Transforming the Water Sector

The Need and Suggestions for Water Management Transformation

by

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Strategy Paper 16 of the 12th Malaysia Plan: Water Sector Transformation

Transformation

- Is not just a change
- But very rapid change
- Change of form and even function
- “Awesome”; Exciting
- Better, Stronger

the A, B, C, D, E & F of Water Transformation

Accounting, auditing

Bargaining – Inter-sector & end-user

Coding – Laws, Rules, Regulation

Environment, Economics, Engineering

Delegation – responsibility assignment

Feedback, Financing – data, PPP

Elements of Transformation

At the moment there is no water accounting and auditing system. Many are based on traditional estimates.

The present **National Water Resources Study** provides periodic but static data and information. Emphasis on "Supply"

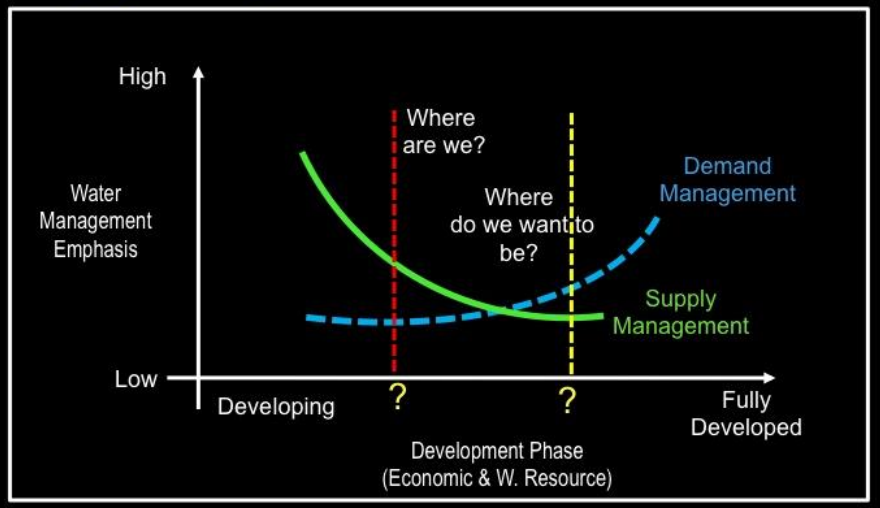
Need to revamp the the thinking and approach to "Demand Management"

