

Transforming the Water Sector

Agriculture Water Services for Transforming Water for Agriculture

by

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Focus Group Discussion 1/2019 15-16 April 2019

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

Agriculture Sector water management is in the “weakest” position compared to Water Supply and Energy

- Water Supply development and service levels is “organised” and focused thorough WSIA, SPAN
- Energy source development and services by Energy Commission
- Agriculture?

	1930s-1960s	1960s-1980s	1980s-2000	2000 >
Economy	Agriculture	→ Manufacturing + Industry	→	Services
Agriculture Development Objective	Poverty Alleviation	→ Income Generation	→	Wealth Creation
	Food Supply	→	Food Security	→ Food Security
Production Model	(Farmer) Owner-Operator	→	(Farmer) Owner-Business	→ (Non-Farmer) Investors
Production Purpose	Subsistence	→ Occupation	→ Business	→ Industry (Supply Chain Business Opportunities)
Infrastructure	Basic Infrastructure	→ Water Resource Development	→	Water Security
	New Lands, Drainage, Irrigation	→ Dams, System Intensification	→ Tertiary System	→ Revitalising Areas/System Intensification
Water Management	Supply Management	→ Irrigation Management	→ Water Management (WATER USER GROUP)	→ Demand Management
	Water Supply > Demand	Single Purpose Systems (Irrigation)		→ Demand > Available Water Food-Energy-Water Nexus Multi-use System (Irrigation, Water Supply, Flood Management)

Changes in Irrigation Development and Management approaches for Sustainability

Full range of services until 2004. Beyond?

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

Accountability, accounting, auditing

Bargaining – Inter-sector & end-user

Coding – Laws, Rules, Regulations, Policies

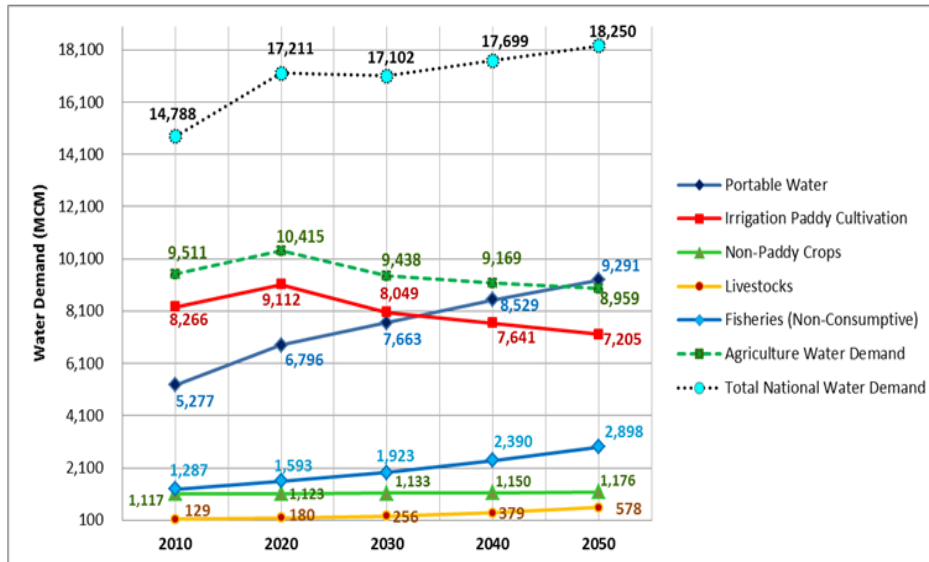
Environment, Economics, Engineering

Delegation – responsibility assignment

Feedback, Financing – data, PPP

Elements of Transformation

State	Unit	Year				
		2010	2020	2030	2040	2050
Total National Water Demand	MCM	14,788	17,211	17,102	17,699	18,250
Portable Water	MCM	5,277	6,796	7,663	8,529	9,291
Irrigation Paddy Cultivation	MCM	8,266	9,112	8,049	7,641	7,205
Non-Paddy Crops	MCM	1,117	1,123	1,133	1,150	1,176
Livestocks	MCM	129	180	256	379	578
Total Agriculture Water Demand	MCM	9,511	10,415	9,438	9,169	8,959
Fisheries (Non- Consumptive)	MCM	1,287	1,593	1,923	2,390	2,898

