Kangaré – Water

An Introduction to Environmental –Economic Accounts for Water (SEEA-Water)

WORKBOOK

7 September 2012

Based on the introduction to national accounts exercise prepared by NGO Thi Cuc and Jean-Louis WEBER. 1

Kangaré example (million kagarés)

SUPPLY

	Agriculture	General Canning Company	IOC 1	IOC 2	Administratio n	National production	Final consumption households	Final consumption Government	Rest of the World (RoW)	ΤΟΤΑ
Seed and fodder										
Agricultural products										
Canned food										
Crude oil										
Refined petroleum										
Chemical products										
Administrative services										
Other industrial products										
Raw materials and furniture										
Final consumption goods										
										1

OOL										
	Agriculture	General Canning Company	IOC 1	IOC 2	Administratio n	Intermediate consumption	Final consumption households	Final consumption Government	Rest of the World (RoW)	TOTAL
Seed and fodder										
Agricultural products										
Canned food										
Crude oil										<u> </u>
Refined petroleum										
Chemical products										
Administrative services										
Other industrial products										
Raw materials and furniture										<u> </u>
Final consumption goods										
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				[
Value added							

Kangaré example (SUPER SYNTHESIS) (million kagarés)

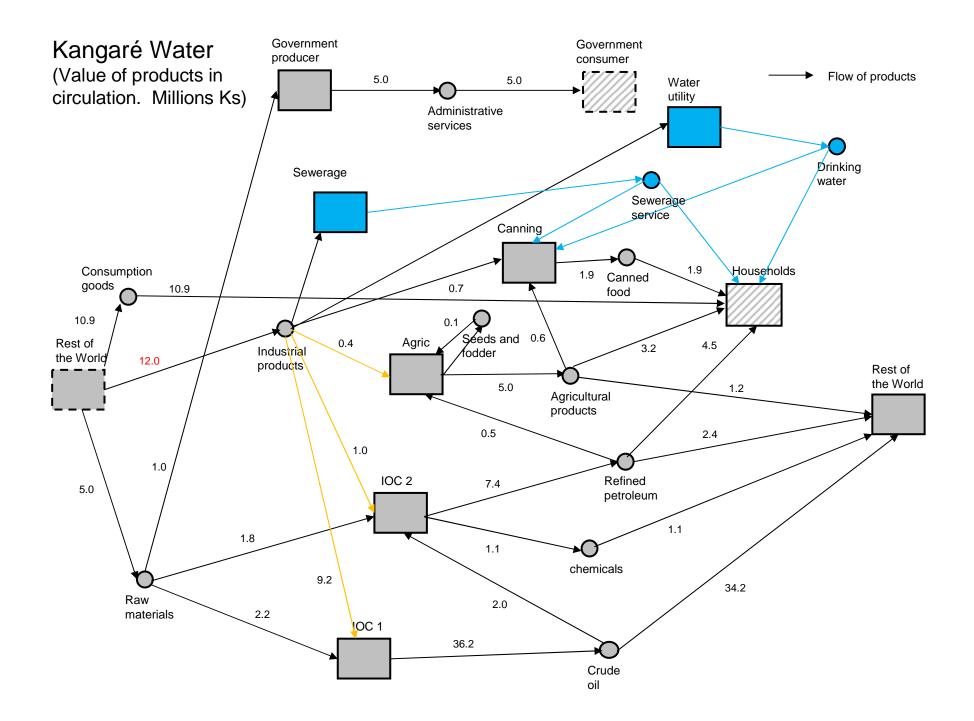
SUPPLY AND USE TABLES

SUPPLY

	National industries	National production	Final consumption households	Final consumption Government	Rest of the World (RoW)	TOTAL
National products						
Imported products						

	National industries	Intermediate consumption	Final consumption households	Final consumption Government	Rest of the World (RoW)	TOTAL
National products						
Imported products						

Value added				



Kangaré-Water example

(million kagarés)