Need to do a new approach to the NWRS for Water Transformation

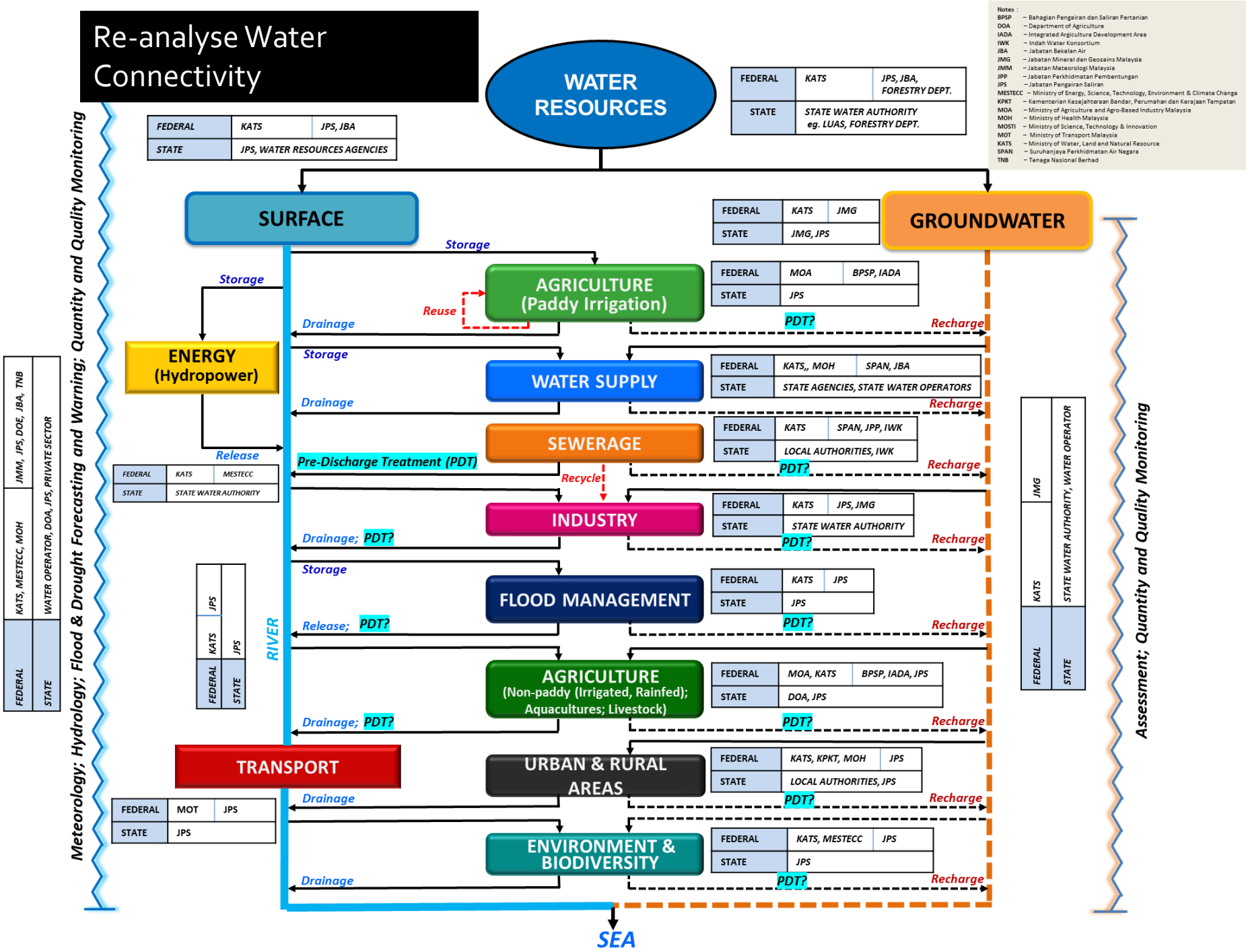
Accounting

