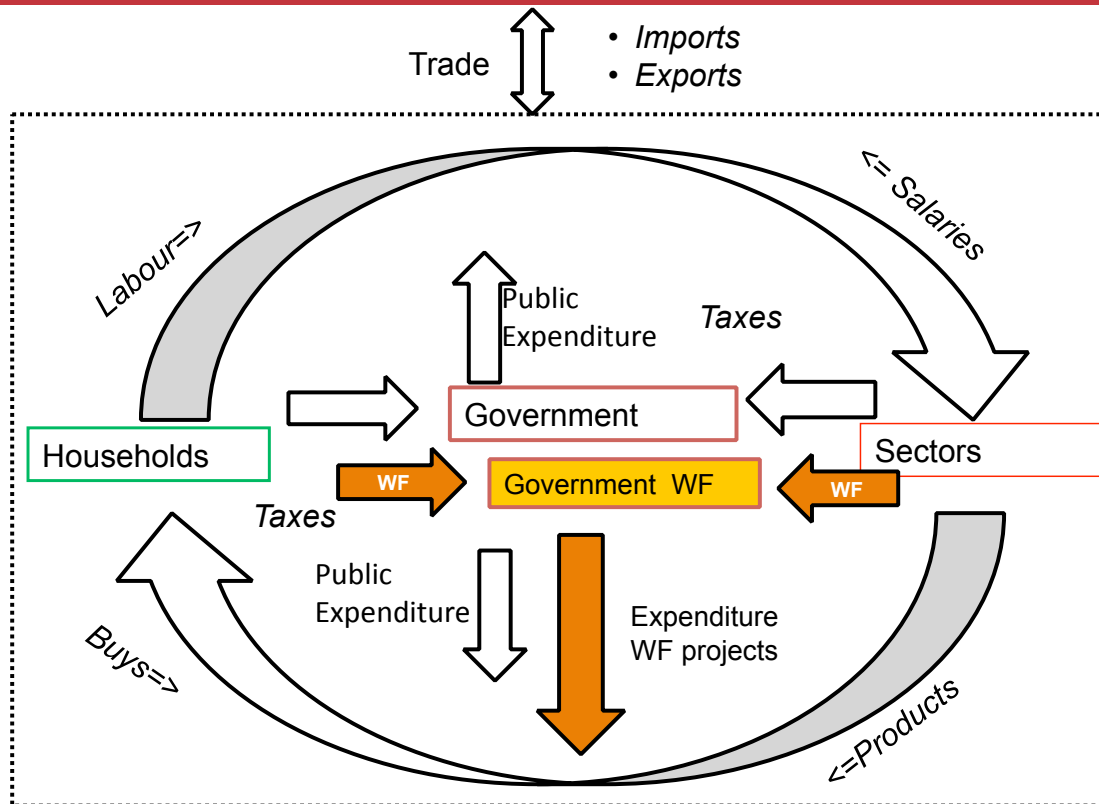
Tomado de MADS (2016) y Ecosimple (2014), Propuesta de ajuste de tarifas mínimas de la tasa por utilización de agua; citando a MADS (2013), Oficina de Negocios Verdes y Sostenibles

CGE Model

- We use the static version of MEG4C. It include 7 sectors and SAM 2012
- MEG4C allows a quantification of direct and indirect impacts of change in Water Fee
- It's based on the National Account (DANE) and the National Natural Accounts (WAVES DANE)



CGE model include WUF



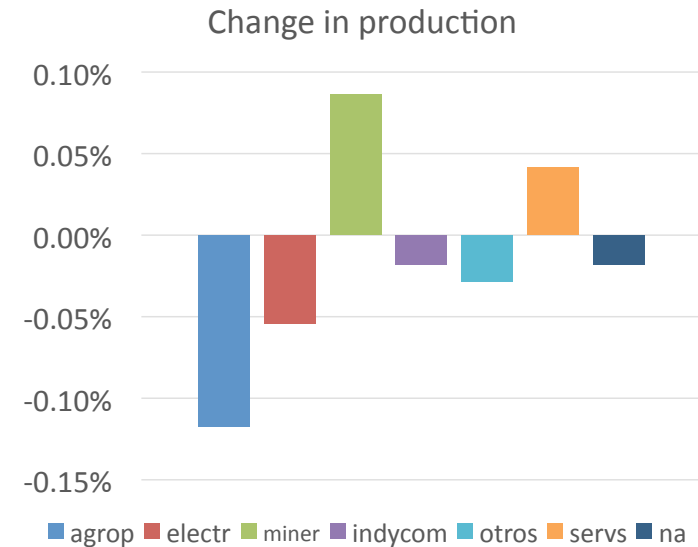
Objective to the modelling

A proposal to modify the WUF was included in the model increasing the minimum fee to \$10/m³, but at the same time considering in the estimation a use factor of 0,3 for agriculture and of 1 in the other sectors and households (EIECC 2016).

Changes in production

Change in production

Sector	Base Scenario	Alternative Scenario	Change
	(Trillions of COP)	(Trillions of COP)	
Agriculture	73,77	73,68	-0,12%
Electricity	27,17	27,16	-0,05%
Mining	73,21	73,27	0,09%
Industry/Commerce	333,22	333,16	-0,02%
Services	68,54	68,52	-0,03%
Others (use water)	131,31	131,36	0,04%
Others (without information)	476,78	476,69	-0,02%



Fuente: Cálculos propios

Results

Summary of impacts and sectorial efficiency

Sector/Crop	Supply Hm3/year	Production (Billions of pesos)	\$/m ³	m ³ used for each million of final production	m ³ 'savings' due to a million of pesos of final production
Cacao	221,8	163	\$ 735	1360,5	1,63
Palm	1793,6	1540	\$ 859	1164,7	1,40
Caña Azúcar	1476,2	1435	\$ 972	1028,7	1,23
Ganadería	7990,8	9050	\$ 1.133	883,0	1,06
Arroz Paddy	1778,1	2218	\$ 1.247	801,7	0,96
Total Agricultura	9340,6	29403	\$ 3.148	317,7	0,38
Papa	221,2	1995	\$ 9.019	110,9	0,13
Frijol	39,6	888	\$ 22.452	44,5	0,05
Oleaginosas	1,1	150	\$ 130.919	7,6	0,01

Conclusions

- Increasing WF brings distortions to the economy that turn into losses in production and household welfare and rising prices.
- The agricultural sector shows major impacts, even WF for this sector has the lowest increase.
- The water account was needed to build the WSAM for the CGE model.
- Natural Accounting brings key information for modelling and policy analysis



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