SUPPLY

	Agriculture	General Canning Company	IOC 1	IOC 2	Administratio n	Water utility	Sewerage utility	National production	Final consumptio household	
Seed and fodder										
Agricultural products										
Canned food										
Crude oil										
Refined petroleum										
Chemical products										
Administrative services										
Drinking water service										
Sewerage service										
Other industrial products										
Raw materials and furniture										
Final consumption goods										

Rest of the World (RoW)	TOTAL

Seed and fodderIII		Agriculture	General Canning Company	IOC 1	IOC 2	Administratio n	Water utility	Sewerage utility	Intermediate consumption	Final consumption households	Final consumption Government	Gross Fixed Capital Formation (GFCF)	Rest of the World (RoW)	ΤΟΤΑΙ
Canned foodIII	Seed and fodder													
Crude oil Image: Service service service service Image: Service s	Agricultural products													
Refined petroleum Image: Service service service service Image: Service s	Canned food													
Chemical products Image: Chemimal produc	Crude oil													
Administrative services Image: Constraint of the constra	Refined petroleum													
Drinking water service Image: Constraint of the service Image: Conservice Image: Constraint of the	Chemical products													
Sewerage service Image: Sewerage service	Administrative services													
Other industrial products Image: Constraint of the second sec	Drinking water service													
Raw materials and furniture Image: Consumption goods Image: Consu	Sewerage service													
Final consumption goods	Other industrial products													
	Raw materials and furniture													
	Final consumption goods													
	Mahara 114 1													

Value added				

Kangaré example (SUPER SYNTHESIS) (million kagarés)

SUPPLY AND USE TABLES

SUPPLY

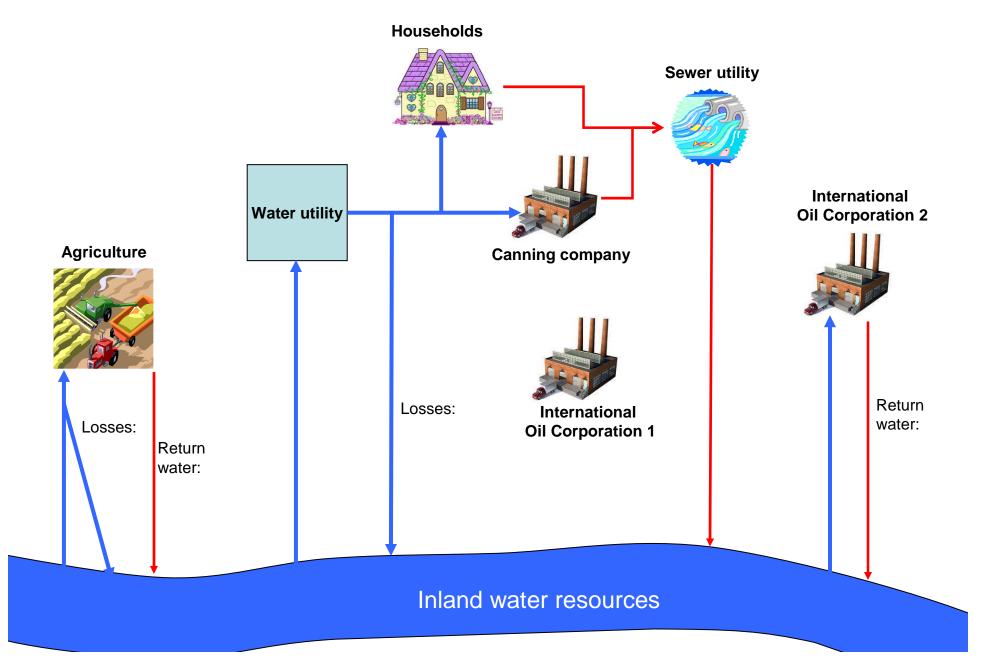
	National industries	Water utility	Sewerage utility	National production	Final onsumption nouseholds	Final consumption Government
National products						
Drinking water service						
Sewerage service						
Imported products						