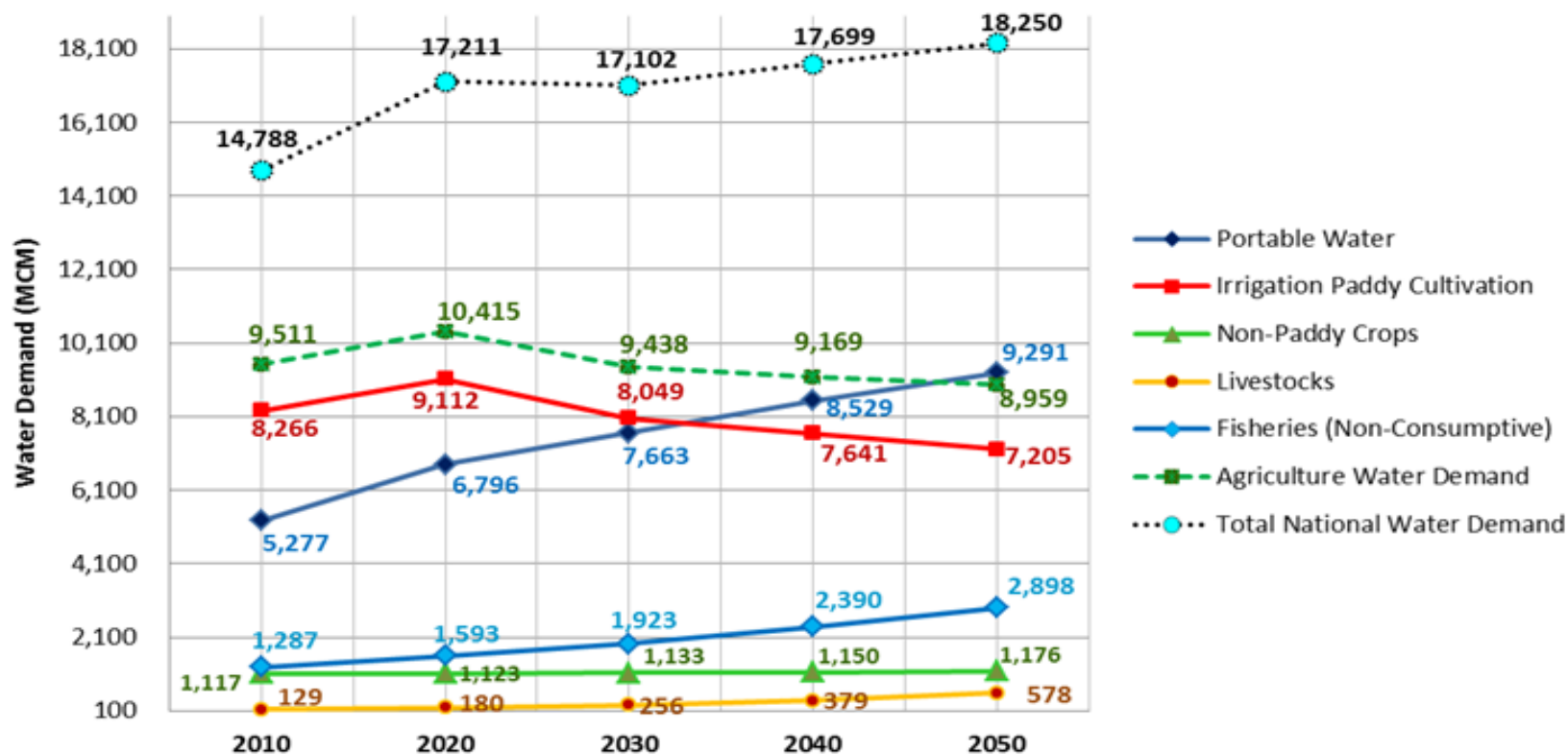


A

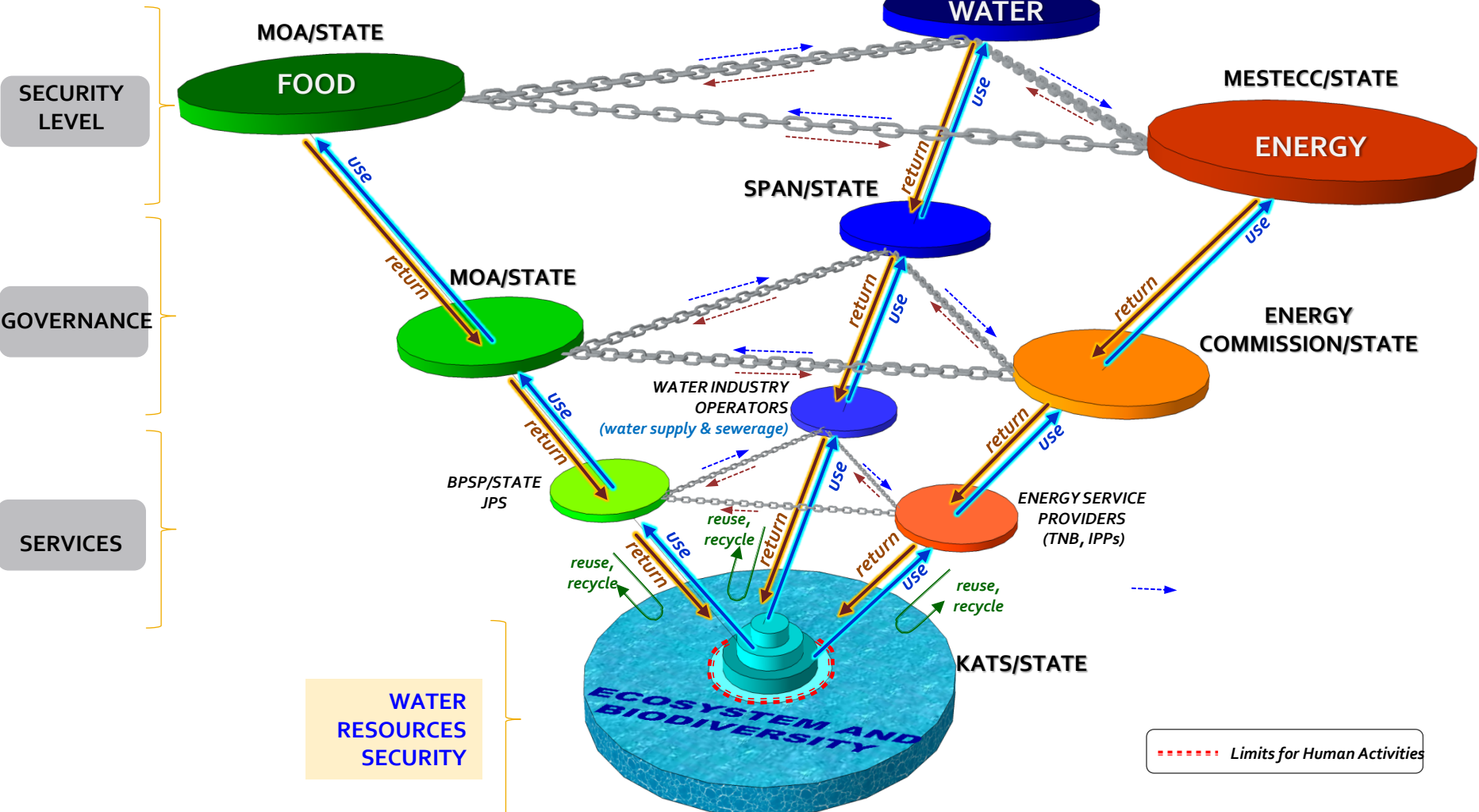
ccounting

- Efforts to increase efficiency?
- Water Accounting and Auditing = Governance
- Need to change from "Supply" to "Demand" Management
- Need a commitment to increase efficiency; reduce losses
- This will relief available freshwater to the Water Supply Sector