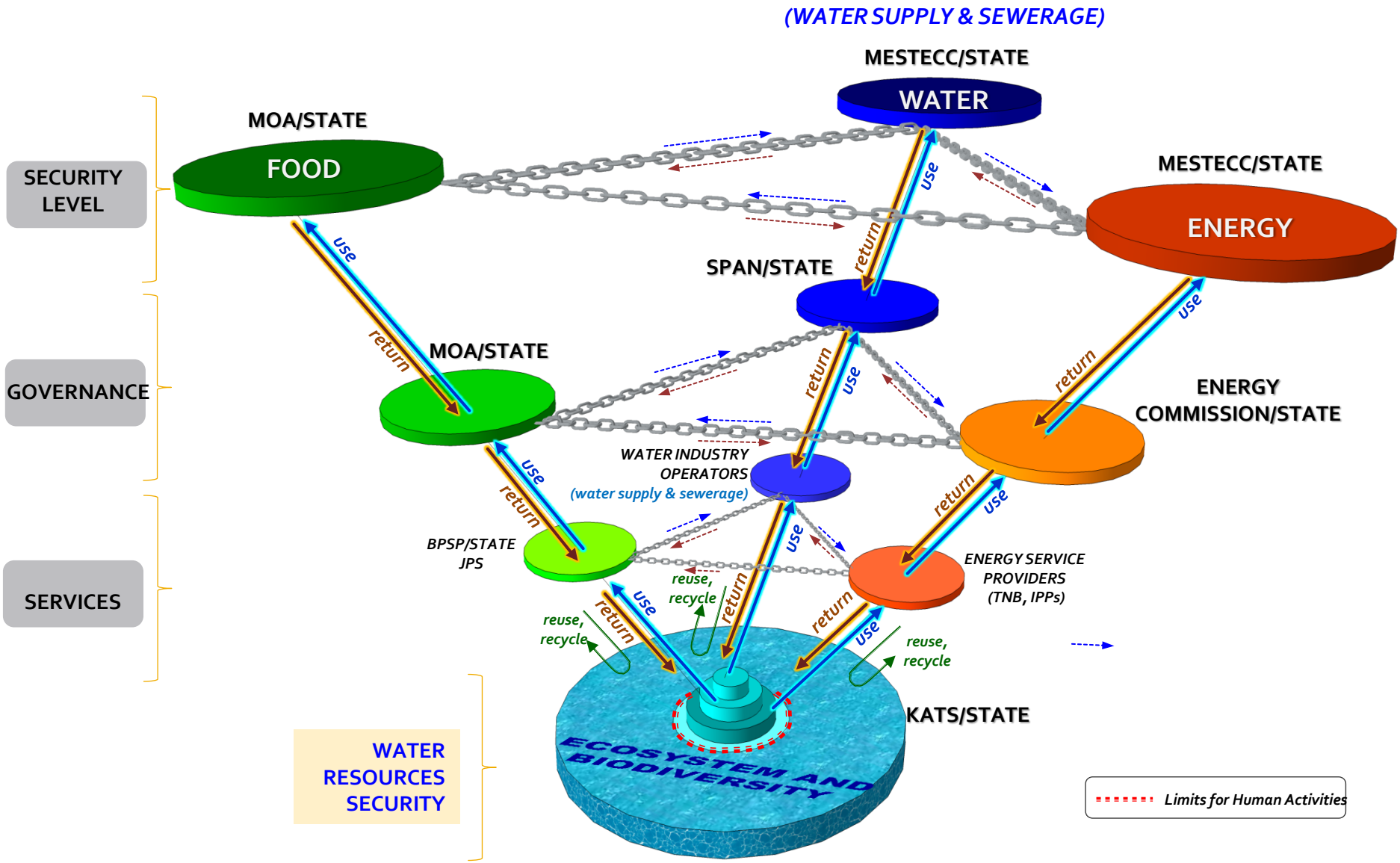
- **Water Accounting and Auditing = Governance**
- **Need to change from "Supply" to "Demand" Management**

