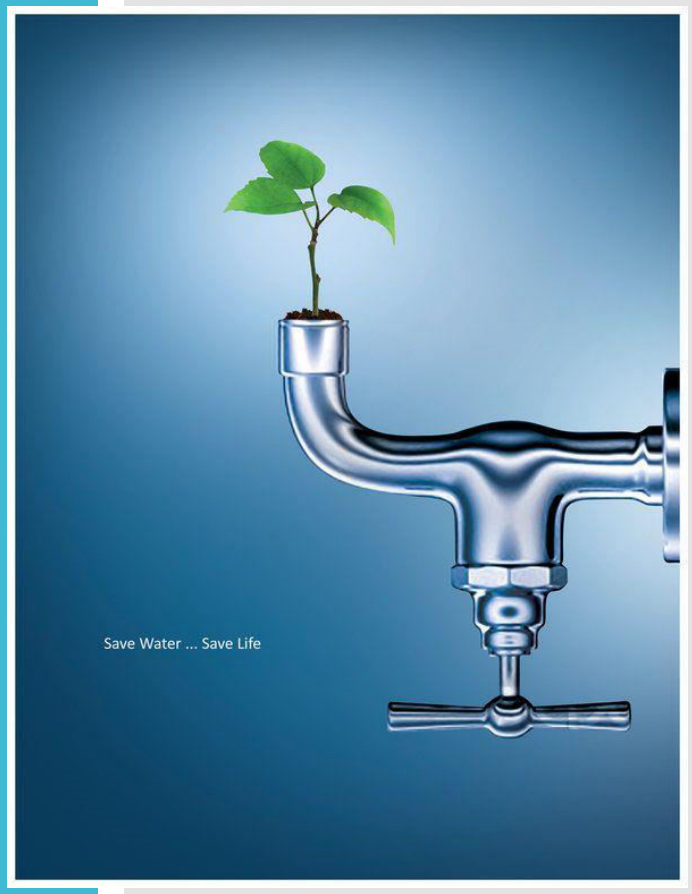
World Water Congress XV
International Water Resources Association (IWRA)
Edinburgh, Scotland. 25 - 29 May 2015

