

Impact on Demand for Water upon Entering WTO

-A Taiwan Case Study



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Water Resources in Taiwan

- Unevenly distributed among seasons, regions and users
- Difficult to retain
- A scare resource
- Supply is limited; demand is increasing
- Demand-side management is essential
- Requires an economic analytical tool

The Issue of Water Distribution

- Agriculture sector owns 3 quarters of water, but the production is declining.
- Industrial and domestic sectors are growing and facing water shortage.
- There is uneven distribution of water among water users.

Accession to the WTO

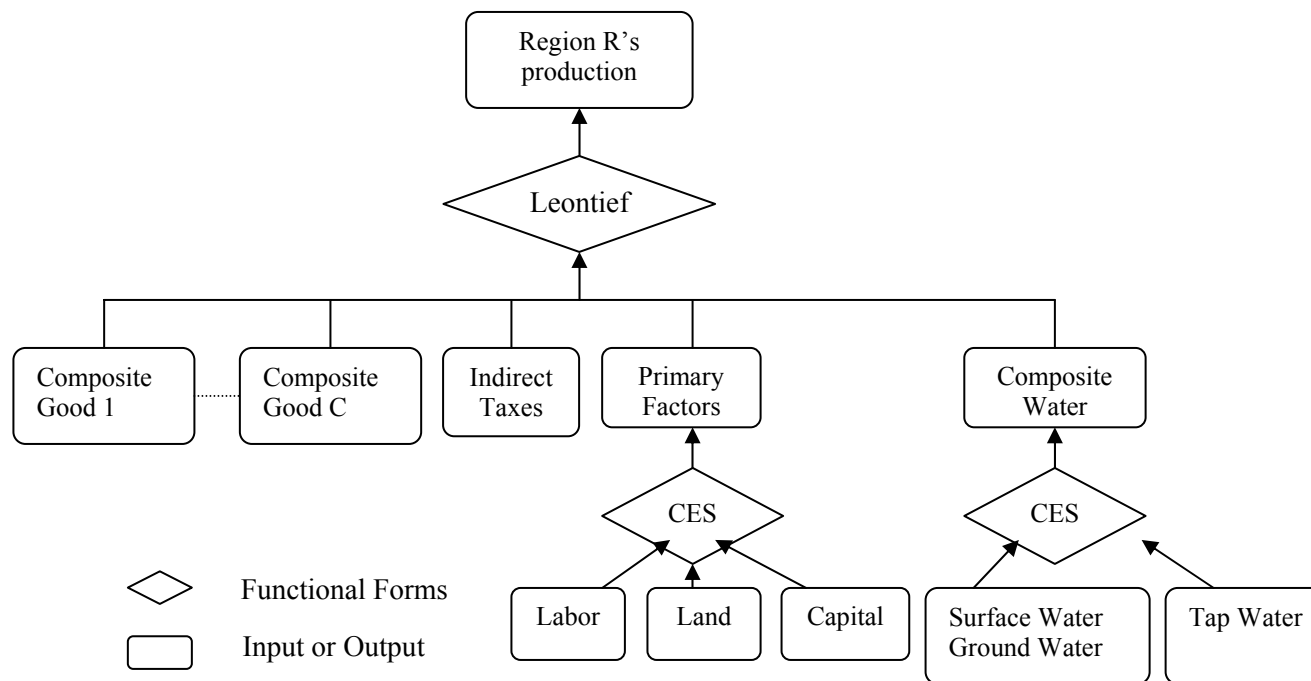
- Taiwan becomes a member of the WTO in Jan. 2002
- Agriculture sector is expected to be hurt, and some industrial sectors will continue to grow
- Worsen the situation of water distribution