Sectorial > IWRM = Supply Management > WDM

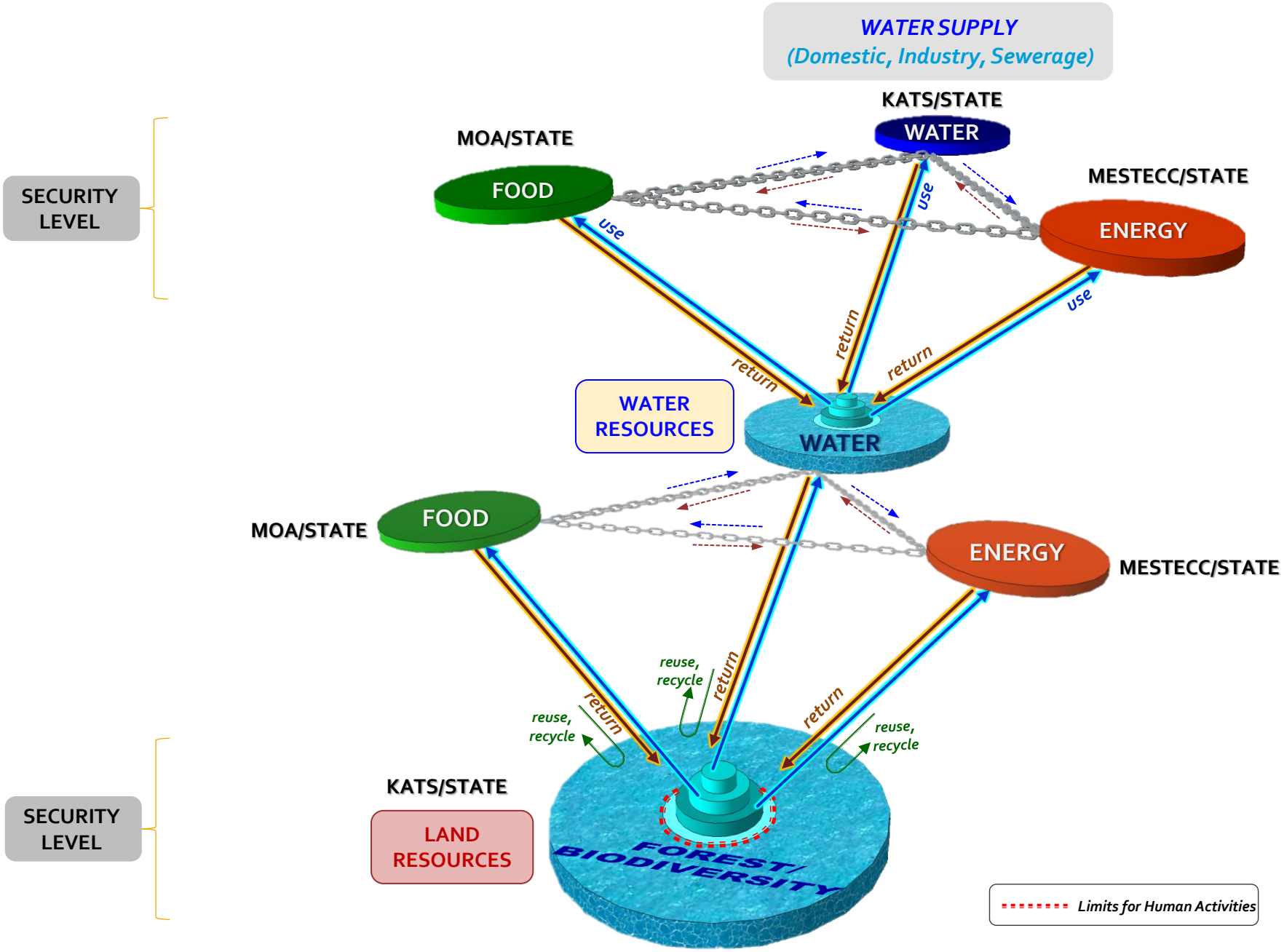


Re-analyse Water Connectivity





WATER-ENERGY-FOOD NEXUS

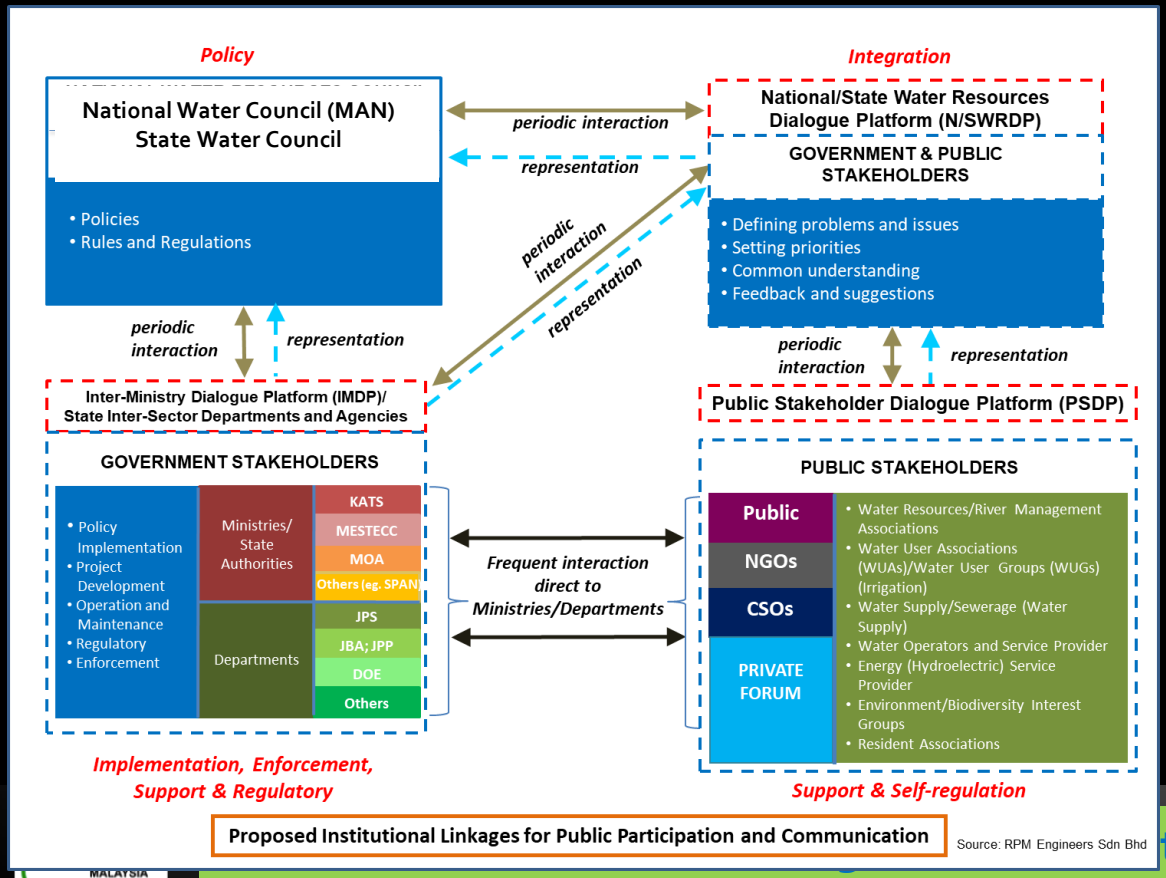


WATER-ENERGY-FOOD NEXUS (Water and Land

Elements of Transformation

Bargaining

- We need to install a formal Government-Public Participation Platforms
  - To discuss and get consensus on water tariffs, water savings, new laws, rules, regulations, policies



Proposed Institutional Linkages for Public Participation and Communication