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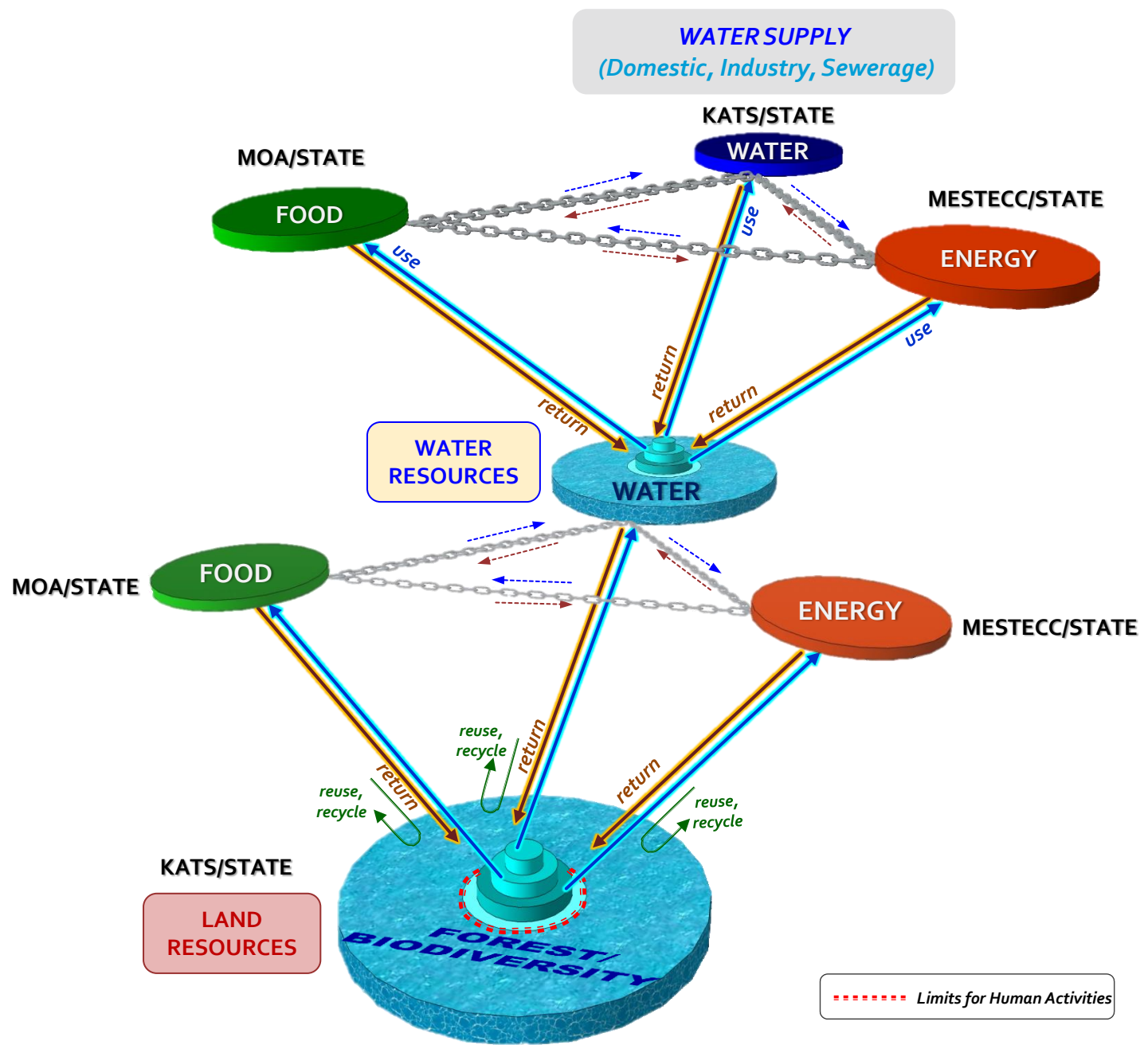
(WATER SUPPLY & SEWERAGE)