WATERGEM and MR-WATERGEM

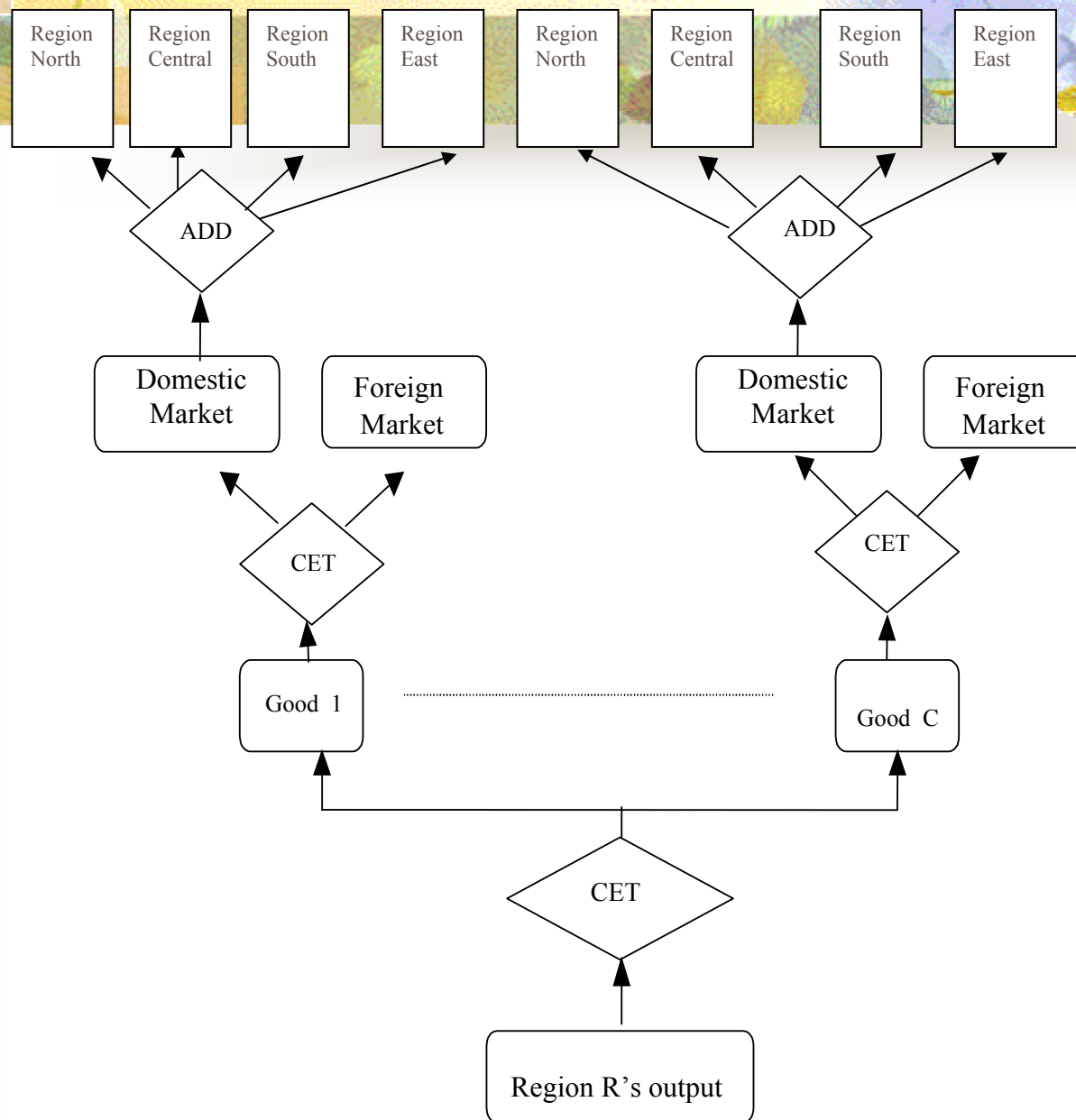
- **WATERGEM is a single-country water resources CGE model; MR-WATERGEM is a multi-regional water resources CGE model**
- **Both are linked to GIS to provide geographic information for water resources management**

MR-WATERGEM

- Developed from the Australian ORANI with a SAM data structure
- A nested production structure
- Three water resources in the model: surface water, groundwater and tap water.
- Household consumption, capital formation and foreign demand follow the standard assumptions of ORANI