Source: RPM Engineers Sdn Bhd

tor in RMK12

Elements of Transformation

The "Water Bankers"

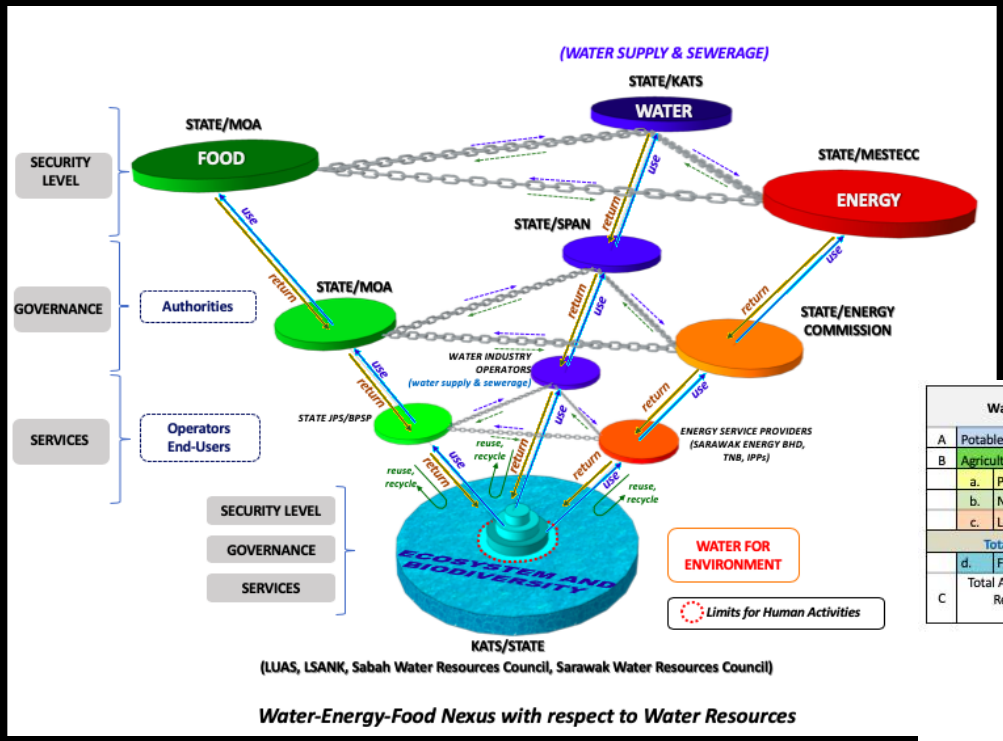
- States: Terengganu, Pahang, Sarawak
- Sectors:
- Energy: 79,000 MCM; 5,648 MCM/dam average
- Irrigation: 2,148 MCM; 200 MCM/dam

Time to share; Time to Trade?

Coding

- **Model Law (RUU SA)**
- **But need to incorporate:**
  - **Water Accounting**
  - **Water Auditing**
  - **Data and Information Sharing**
  - **Water Sharing**