WATER-ENERGY-FOOD NEXUS

SECURITY LEVEL

SECURITY LEVEL

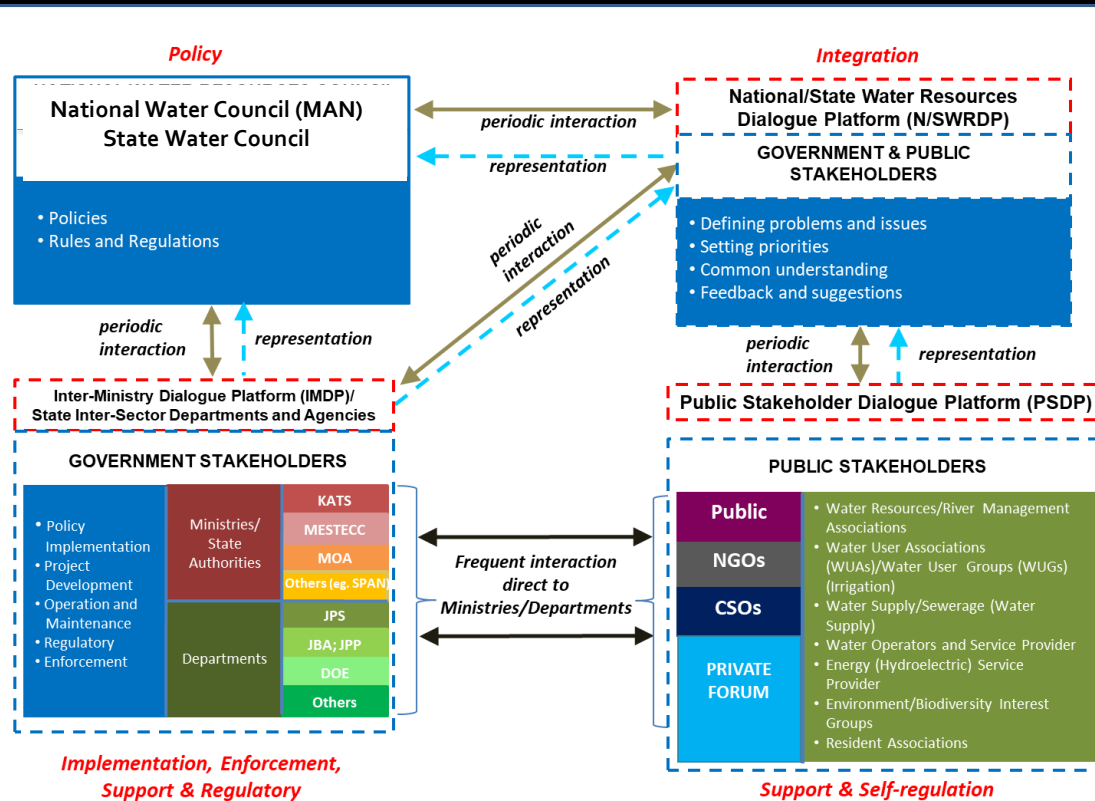


WATER-ENERGY-FOOD NEXUS (Water and Land

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 To develop and manage the WUGs for water management and economic benefits for the farmers



Proposed Institutional Linkages for Public Participation and Communication

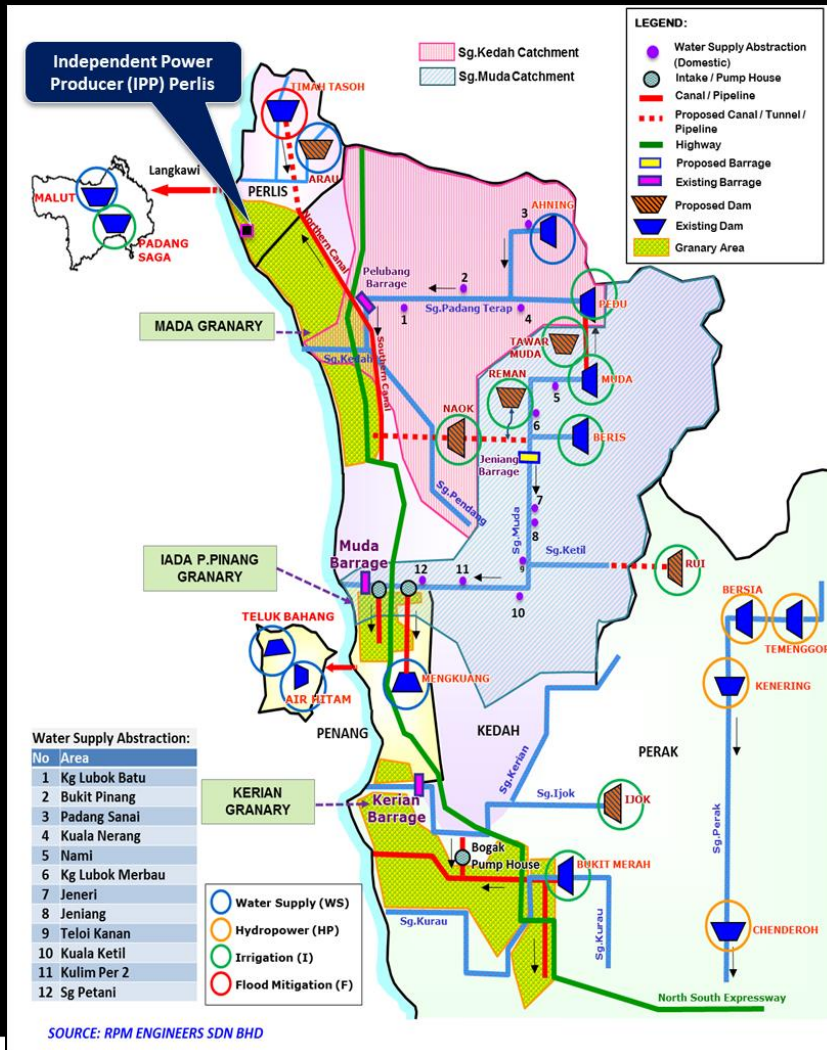
Source: RPM Engineers Sdn Bhd

tor in RMK12

Elements of Transformation

Bargaining

- To develop formal coordination structure to manage sectorial boundary infringements
- Federal-State
- Inter-Sector
- Water Management Model Development (eg NCER)
 - Federal – Developed and Operate System
 - State – Water ownership
 - State-State Water Sharing