Production Structure of MR-WATERGEM



The Distribution Structure of Composite Good for MR-WATERGEM



■ Data Structure of MR-WATERGEM

		Region NORTH				Region CENTRAL				Region SOUTH	
		COM	IND	VA	INS	COM	IND	VA	INS	COM	IND
Region NORTH	COM		INT ¹		FD ¹						
	IND	SALE ¹ (diagonal)			Subsidy ¹	RM ¹² (diagonal)				RM ¹³ (diagonal)	
	VA		VA ¹								
	INS	Tariff ¹	INDTAX ¹	AGGVA ¹	INTINS ¹						
Region CENTRAL	COM						INT ²		FD ²		
	IND	RM ²¹ (diagonal)				SALE ² (diagonal)			Subsidy ²	RM ²³ (diagonal)	
	VA						VA ²				
	INS					Tariff ²	INDTAX ²	AGGVA ²	INTINS ²		
Region SOUTH	COM										INT ³
	IND	RM ³¹ (diagonal)				RM ³² (diagonal)				SALE ³ (diagonal)	
	VA										VA ³
	INS									Tariff ³	INDTAX ³
Region EAST	COM										
	IND	RM ⁴¹ (diagonal)				RM ⁴² (diagonal)				RM ⁴³ (diagonal)	
	VA										
	INS										
FOREIGN SECTOR	FOR	M ¹				M ²				M ³	
	TOTAL	S ¹				S ²				S ³	
		Total Supply to Region NORTH	Total Output of Region NORTH	Total Value-Added Disposition of Region NORTH	Total Institutional Expenditure of Region NORTH	Total Supply to Region CENTRAL	Total Output of Region CENTRAL	Total Value-Added Disposition of Region CENTRAL	Total Institutional Expenditure of Region CENTRAL	Total Supply to Region SOUTH	Total Output of Region SOUTH

VA	INS	COM	Region EAST IND	VA	INS	FOREIGN SECTOR FOR	TOTAL	
							D ¹	Total Demand of Region NORTH
		RM ¹⁴ (diagonal)				E ¹		Total Dispense of Region NORTH
								Total Value-Added Income of Region NORTH
						NETFOR ¹		Total Institutional Income of Region NORTH
							D ²	Total Demand of Region CENTRAL
		RM ²⁴ (diagonal)				E ²		Total Dispense of Region CENTRAL
								Total Value-Added Income of Region CECTRAL
						NETFOR ²		Total Institutional Income of Region CENTRAL
	FD ³						D ³	Total Demand of Region SOUTH
	Subsidy ³	RM ²⁴ (diagonal)				E ³		Total Dispense of Region SOUTH
								Total Value-Added Income of Region SOUTH
AGGVA ³	INTINS ³					NETFOR ³		Total Institutional Income of Region SOUTH
			INT ⁴		FD ⁴		D ⁴	Total Demand of Region EAST
		SALE ⁴ (diagonal)			Subsidy ⁴	E ⁴		Total Dispense of Region EAST
			VA ⁴					Total Value-Added Income of Region EAST
		Tarriff ⁴	INDTAX ⁴	AGGVA ⁴	INTINS ⁴	NETFOR ⁴		Total Institutional Income of Region EAST
		M ⁴						
		S ⁴						