K water

Water and Green Growth



2015.5.28

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The challenges

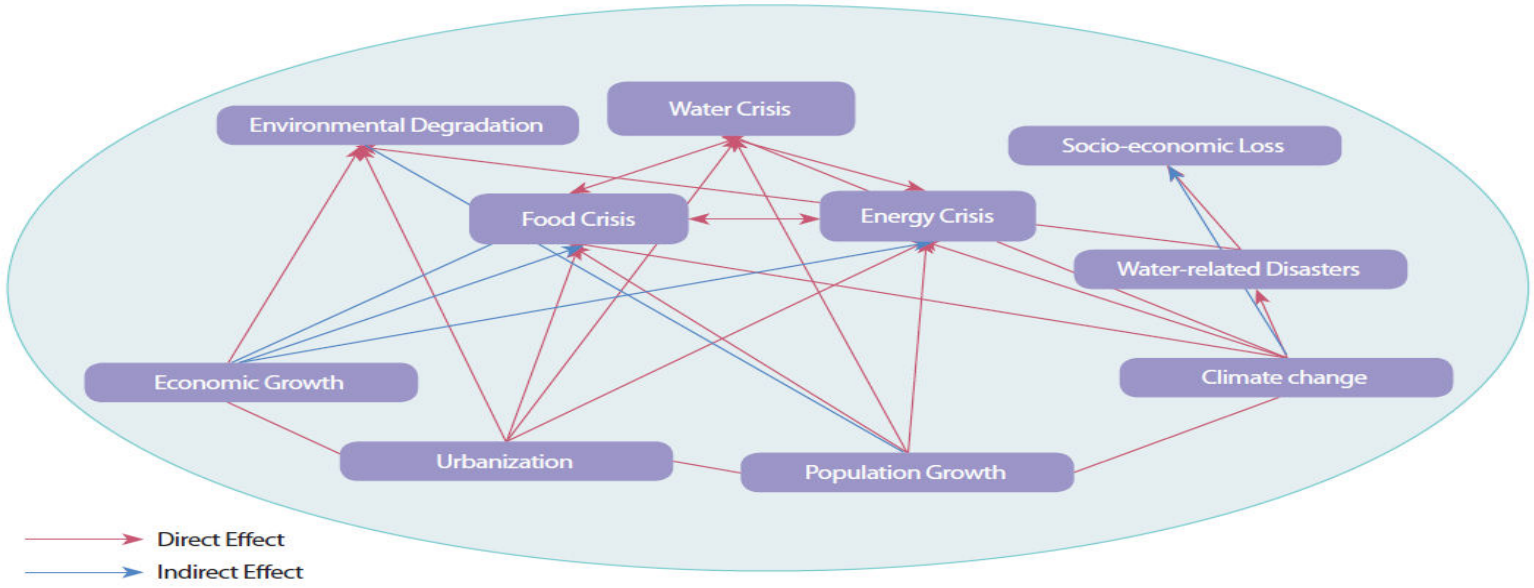
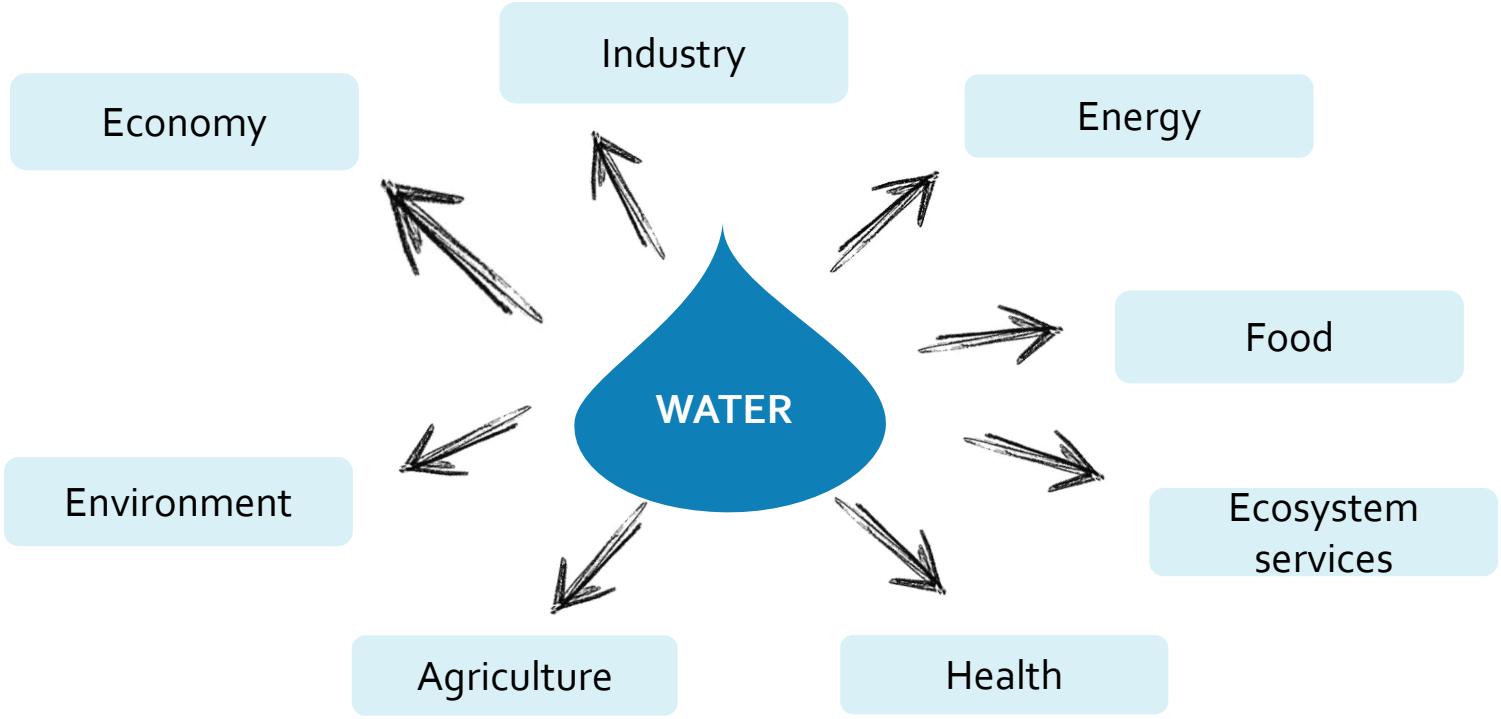


Figure 1-1. Global Challenges and Pressures on Water Resources

- Water crises ranked #1 for impact and #7 for likelihood (2015 World Economic Forum)
- Water quantity
- Water quality
- Water-related disasters
- Water conflicts