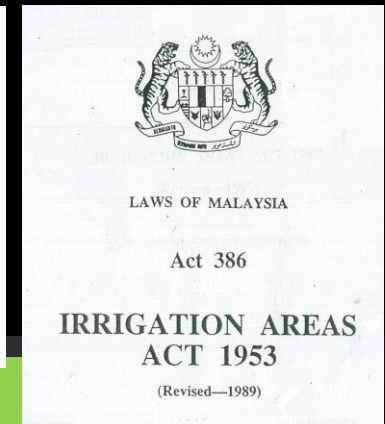
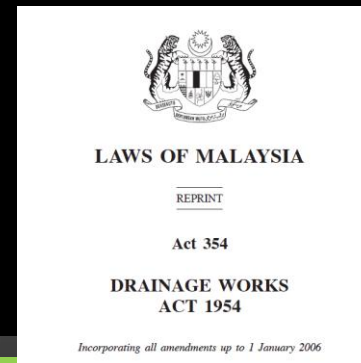
Transforming the Water Sector in RMK12

Elements of Transformation

- The Irrigation and Drainage Acts are very much outdated
- There is no specific written policy for Agriculture Water and Water Services
- Not just for paddy; covers irrigation and drainage (water table management; quality of returned water)
- “Agriculture” cross-cut Ministries
 - MOA – Agriculture for Food (paddy, other crops, aquaculture, livestock)
 - MPI – Primary Industries (oil palm)

Coding

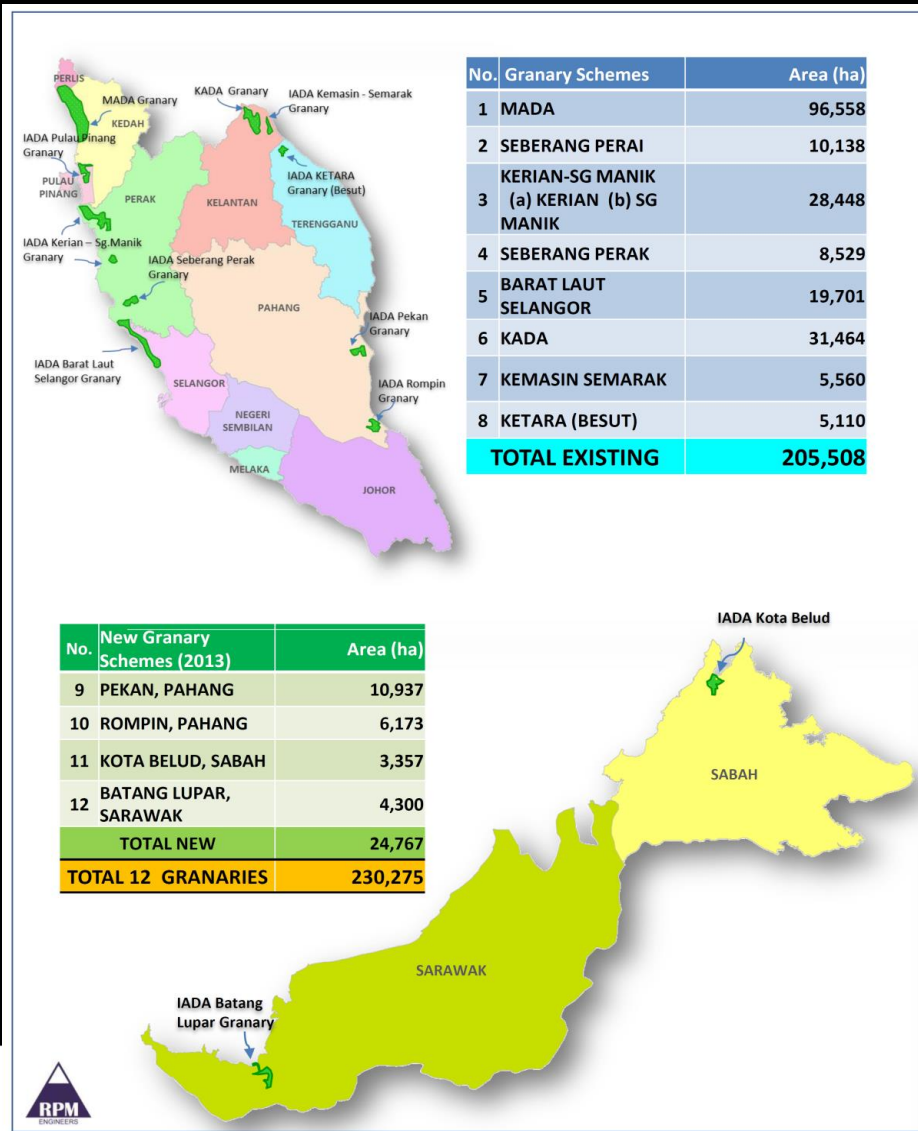
- **Review of Irrigation Act and Drainage Act**
- **Specific written policies on water for agriculture; Agriculture Water Services for Agribusiness – all sectors of Agriculture (Food and Industrial Crops; for irrigation and drainage)**
- **Responsibility for quality of returned water**