Total Value-Added
Disposition of Region
SOUTH

Total Institutional
Expenditure of Region
SOUTH

Total Supply to Region
EAST

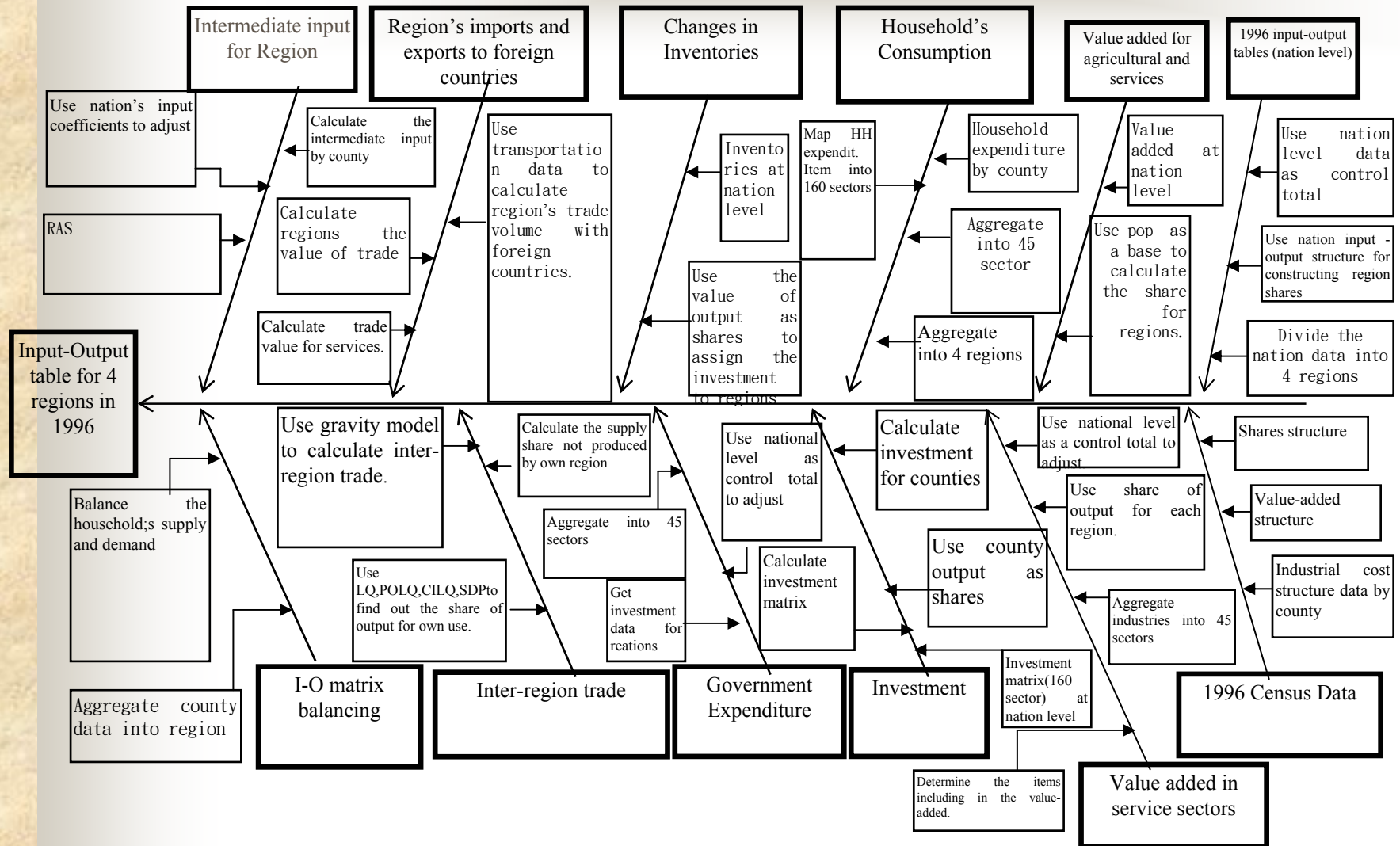
Total Output of Region
EAST

Total Value-Added
Disposition of Region EAST

Total Institutional
Expenditure of Region
EAST

Total Supply = Total Demand

The Procedure of Data Construction



The Procedure for Constructing MR-WATERGEM's Data

Policy Simulation Scenarios

- Sim 1: MR-WATERGEM
- Sim 2: GTAP + MR_WATERGEM

Simulation Results

Macro Economic Impacts of WTO Accession

(percentage change)

	Simulation 1	Simulation 2
Real GDP	0.42	0.37
Nominal GDP	0.18	1.06
Employment	0.69	0.63
GDP Deflator	-0.24	0.68

Impacts on Regional Economy of WTO Accession

(percentage change)

Simulation 1						
regions	Real GDP	GDP Deflator	Employment	Nominal GDP	Investment	Exports
North	0.40	-0.18	0.68	0.22	0.35	1.54
Central	0.44	-0.43	0.69	0.00	0.37	2.45
South	0.46	-0.19	0.74	0.27	0.45	2.18
East	0.21	-0.66	0.27	-0.45	0.20	1.52

Simulation 2						
regions	Real GDP	GDP Deflator	Employment	Nominal GDP	Investment	Exports
North	0.38	0.74	0.65	1.12	0.33	1.35
Central	0.38	0.56	0.6	0.94	0.33	2.25
South	0.41	0.67	0.65	1.07	0.37	1.86
East	0.19	0.64	0.23	0.82	0.23	4.83

Impacts on Sectoral Outputs of WTO Accession

(Percentage Change)