Water,
not just water

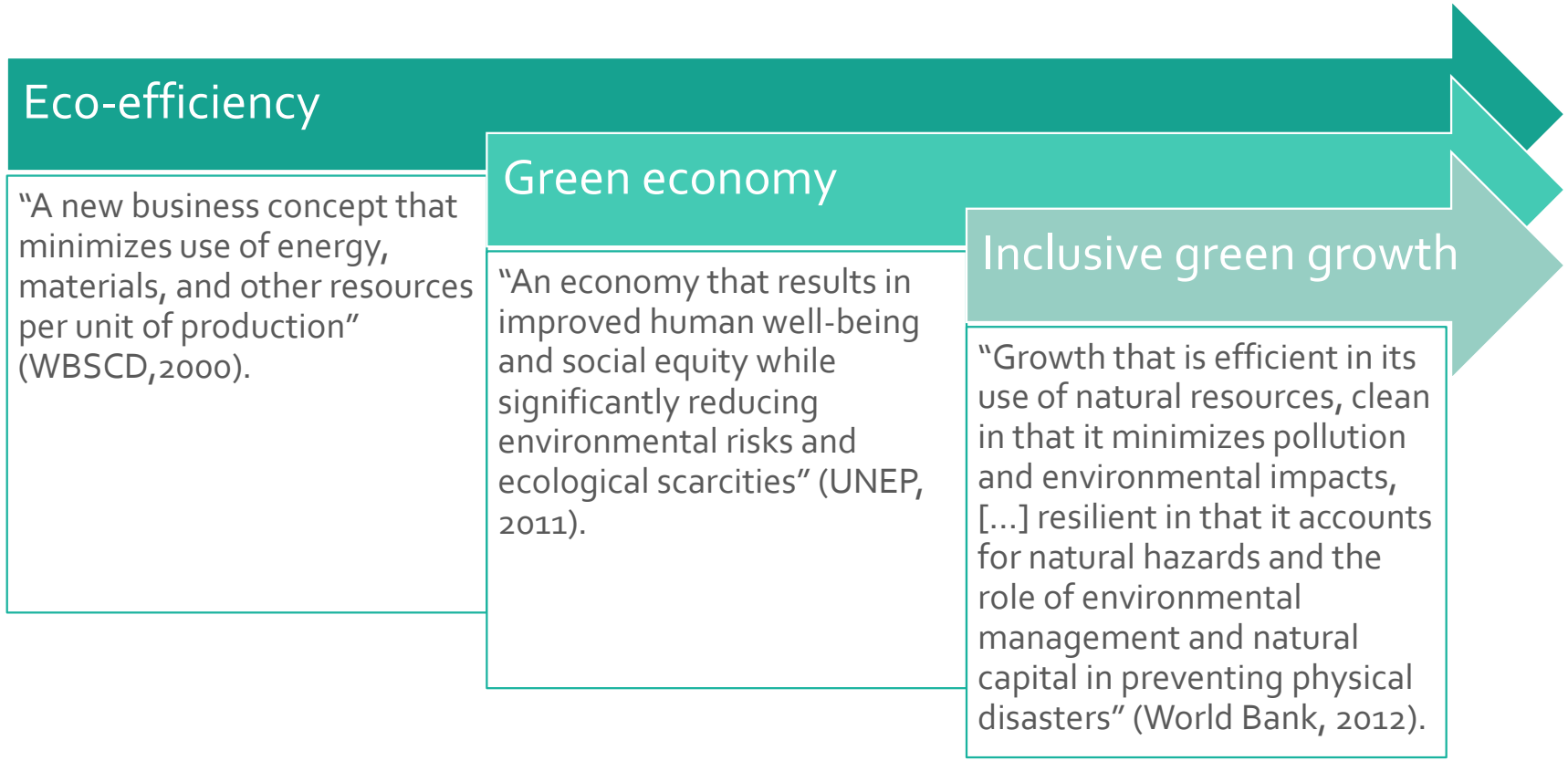


- Water problems in AP is not just water issue and closely related to others
- Need holistic approach mainly due to interconnection of the factors in our society system
- Water-related problems cannot be addressed in isolation

  - Water-Energy-Food nexus approach is one of the examples

Addressing the challenges:

The Green Paradigm



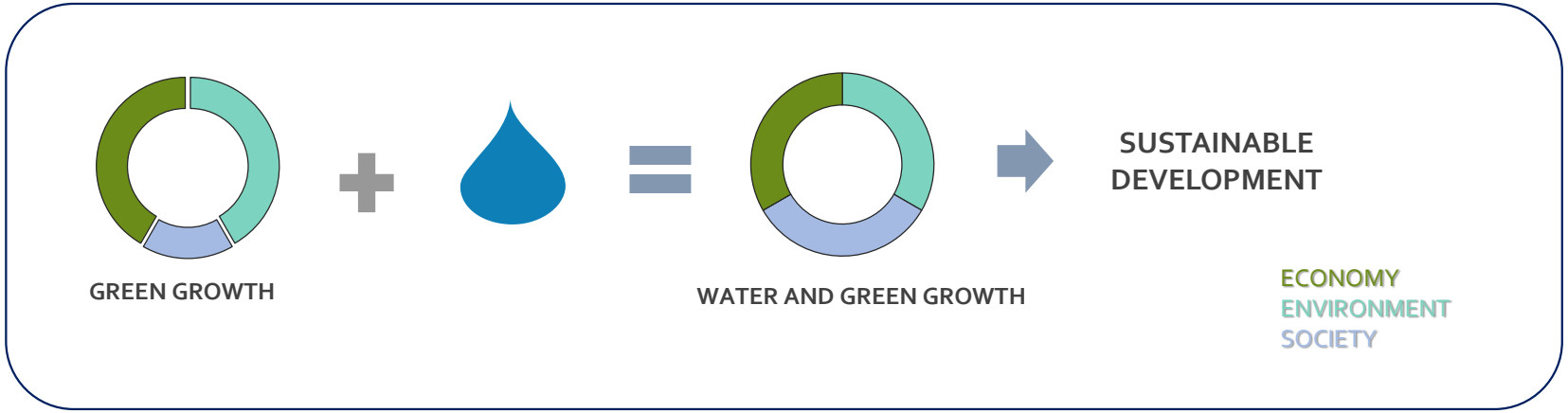
The underlying argument
Our traditional growth paradigm must transition into a more sustainable way
Attaining both economic and environmental goals on a equal basis

Green Growth?