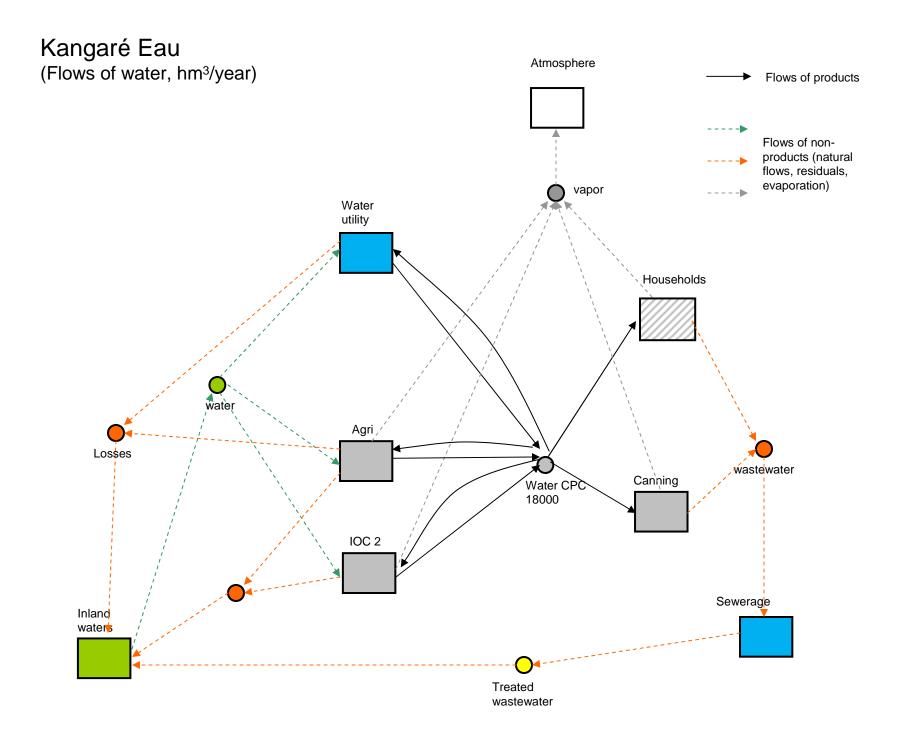
Rest of the World (RoW)	TOTAL

	National industries	Water utility	Sewerage utility	National production	Final consumption households	Final consumption Government	Rest of the World (RoW)	TOTAL
National products								
Drinking water service								
Sewerage service								
Imported products								

Value added		

Kangaré Water (Flows of water in hm³/year)





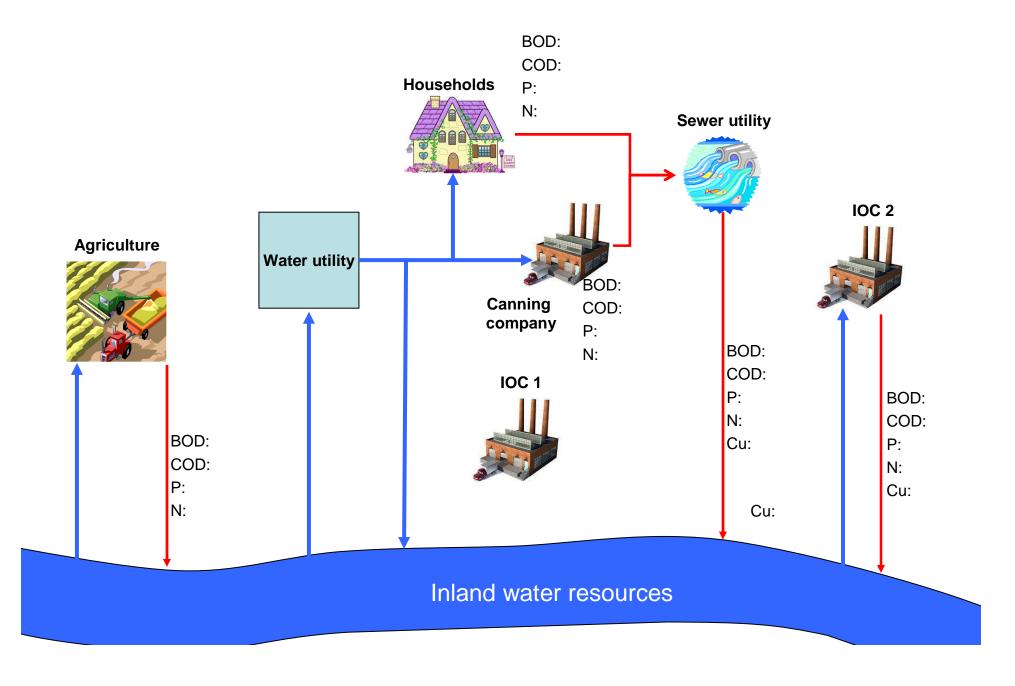
KANGARE WATERSHED EXAMPLE (SUPPLY AND USE TABLES)