Sec.	Description	Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
01	Agriculture	-0.44	-0.14	-0.26	-0.05	-0.74	-0.29	-0.38	-0.22
02	Livestock	0.45	0.47	0.67	0.50	0.09	0.28	0.06	-0.53
03	Forestry	0.14	0.76	0.81	1.04	-0.22	-0.25	-0.29	-0.93
04	Fishery	0.13	0.13	0.33	0.19	-0.12	-0.09	-0.10	-0.24
05	Mineral	0.17	0.50	0.41	0.50	-0.22	0.05	0.05	-0.19
06	Proc Food	0.52	0.58	0.80	0.37	-0.18	0.06	-0.01	-0.86
07	Beverage	0.21	0.65	0.31	1.72	0.10	0.77	0.43	2.08
08	Tobacco	0.21	0.76	0.41	0.17	0.29	0.87	0.58	0.42
09	Textile	0.90	0.91	0.94	0.19	-0.10	0.15	0.04	-0.07
10	Apparel	1.33	0.94	0.75	-0.39	-0.10	0.27	0.18	0.32
11	Leather	2.77	1.51	2.4	-0.06	-1.69	-0.51	-0.87	-0.10
12	Wood & Bamboo	1.06	1.42	1.89	0.20	-0.09	0.52	1.11	0.02
13	Pulp & Paper	-0.19	0.30	-0.10	-0.40	-0.69	-0.23	-0.40	-0.54
14	Chemical	0.32	0.43	0.35	0.47	-0.24	-0.17	-0.20	-0.53
15	Fiber	0.85	0.97	0.72	0.28	0.02	0.18	0.18	-0.10
16	Plastic	0.71	1.21	0.88	0.41	0.21	0.58	0.31	-0.13
17	Plastic Prod.	0.84	0.90	0.91	0.46	-0.05	0.39	0.22	0.20
18	Misc. Chemical	0.63	0.41	0.77	0.13	-0.06	0.07	0.17	-0.28
19	Petroleum	0.39	0.52	0.42	0.39	0.30	0.58	0.37	0.47
20	Non-Metallic	0.42	0.57	0.61	0.36	0.00	0.32	0.18	0.12
21	Steel & Iron	0.64	0.76	0.56	0.56	-0.26	-0.16	0.02	-0.33
22	Misc. Metal	0.76	1.35	1.67	0.21	-0.24	0.42	0.92	-0.28
23	Metallic	1.83	1.50	2.13	0.76	0.56	0.71	1.25	0.58
24	Machinery	1.90	1.01	1.90	0.74	0.62	0.61	1.12	0.42
25	Domestic Electronic	1.01	0.9	1.19	0.06	0.33	0.93	0.90	0.11

Impacts on Sectoral Outputs of WTO Accession

(Percentage Change)

26	Electronic Prod.	1.44	1.74	2.36	0.08	0.83	1.52	1.98	0.11
27	Comm. Prod.	0.89	1.24	1.13	0.05	0.33	0.88	0.81	0.08
28	Electronic	0.56	0.82	0.90	0.54	0.11	0.33	0.47	0.07
29	Electrical	1.01	1.41	1.60	0.74	0.12	0.75	0.84	0.25
30	Trans Equip	0.53	0.53	1.86	0.21	-0.05	0.29	1.02	0.26
31	Misc. Prod.	2.12	2.27	2.70	0.93	0.31	1.06	1.28	0.17
32	Residential Cons.	0.36	0.34	0.41	0.19	0.30	0.27	0.35	0.14
33	Public Construction	0.21	0.51	0.42	0.47	0.19	0.52	0.47	0.17
34	Electricity	0.24	0.28	0.28	0.22	0.24	0.29	0.28	0.21
35	Gas	0.00	0.08	0.03	0.16	0.30	0.78	0.76	1.28
36	Water	0.08	0.25	0.19	0.18	0.36	0.60	0.53	0.34
37	Warehousing.	0.45	0.48	0.45	0.32	2.04	1.67	1.76	1.19
38	Wholesale	0.38	0.38	0.37	0.19	0.99	1.05	1.01	0.70
39	Finance & Insur.	0.27	0.34	0.31	0.12	0.16	0.23	0.19	0.03
40	Real Estate	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01
41	Hotel & Rest.	0.38	0.53	0.45	0.45	-0.14	0.05	-0.06	-0.18
42	Business Ser.	0.79	1.09	0.74	0.66	0.32	0.67	0.34	0.04
43	Public Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	Edu & Med.	-0.04	0.16	0.08	0.16	-0.02	0.17	0.12	-0.17
45	Other Ser.	0.24	0.26	0.29	0.13	0.04	0.11	0.11	0.00