- Similar terms but common meaning; Shifting toward more sustainable future
- Sustainability; Balanced and inclusive approach on growth among economic, environmental, and social aspects
- Shifting from resource intensive toward more sustainable growth pattern(balanced pattern)
- Not a short-term trend but a long-term paradigm

How to achieve GG in the water sector?

Water and Green Growth



Definition: (WGG project team, 2015)

> the concept that emphasizes the role of water in achieving economic well-being and social equity coupled with the protection and revitalization of ecosystems

→ WGG can be a solution to water-related and development challenges

Why is WGG a solution?

Why WGG?

Why not just sustainable development or green growth that is done in a way that addresses social dimension?

- Cross-cutting impacts on economies and societies
- A holistic approach -> an impetus to better policies in other sectors
- Equally tackling the social challenges

The key messages

- A crucial paradigm and development strategy
- To replace the vicious cycle of resource-intensive and quantitative growth to a virtuous cycle of economic development that is resource-efficient and qualitative
- Sustainable and efficient water resources management central to realizing green growth and to address many water-related challenges specific to AP
- Strategies must be context specific considering political and socio-economic particularities and needs
- Requires a strong leadership and political commitment to lead indicative and integrated planning

The WGG Research

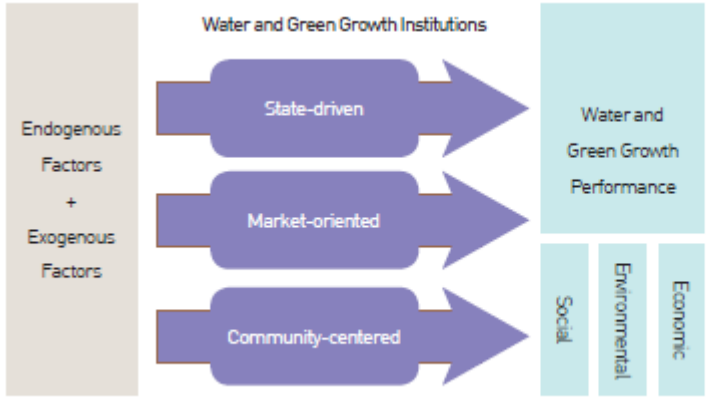
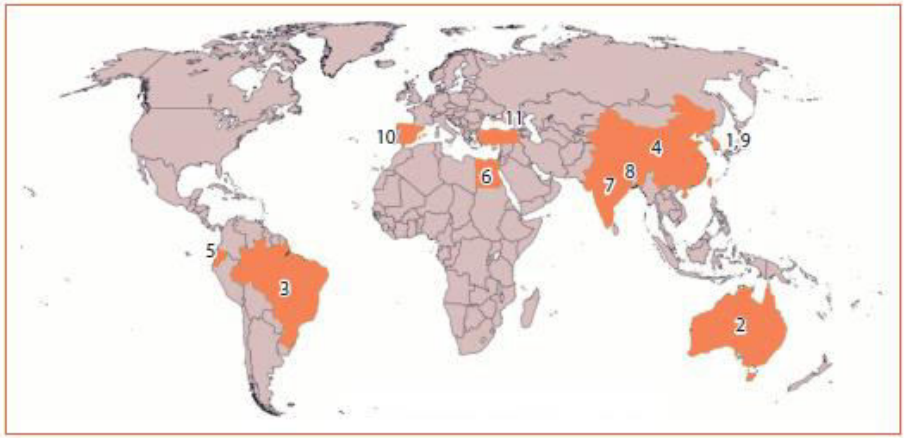
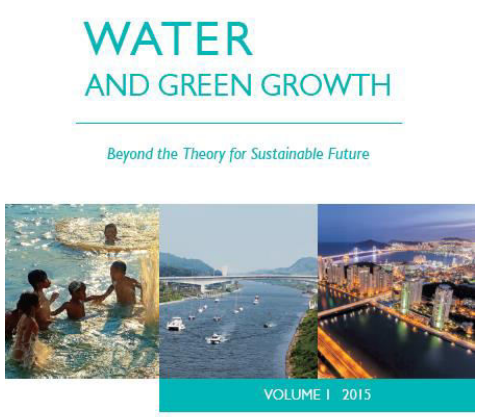