Elements of Transformation

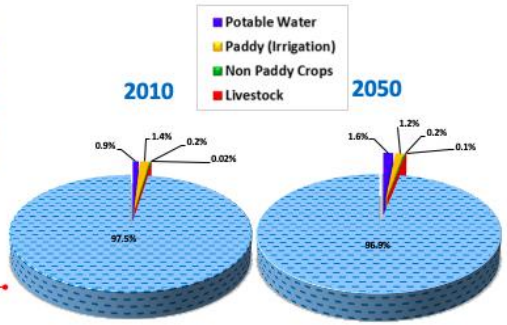


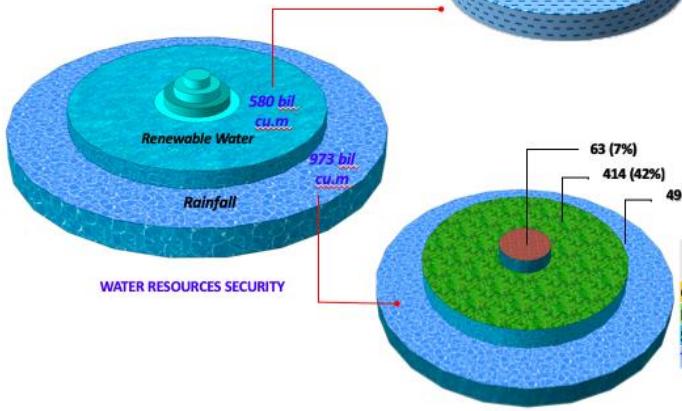
Water-Energy-Food Nexus with respect to Water Resources

Delegation

- Who is responsible for Water for Environment?
- Water for Energy?
- Water for Agriculture?
- Industrial Waste Discharge Management?

	Water Demand	MCM/year		%	
		2010	2050	2010	2050
A	Potable Water	5,277	9,291	0.91%	1.60%
B	Agriculture (a+b+c)	9,512	8,959	1.64%	1.54%
	a. Paddy (Irrigation)	8,266	7,205	1.43%	1.24%
	b. Non Paddy Crops	1,117	1,176	0.19%	0.20%
	c. Livestock	129	578	0.02%	0.10%
	Total Water Demand (A+B)	14,789	18,250	2.55%	3.15%
	d. Fisheries*	1,287	2,898		
C	Total Actual Renewable Water Resources (FAO, Aquastat 2016)	580,000	580,000		





Water	Billion cu m per year
Groundwater Recharge	63
Evaporation	414
Surface Runoff	496
Total Rainfall	973

Elements of Transformation

The Water Industry is fragmented due to traditional categorisation – Manufacturing, Construction, Services

US estimated USD 120 billion worth (2009); 6-7% Growth (Water Supply). More with Environment, Irrigation, Flood Mitigation

Australia, France, Netherlands, UK, US are big water services exporters to Asia Pacific

Korea K-Water (SMART Water) and Asia Water Forum and Singapore coming in very strong; aiming for 6% GDP; Singapore Water Week, Membrane Technology