Impacts on the Surface Water of WTO Accession (10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
01	Agriculture	-410.16	-474.88	-719.97	-10.58	-686.55	-976.07	1058.45	-50.32
02	Livestock	2.82	13.26	26.63	0.55	0.53	7.89	2.36	-0.58
03	Forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	Fishery	38.36	29.13	328.42	12.91	-35.15	-18.96	-99.49	-16.46
05	Mineral	1.32	6.06	2.18	1.25	-1.66	0.59	0.26	-0.48
06	Proc Food	0.01	0.08	0.01	0.00	0.00	0.01	0.00	0.00
07	Beverage	0.03	0.08	0.81	0.02	0.02	0.10	1.13	0.02
08	Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09	Textile	0.30	0.12	0.71	0.00	-0.03	0.02	0.03	0.00
10	Apparel	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Leather	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Wood & Bamboo	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.00
13	Pulp & Paper	-3.26	0.27	-0.13	0.00	-11.82	-0.21	-0.56	0.00
14	Chemical	3.88	2.70	8.85	0.00	-2.92	-1.06	-4.92	0.00
15	Fiber	1.51	11.75	2.64	0.00	0.03	2.21	0.68	0.00
16	Plastic	0.00	0.00	4.16	0.00	0.00	0.00	1.47	0.00
17	Plastic Prod.	0.13	0.26	0.00	0.00	-0.01	0.11	0.00	0.00
18	Misc. Chemical	8.16	2.55	52.28	0.01	-0.81	0.42	11.16	-0.02
19	Petroleum	0.53	0.01	0.18	0.00	0.41	0.01	0.15	0.00
20	Mon-Metallic	0.41	0.00	0.00	0.06	0.00	0.00	0.00	0.02
21	Steel & Iron	0.00	0.11	0.02	0.00	0.00	-0.02	0.00	0.00
22	Misc. Chemical	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00
23	Metallic	0.30	0.18	0.19	0.00	0.09	0.08	0.11	0.00
24	Machinery	0.63	0.03	0.29	0.00	0.20	0.02	0.17	0.00
25	Domestic Electronic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Impacts on the Surface Water of WTO Accession (10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
26	Electronic Prod.	0.79	0.00	0.00	0.00	0.46	0.00	0.00	0.00
27	Comm. Prod.	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
28	Electronic	133.60	0.93	2.07	0.00	26.36	0.38	1.09	0.00
29	Electrical	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
30	Trans Equip	1.16	0.15	0.71	0.00	-0.11	0.08	0.39	0.00
31	Misc. Prod.	0.15	0.58	0.09	0.00	0.02	0.27	0.04	0.00
32	Residential Cons.	0.61	0.21	0.29	0.00	0.51	0.16	0.24	0.00
33	Public Cons.	0.37	0.31	0.34	0.00	0.35	0.31	0.37	0.00
34	Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	Gas	0.00	0.00	0.00	0.00	0.05	0.05	0.07	0.01
36	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Warehousing	1.88	0.38	0.63	0.03	8.58	1.34	2.46	0.12
38	Wholesale	2.85	0.80	1.00	0.02	7.39	2.21	2.72	0.07
39	Finance & Insur.	1.07	0.31	0.38	0.01	0.64	0.21	0.23	0.00
40	Real Estate	0.00	0.00	0.01	0.00	0.03	0.01	0.04	0.00
41	Hotel & Rest.	0.38	0.16	0.18	0.00	-0.14	0.02	-0.02	0.00
42	Business Ser.	1.58	0.33	0.22	0.00	0.64	0.20	0.10	0.00
43	Public Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	Edu. & Med.	-0.12	0.20	0.13	0.02	-0.05	0.21	0.19	-0.02
45	Other Ser.	0.79	0.26	0.40	0.01	0.13	0.11	0.15	0.00