Figure 3-2. The Analytical Framework

- The analytical framework





- The 11 in-depth case studies

Box 1-1. Water and Green Growth Case Studies

1. Republic of Korea Lake Sihwa Water Quality Improvement Project
2. Australia Murray Darling River Basin: Water Trading and Water Use Efficiency
3. Brazil Integrated Water Resources Management: How National Policy and Practices Support Green Growth
4. China Shanghai Pudong: Public-Private Partnership
5. Ecuador Water Fund Mechanisms for Watershed Protection
6. Egypt Desalination for Agricultural Development
7. India Water Management in Gujarat State: Mix of Policy and Infrastructure Initiatives Result in Green Growth
8. Nepal The Andhikhola Hydel and Rural Electrification Project
9. Republic of Korea Taehwa River Ecological Restoration Project
10. Spain Ebro River Basin: Sound Water Planning Supports Green Growth
11. Turkey Restoration of an Urban Estuary: Golden Horn, Istanbul

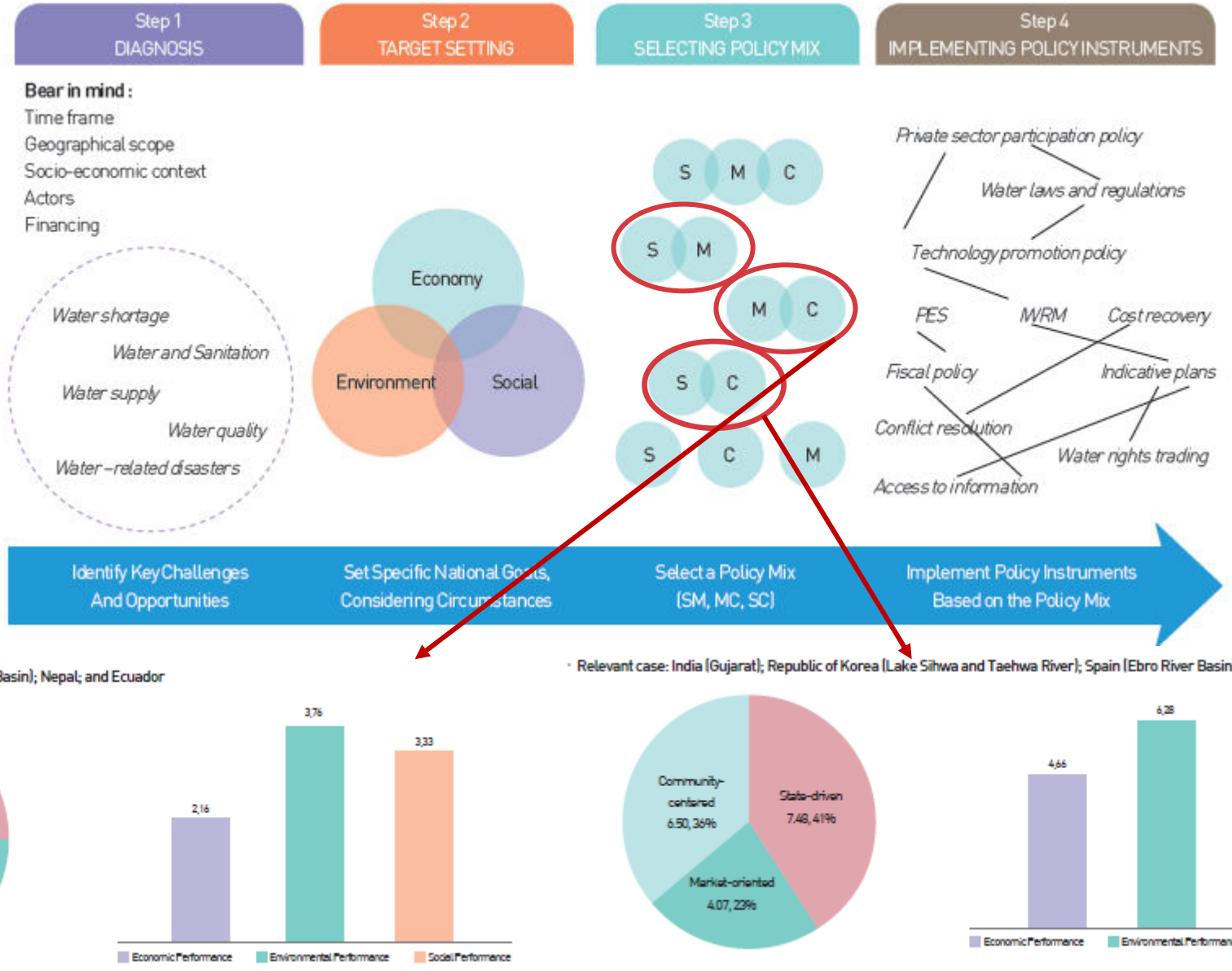
The results

	Exogenous Factors & Endogenous Factors					Policy Instruments			Performance		
	Economic	Social	Political	Technology	Environmental	State-driven	Market-oriented	Community-centered	Economic	Environment	Social
Sihwa (Korea)	Economic growth	Higher education enrollment	Political stability, Strong leadership	Technical developments	-	◎ Indicative plans	○ Cost recovery	◎ Stakeholder participation	◎ Local development	◎ Water Quality, Biodiversity	○ Quality of life, Stakeholder participation
MDB (Australia)	Economic growth, Urbanization	High HDI	Political stability	Technical developments	*Drought-prone	○ Indicative plans	◎ Water rights	◎ Stakeholder participation	◎ Technological advancement	◎ Environmental awareness	○ Citizen participation
IMRM (Brazil)	Economic growth, Urbanization	Improvement in HDI (education, health) *Regional income inequality	Decentralized implementation	Technological advancement	High level of available water	◎ Indicative plans	○ Cost recovery	◎ Stakeholder participation	◎ Technological advancement	◎ Environmental awareness, Water quality	○ Quality of life, Public health
Shanghai-Puddong (China)	Economic growth, Urbanization, Population growth	*Income inequality	Political support	High expenditure on R&D	*Vulnerable to disasters	◎ Indicative plans, Tariffs	◎ Private sector promotion policy	○ Stakeholder participation	◎ Technological advancement	○ Water quality	◎ Quality of life, Public health
Water fund (Ecuador)	Economic growth, High population density, Urbanization	Poverty reduction, Improvements in HDI	Strong leadership	High expenditure on R&D	Rich biodiversity	○ Regulations	◎ Cost recovery	◎ Stakeholder participation	○ Job creation	◎ Environmental awareness	◎ Gender equality
Desalination (Egypt)	*Slower growth rate, High population density	*Income inequality	*Political transition	High expenditure on R&D	*Water scarcity	◎ Indicative plans, Financial support	◎ Private sector promotion policy	-	◎ GRDP, Technological advancement	◎ Water quality, Biodiversity	○ Quality of life