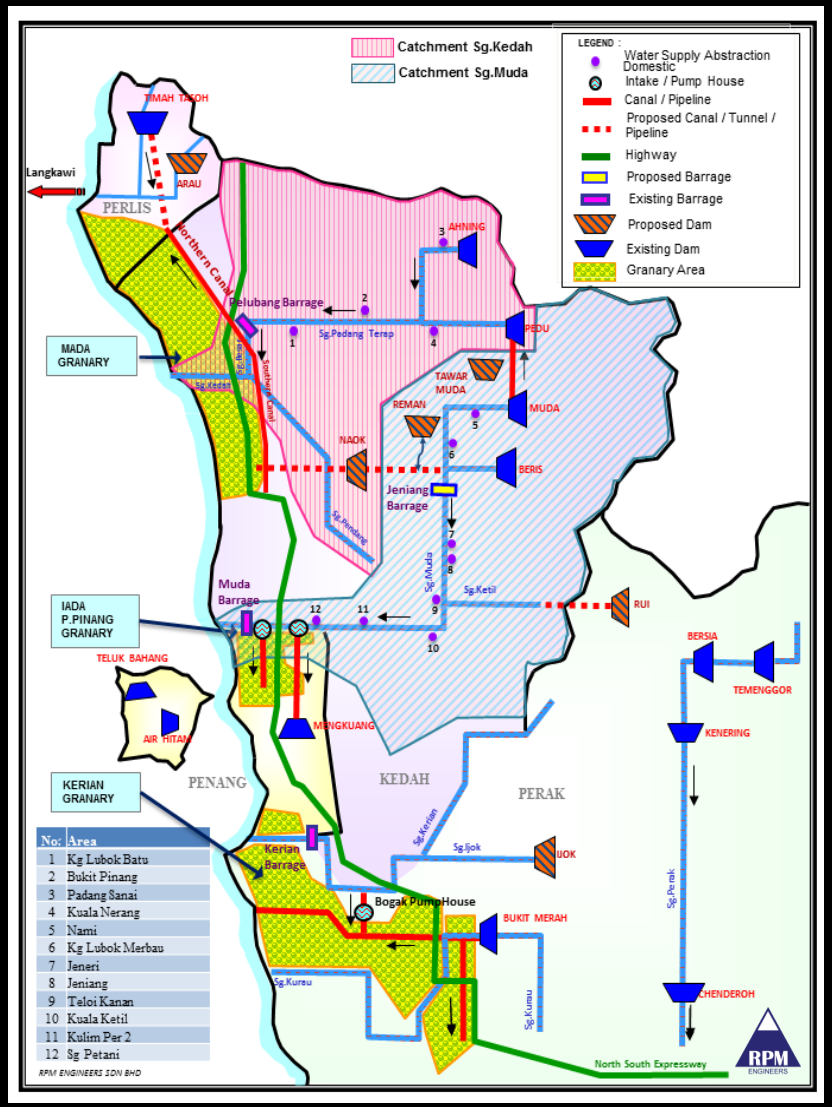
Environment,

Economics,

Engineering

- **Need to care for Water for the Environment**
- **Designs for Climate Change Proofing**
- **Need to view water in terms of GDP, GNI, high value jobs**
- **The transformation will require engineering, science, technology and innovation (STI) development and investments**
- **Also a tremendous business opportunity for the Water Sector Industry – We must strive for technology ownership; less "Plug and Play"**

Elements of Transformation



Engineering

- **The Grid System should be considered seriously for the future**
- **Also climate change impacts and disaster preparedness**

The MADA Grid Model:

- Inter-Dam Connectivity (Muda-Pedu)
- Inter-Basin Connectivity (Muda, Kedah, Perai (Mengkuang Dam)
- Inter-Sector Distribution Service
- Inter-State Distribution (Perlis, Kedah, Penang)
- Flood Management service
- Telemetric Network & DSS

Elements of Transformation

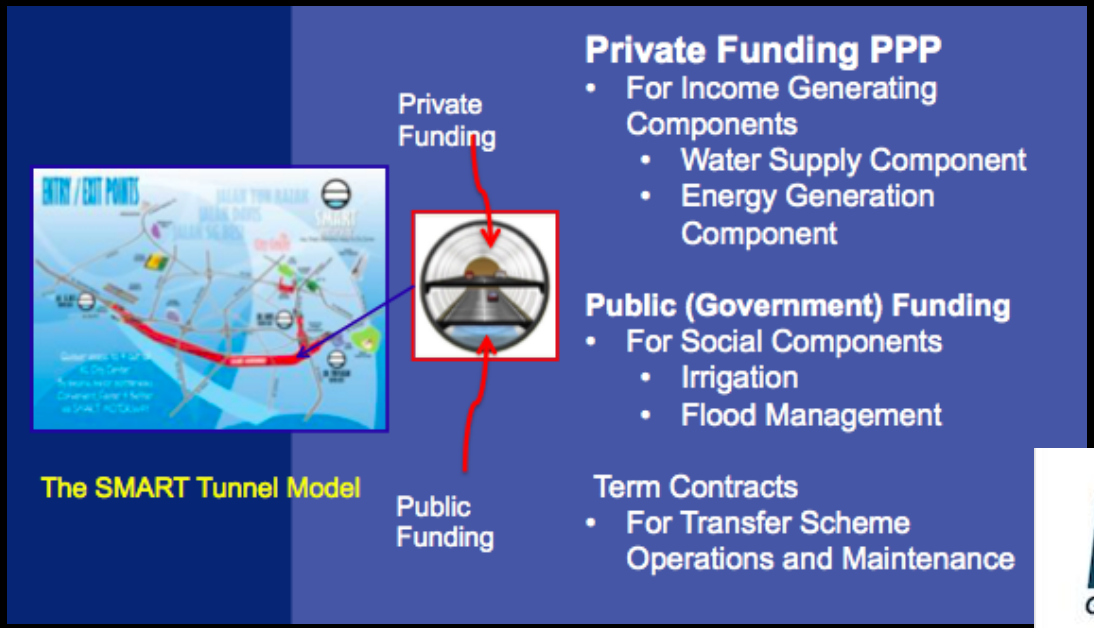
NO	AGENCY	HYDROLOGICAL STATIONS	NOTES
1.	**Department of Irrigation and Drainage (DID)**		
i.	*Rainfall*	1,349	
ii.	*Streamflow*	224	
iii.	*Water Level*	515	
	Subtotal	***2,088***	
2.	**Department of Environment (DOE)**		
i.	*Clean Rivers*	480	
ii.	*Slightly Polluted Rivers*	312	
iii.	*Polluted Rivers*	44	
iv.	*Water Intake*	55	
	Subtotal	***891***	
3.	**Malaysian Meteorological Department (MET Malaysia)**	**341**	*METEOROLOGICAL ELEMENTS OBSERVED: Daily and Hourly Rainfall, Hourly Air Temperature, Hourly Relative Humidity, Maximum Temperature, Minimum Temperature, Hourly Wind, Sunshine Hour, Solar Radiation, Evaporation, Atmospheric Pressure.*
	TOTAL	**3,320**	