Impacts on Groundwater of WTO Accession (10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
01	Agriculture	-158.36	-182.86	-278.49	-4.07	-265.07	-377.15	-409.06	-19.42
02	Livestock	2.82	13.26	26.63	0.55	0.53	7.89	2.36	-0.58
03	Forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	Fishery	38.36	29.13	328.42	12.91	-35.15	-18.96	-99.49	-16.46
05	Mineral	1.32	6.06	2.18	1.25	-1.66	0.59	0.26	-0.48
06	Prod. Food	1.43	1.17	16.65	0.12	-0.50	0.12	-0.18	-0.28
07	Beverage	0.29	44.21	0.07	0.00	0.14	51.81	0.09	0.00
08	Tobacco	0.72	8.34	0.43	0.03	1.00	9.61	0.61	0.06
09	Textile	27.69	9.81	16.34	0.00	-3.01	1.63	0.76	0.00
10	Apparel	0.10	1.81	0.00	0.00	-0.01	0.52	0.00	0.00
11	Leather	0.00	22.82	0.73	0.00	0.00	-7.74	-0.26	0.00
12	Wood & Bamboo	6.80	1.01	2.54	0.00	-0.56	0.37	1.49	0.00
13	Pulp & Paper	-12.83	0.85	-1.23	-9.70	-46.42	-0.65	-5.07	-13.16
14	Chemical	0.03	0.02	0.44	0.00	-0.02	-0.01	-0.24	0.00
15	Fiber	6.91	11.71	17.88	0.00	0.15	2.21	4.59	0.00
16	Plastic	0.45	0.11	1.26	0.00	0.13	0.05	0.44	0.00
17	Plastic Prod.	2.31	31.90	3.69	0.00	-0.12	13.98	0.88	0.00
18	Misc. Chemical	36.50	9.91	29.21	0.02	-3.63	1.62	6.24	-0.04
19	Petroleum	0.33	1.22	0.92	0.01	0.25	1.36	0.81	0.01
20	Non-Metallic	7.49	1.14	0.81	0.00	-0.02	0.65	0.24	0.00
21	Steel & Iron	1.29	1.01	33.93	0.00	-0.54	-0.21	1.12	0.00
22	Misc. Metal	0.19	0.03	0.83	0.00	-0.06	0.01	0.45	0.00
23	Metallic	11.23	14.84	0.95	0.00	3.44	7.05	0.56	0.00
24	Machinery	87.05	53.65	1.53	0.01	28.29	32.08	0.90	0.00
25	Domestic Electronic	1.78	0.25	0.01	0.00	0.59	0.25	0.01	0.00

Impacts on Groundwater of WTO Accession (10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
26	Electronic Prod.	8.05	0.08	0.11	0.00	4.64	0.07	0.09	0.00
27	Comm. Prod.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Electronic	39.71	2.84	0.11	0.00	7.85	1.16	0.06	0.00
29	Electrical	1.09	0.51	0.00	0.00	0.13	0.27	0.00	0.00
30	Trans Equip	4.23	21.49	0.68	0.17	-0.40	11.76	0.37	0.21
31	Misc. Prod.	0.07	1.87	0.05	0.00	0.01	0.87	0.03	0.00
32	Residential Cons.	1.47	0.48	0.70	0.02	1.23	0.38	0.59	0.01
33	Public Cons.	0.89	0.72	0.80	0.05	0.83	0.73	0.88	0.02
34	Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	Gas	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.00
36	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Warehousing	0.09	0.00	0.04	0.00	0.41	0.00	0.18	0.00
38	Wholesale	0.15	0.04	0.04	0.00	0.39	0.11	0.10	0.00
39	Finance & Insu.	0.05	0.00	0.03	0.00	0.03	0.00	0.02	0.00
40	Real Estate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	Hotel & Rest.	0.04	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
42	Business Ser.	0.08	0.00	0.00	0.00	0.03	0.00	0.00	0.00
43	Public Ser.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	Edu. & Med.	0.00	0.02	0.01	0.00	0.00	0.02	0.01	0.00
45	Other Ser.	0.05	0.03	0.03	0.00	0.01	0.01	0.01	0.00