Gujarat (India)	Economic growth, Urbanization, Industrialization	Poverty reduction Improvements in HDI (education, health)	Political stability	Technological advancement	*Drought-prone	◎ Financial support, Technology policy	○ Private sector promotion policy	◎ Stakeholder participation	◎ GRDP	◎ Water quality	○ Quality of life
Andikhola (Nepal)	Population growth	*Income inequality, Improvements in HDI (education)	*Political instability	High expenditure on R&D	High level of available water, *Vulnerable to disasters	○ Tariffs	◎ Private sector promotion policy	◎ Stakeholder participation	◎ GRDP, Local economic development	○ Environmental awareness	◎ Public health, Quality of life
Golden Horn (Turkey)	Economic growth, Industrialization, Population growth	Improvements in HDI	Strong leadership, Political support, Balanced administrative layers and functions	High expenditure on R&D	High level of available water	◎ Regulations, Financial support	◎ Private sector promotion policy	○ Stakeholder participation	◎ Technological advancement, Local economic development	◎ Water quality, Biodiversity	○ Quality of life Public health
Ebro (Spain)	*Sluggish economy recovery	Improvements in HDI	Decentralized implementation	Technical developments	-	◎ Technology policy	○ Private sector promotion policy	◎ Stakeholder participation	○ Technological advancement	◎ Water quality, Disaster safety	◎ Citizen participation
Taehwa (Korea)	Economic growth	High regional income	Political stability	Technical developments	-	◎ Indicative plans	-	◎ Stakeholder participation	○ Local economic development	◎ Water quality, Biodiversity	◎ Quality of life

◎: High effective ○: Effective / *Indicates negative impact on performance/ GRDP: Gross Regional Domestic Product

Table 4-1. Relationships between Exogenous and Endogenous Factors, Selected Policy Instruments and Performances of the Projects in Selected Case Studies

Implementing policies in specific context



Tailoring solutions

In reality, there is no one-size fits all strategy.

A country should consider:

Managerial	Economic	Environmental	Social
Fulfillment of goal	Contribution to GDP	Water quality	Physical well-being
Timeliness	Job creation	Freshwater availability	Quality of life
Within budget	Balanced growth	Biodiversity	Access to services
Appropriateness	Price stability	Disaster safety	Class/gender equity
	FDI, net flow	Reforestation	Degree of participation

At the 7th World Water Forum

Key Highlights

★Green growth can replace the current vicious cycle of resource intensive & quantitative growth to a virtuous cycle of economic development that is resource efficient and qualitative, including for water;

★Sustainable & efficient water resources management is central to realizing green growth & to address many water related challenges;