Feedback

- **One strategy to breach sectorial boundaries**
  - **A <u>dedicated organization</u> for integrated data collection system for water managers and end-users**

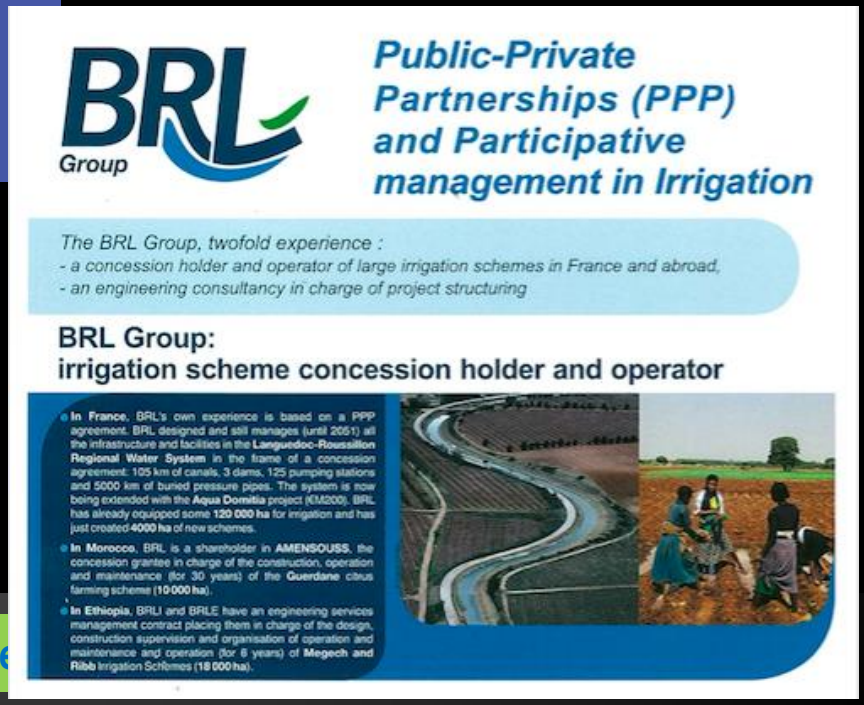
Also systems operated by MADA and KADA and Water Operators

Elements of Transformation



Financing

- Need to promote
  - PPP – Funding & Service Levels
  - Inter-sector; cross-financing e.g. Water Savings in Irrigation reliefs available water for water supply
  - Multi-purpose dams and storages e.g. flood mitigation ponds + ORS



Transformation Exciting

- Change will occur, but in its own time, no excitement
- Excitement is from the rate of change = acceleration
- E.g. Roller Coaster
  - Speed only 60-90 km/hr
  - But exciting because of acceleration; rate of change of speed

Transformation

- Must be inclusive, motivating, inspiring

When President Kennedy declared that the US will land a man on the moon and return safely to earth by the end of the decade…

- It inspired his country; its people and the World
- Whole spectrum of profession and people involved
- Inspired innovations

Is objective important?

- To send one man and bring him back
- One driver
- One Assistant

It is the process and outcome. e.g. The National Car?

We need: "A Project to the Moon"!!

The SDGs - Water Transformation "*Project to the Moon*"?