() Sources of abstracted waterimage and image and i	SUPPLY (LEAVING)	Agriculture	Water utility	Sewer utility	Canning Company	IOC 1	IOC 2	Administrati on	House- holds	Flows from the environmen t	SUM
Other water sources Image: Sources Im	(I) Sources of abstracted water										
(i) Abstracted water Image: set of constraints of	Inland water										
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Other water sources										
Produced water for own use Image: Severage	(II) Abstracted water										
(III) Wastewater and reused water Image	Produced water for distribution										
Sewage Image Image <t< td=""><td>Produced water for own use</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Produced water for own use										
Treated watewater Image: Second S	(III) Wastewater and reused water										
(iv) Return flows of water Image: Section of abstracted water, respiration of abstracted water, respiration of abstracted water for distribution Image: Section of abstracted water, respiration of abstracted water, respiration of abstracted water for distribution Image: Section of abstracted water, respiration of abstracted water, respiration of abstracted water for distribution Image: Section of abstracted water, respiration of abstracted water for distribution Image: Section of abstracted water Image: Section of	Sewage										
Losses Image: Several of abstracted water, transpiration and water incorporation of abstracted water, transpiration and water incorporates into normality incorporation of abstracted water Image: Several of abstracted water incorporates into normality incorporation of abstracted water Image: Several of abstracted water<	Treated wastewater										
Return water Image: Construction of abstracted water, transpiration and water, incorporation of abstracted water Image: Construction of abstracted water Image: Construle to the tend water Image:	(IV) Return flows of water										
(v) Exponention of abstracted water, transpiration and water incorporates into products. Image: Severe utility of the severe utili	Losses										
and water incorporates into Excedurets Image: second s											
USE (ENTERING) Agriculture Water utility Sewer utility Canning Company IOC 1 IOC 2 Administrati on House- holds Flows to the environmen t (I) Sources of abstracted water Imand water <td></td>											
USE (ENTERING)AgricultureWater utilitySewer utilityCanning CompanyIOC 1IOC 2AdministrationHouse- holdsenvironment tSUM(I) Sources of abstracted waterII<	Evaporation of abstracted water										
USE (ENTERING)AgricultureWater utilitySewer utilityCanning CompanyIOC 1IOC 2AdministrationHouse- holdsenvironment tSUM(I) Sources of abstracted waterII<											
USE (ENTERING)AgricultureWater utilitySewer utilityCanning CompanyIOC 1IOC 2AdministrationHouse- holdsenvironmentSUM(I) Sources of abstracted waterImand waterIman											
Inland water Image: sources Image:											
Other water sources Image: sources	USE (ENTERING)	Agriculture	Water utility	Sewer utility		IOC 1	IOC 2			environmen	SUM
(II) Abstracted water Image: Second Seco		Agriculture	Water utility	Sewer utility		IOC 1	IOC 2			environmen	SUM
Produced water for distribution Image: Constraint of the second seco	(I) Sources of abstracted water	Agriculture	Water utility	Sewer utility		IOC 1	IOC 2			environmen	SUM
Produced water for own use Image: Constraint of the set of the s	(I) Sources of abstracted water Inland water		Water utility	Sewer utility		IOC 1	IOC 2			environmen	SUM
(III) Wastewater and reused water Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water incorporates into products Image: Constraint of abstracted water, transpiction of abstracted water incorporates into products <td>(I) Sources of abstracted water Inland water Other water sources</td> <td></td> <td>Water utility</td> <td>Sewer utility</td> <td></td> <td>IOC 1</td> <td>IOC 2</td> <td></td> <td></td> <td>environmen</td> <td>SUM</td>	(I) Sources of abstracted water Inland water Other water sources		Water utility	Sewer utility		IOC 1	IOC 2			environmen	SUM
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Treated wastewater Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution		Water utility	Sewer utility			IOC 2			environmen	SUM
(IV) Return flows of water Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstrated water, transpiration and water incorporates intoprod	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use		Water utility	Sewer utility						environmen	SUM
Losses Image: Constraint of abstracted water, transpiration and water incorporates into products Image: Constraint of abstracted water, transpiration and water incorporates into products	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water		Water utility	Sewer utility						environmen	SUM
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(V) Evaporation of abstracted water, transpiration and water incorporates into products	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water Sewage Treated wastewater		Water utility	Sewer utility						environmen	SUM
and water incorporates into products	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water Sewage Treated wastewater (IV) Return flows of water		Water utility	Sewer utility						environmen	SUM
Evaporation of abstracted water Image: Constract of abstracted water	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water (III) Wastewater and reused water (IV) Return flows of water Losses Return water		Water utility	Sewer utility						environmen	SUM
	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water (III) Wastewater and reused water (IV) Return flows of water Losses Return water (V) Evaporation of abstracted water, transpiration		Water utility	Sewer utility						environmen	SUM
	(I) Sources of abstracted water Inland water Other water sources (II) Abstracted water Produced water for distribution Produced water for own use (III) Wastewater and reused water (III) Wastewater and reused water Sewage Treated wastewater (IV) Return flows of water Losses Return water (V) Evaporation of abstracted water, transpiration and water incornorates into products		Water utility	Sewer utility						environmen	SUM