★Enabling conditions for green growth

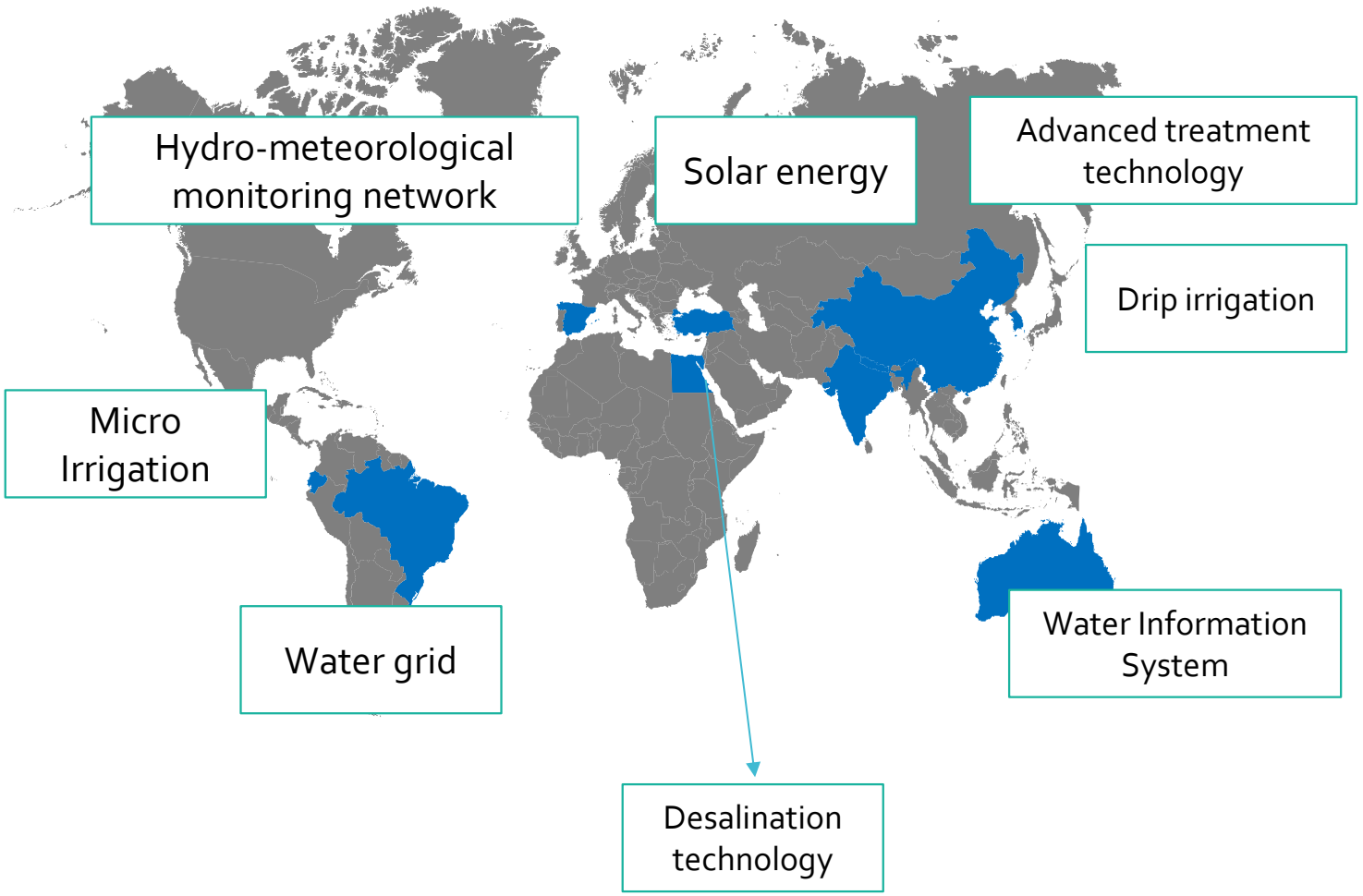
a. Policy instruments
- Sustainable financing to invest in infrastructure
- Economic instruments
b. Innovative Technology

★ **Non-technical component (policy instruments)**
and technical component (innovative technology) are key to achieve green growth

Enabling Conditions (1) policy instruments and Mix

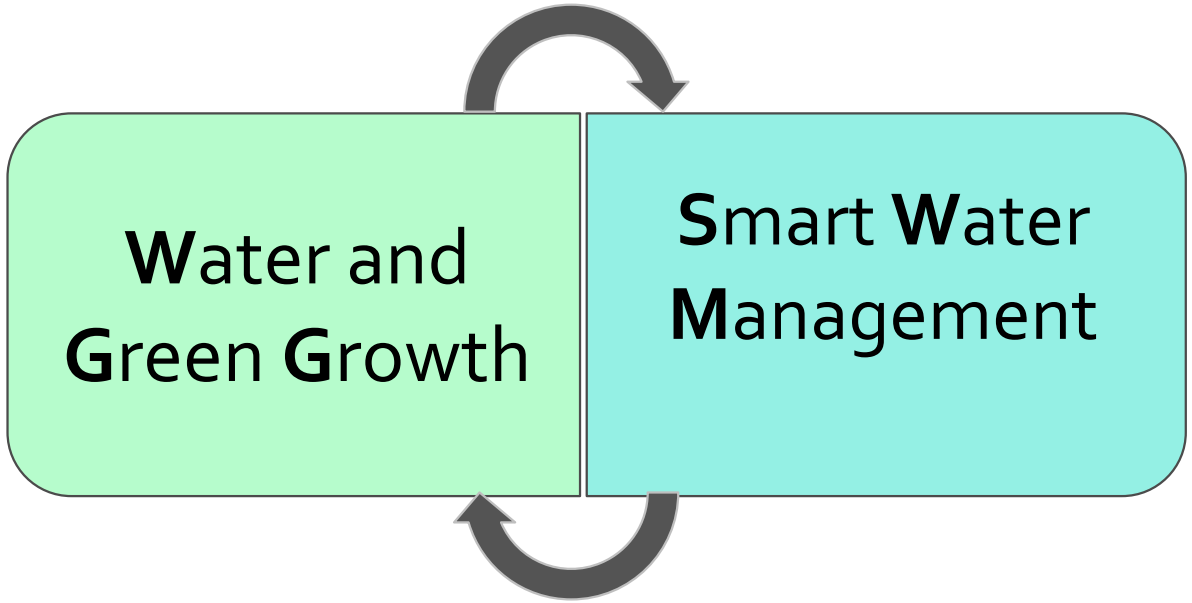
State-driven	Market-oriented	Community-centered
Water Laws and Regulations	Cost Recovery and Water Pricing	Stakeholder Participation
Indicative Plans	Payment for Ecosystem Services (PES)	Conflict Resolution & Coordination Mechanisms
Fiscal Policy (e.g. Subsidies and Taxes)	Water Rights Trading	Access to adequate and relevant information
Technology Promotion Policy	Private Sector Participation Policy (for investment or/and operation)	Accountability Provisions & Arrangement
Balanced Administrative Layers and Fu nctions		Integrated Approach (IWRM)
Spatial Organization of Water Administration		