Elements of Transformation

Coding

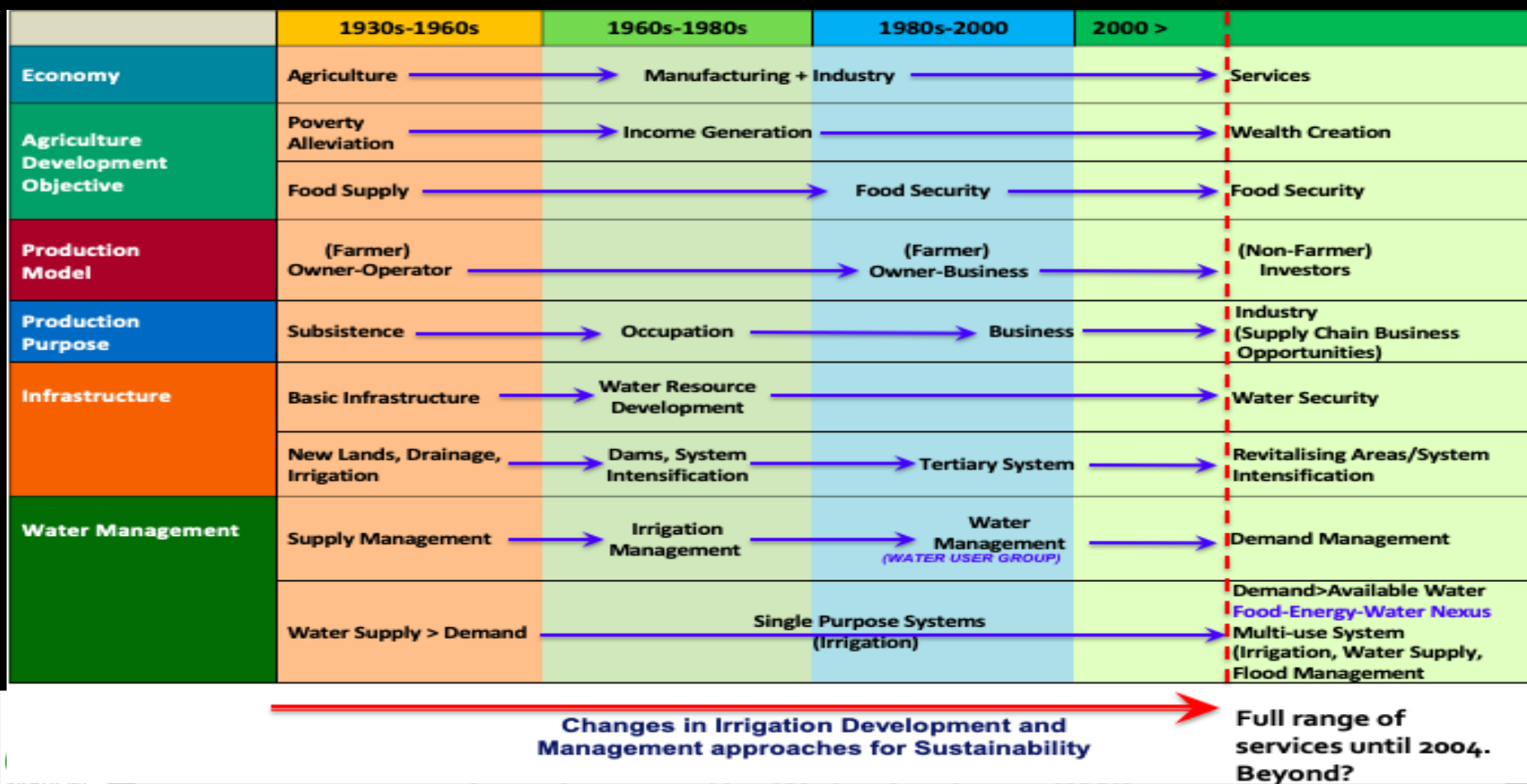
- Extending the concept of “Granaries”
 - To aquaculture, livestock, industrial crops
 - Focused agriculture development
 - Protects investments
 - Allows for long-term growth and business; sustainability opportunities, growth
 - Focused resource management