Impacts on Tap Water of WTO Accession

(10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
01	Agriculture	-0.07	-0.52	-0.35	-0.08	-0.01	0.21	0.10	0.05
02	Livestock	-0.07	-3.46	0.76	-0.18	0.49	19.56	8.48	0.15
03	Forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	Fishery	-0.14	-0.15	-0.34	-0.10	0.17	0.16	0.64	0.09
05	Mineral	-0.71	-0.08	-0.09	-0.07	0.80	0.44	0.31	0.23
06	Proc Food	-0.06	-0.18	1.16	-0.06	0.74	3.28	3.58	-0.04
07	Beverage	-0.61	0.04	-0.63	0.04	1.33	1.80	2.28	0.10
08	Tobaccp	-0.29	0.05	-0.06	-0.08	0.79	0.57	0.39	0.19
09	Textile	1.85	0.40	0.26	0.00	2.98	1.05	0.51	0.00
10	Apparel	3.12	0.20	0.06	-0.01	2.20	0.53	0.34	0.01
11	Leather	0.37	0.49	0.86	0.00	-0.18	0.04	-0.12	0.00
12	Wood & Bamboo	0.48	0.90	0.67	-0.01	0.54	1.27	0.91	0.01
13	Pulp & Paper	-4.54	-0.45	-0.62	-0.27	-0.31	0.51	0.19	0.03
14	Chemical	-1.46	-0.37	-2.49	0.00	2.51	0.81	4.15	0.00
15	Fiber	0.29	0.17	0.06	0.00	0.66	0.38	0.43	0.00
16	Plastic	0.45	0.33	1.85	0.00	2.47	0.66	6.28	0.00
17	Plastic Prod.	1.71	0.48	0.75	0.00	3.60	1.70	2.08	0.00
18	Misc. Chemical	1.17	-1.10	0.53	-0.03	9.46	3.39	2.49	0.02
19	Petroleum	-1.45	-0.04	-1.13	-0.02	8.02	0.49	6.12	0.09
20	Non-Metallic	-0.77	-0.05	0.01	-0.07	3.67	0.91	0.85	0.20
21	Steel & Iron	2.62	1.70	-2.15	0.00	12.06	5.37	29.02	0.00
22	Misc. Metal	0.49	0.27	1.34	0.00	0.98	0.38	1.95	0.00
23	Metallic	11.27	3.88	5.72	0.00	10.77	5.80	7.05	0.03
24	Machinery	9.31	0.69	1.31	0.00	8.81	2.13	1.78	0.01
25	Domestic Electronic	2.11	0.04	0.16	0.00	4.58	0.23	0.41	0.00

Impacts on Tap Water of WTO Accession (10,000 tons)

Sectors		Simulation 1				Simulation 2			
		North	Central	South	East	North	Central	South	East
26	Electronic Prod.	12.99	0.10	0.24	0.00	21.91	0.19	0.36	0.00
27	Comm. Prod.	0.75	0.01	0.00	0.00	2.20	0.01	0.01	0.00
28	Electronic	0.09	0.05	0.52	0.00	17.84	0.23	1.94	0.00
29	Electrical	3.43	0.21	0.50	0.00	5.87	0.35	0.74	0.00
30	Trans Equip	-0.44	-0.47	4.37	-0.01	11.47	4.58	5.75	0.03
31	Misc. Prod.	9.02	2.40	2.78	0.00	5.57	2.43	2.54	0.01
32	Residential Cons.	-3.80	-0.75	-0.57	-0.05	18.23	2.36	2.82	0.08
33	Public Cons.	-16.62	-0.72	-1.51	-0.06	40.10	7.30	8.98	0.27
34	Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	Gas	-0.02	0.00	-0.02	0.00	0.03	0.01	0.05	0.00
36	Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Warehousing	-3.63	-0.32	-0.77	-0.38	90.26	4.95	11.83	2.17
38	Wholesale	-12.69	-3.71	-4.02	-1.28	118.22	25.56	27.91	3.85
39	Finance & Insu.	-3.02	-0.51	-0.61	-0.41	8.42	1.53	1.70	0.53
40	Real Estate	-4.86	-0.90	-1.19	-0.05	5.72	0.87	1.27	0.05
41	Hotel & Rest.	-17.23	-2.13	-3.18	-0.76	48.33	14.87	11.89	1.85
42	Business Ser.	3.83	0.51	0.17	0.00	16.09	1.40	1.16	0.16
43	Public Ser.	-36.97	-5.35	-5.49	-0.89	43.01	5.11	5.61	0.91
44	Edu. & Med.	-22.54	-7.00	-6.99	-0.91	23.62	11.77	9.80	0.91
45	Other Ser.	-22.46	-3.43	-3.64	-1.22	48.55	6.63	8.38	1.56