KANGARÉ WATERSHED EXAMPLE (ASSET ACCOUNTS)

	Inland Water Resources
Opening stock of water resources	
Additions to stock	
Returns	
Precipitation	
Inflows from other inland water resources	
Reductions in stock	
Abstractions	
Evaporation/ Evapotranspiration	
Ouflows to other inland water resources	
Outflows to the sea	
Closing stock of water resources	

Kangaré Water – EMISSION ACCOUNTS, TRAINING EXAMPLE (Flows of emissions in ton/year)



KANGARE-WATER. EMISSION ACCOUNTS

Physical supply table for gross releases of substances to water

SUPPLY (LEAVING)	Agriculture	Water utility	Sewer utility	Canning Company	IOC 2	Administration	Households	Flows from the environment	Total supply
Emissions to the environment									
BOD									
COD									
Phosphorous									
Nitrogen									
Copper									
Releases to other economic units									
BOD									
COD									
Phosphorous									
Nitrogen									
Copper									

Physical use table for gross releases of substances to water

USE (ENTERING	Agriculture	Water utility	Sewer utility	Canning Company	IOC 1	IOC 2	Administration	Households	Flows to the environment	Total use
Emissions received by the environment										
BOD										
COD										
Phosphorous										
Nitrogen										
Copper										
Collection by other economic units										
BOD										
COD										
Phosphorous										
Nitrogen										
Copper										