Enabling Conditions (2) Technology



K-water's Choice:

SWMI



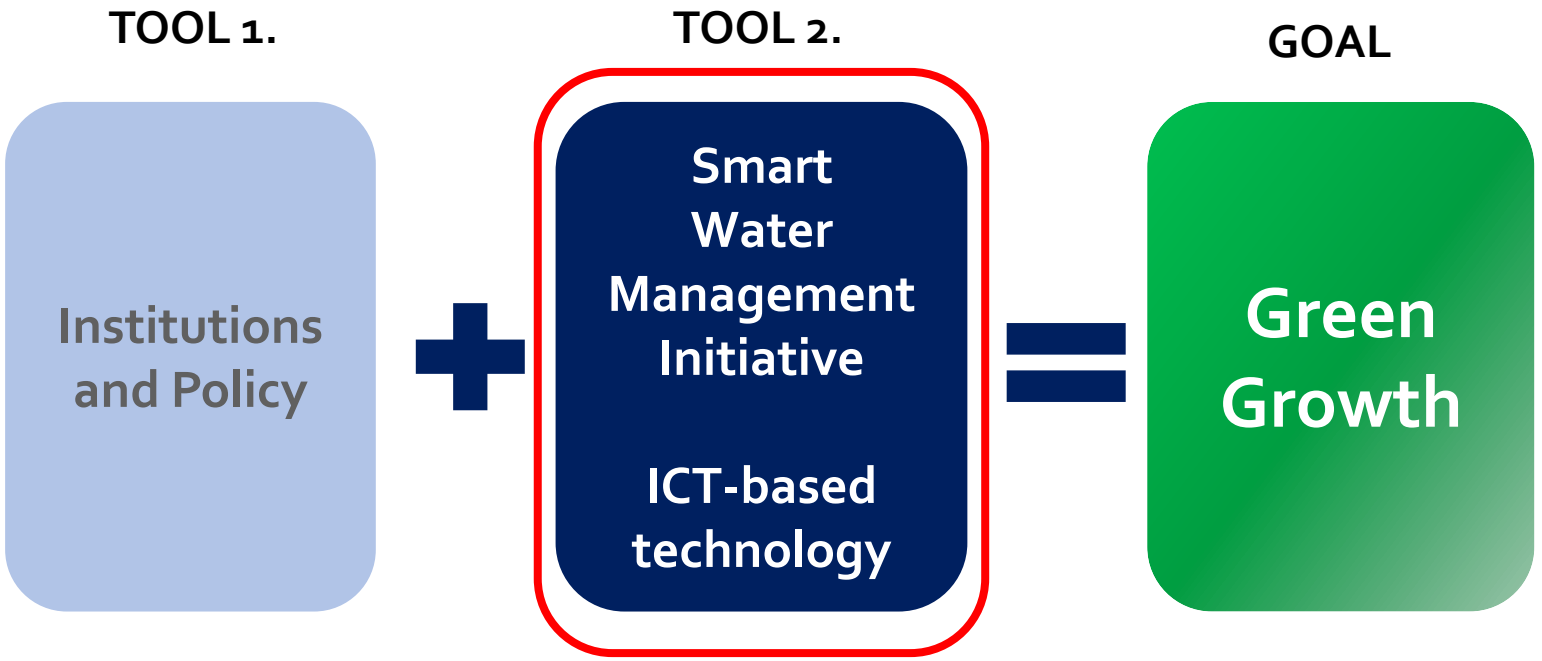
'We see the possibility of WGG through technical innovation'

Conclusion

"Water holds the key to sustainable development.

We need it for health, food security, and economic progress."

- UN Secretary General Ban Ki-moon at the Budapest Water Summit (October 8, 2013)



Thank you for your attention.