Elements of Transformation

Delegation

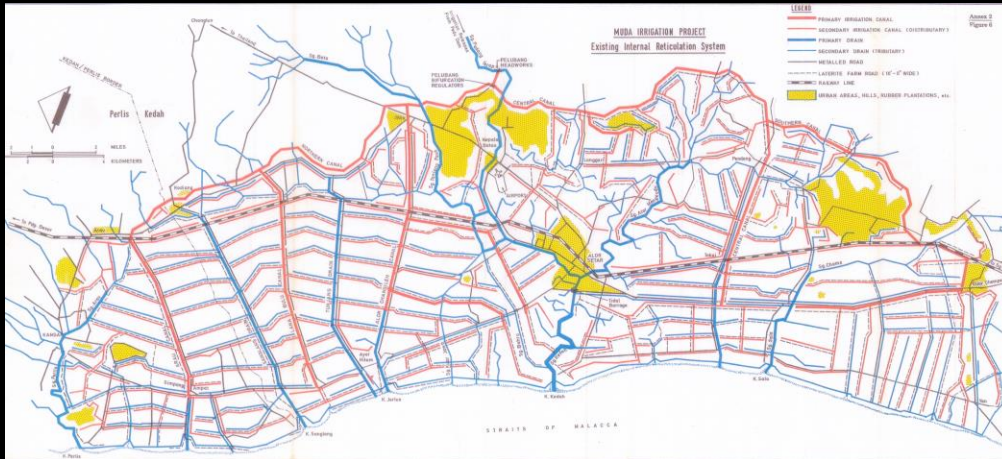
- To form a dedicated organization for Agriculture Water Services for Agriculture Business
 - eg MADA, KADA
 - To provide the full spectrum of Agriculture Water Services



Elements of Transformation

Environment, Economics, Engineering

- Higher sense of responsibility for returned water
- Revised designs Climate Change Proofing
- Designs for multi-use
- 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



Elements of Transformation

Feedback

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

NO	AGENCY	HYDROLOGICAL STATIONS	NOTES
1.	Department of Irrigation and Drainage (DID)		
i.	Rainfall	1,349	
ii.	Streamflow	224	
iii.	Water Level	515	
	<i>Subtotal</i>	2,088	
2.	Department of Environment (DOE)		
i.	Clean Rivers	480	
ii.	Slightly Polluted Rivers	312	
iii.	Polluted Rivers	44	
iv.	Water Intake	55	
	<i>Subtotal</i>	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	

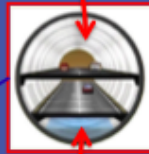
Also systems operated by MADA and KADA and Water Operators

Elements of Transformation



The SMART Tunnel Model

Private Funding



Public Funding

Private Funding PPP

- For Income Generating Components
 - Water Supply Component
 - Energy Generation Component

Public (Government) Funding

- For Social Components
 - Irrigation
 - Flood Management

Term Contracts

- For Transfer Scheme Operations and Maintenance

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



Public-Private Partnerships (PPP) and Participative management in Irrigation

The BRL Group, twofold experience :

- a concession holder and operator of large irrigation schemes in France and abroad,
- an engineering consultancy in charge of project structuring

BRL Group:
irrigation scheme concession holder and operator

- In France, BRL's own experience is based on a PPP agreement. BRL designed and still manages (until 2051) all the infrastructure and facilities in the Languedoc-Roussillon Regional Water System in the frame of a concession agreement: 105 km of canals, 3 dams, 125 pumping stations and 5000 km of buried pressure pipes. The system is now being extended with the Aqua Domitia project (KM200). BRL has already equipped some 120 000 ha for irrigation and has just created 4000 ha of new schemes.
- In Morocco, BRL is a shareholder in AMENSOUSS, the concession grantee in charge of the construction, operation and maintenance (for 30 years) of the Guerdane citrus farming scheme (10 000 ha).
- In Ethiopia, BRL and BRLE have an engineering services management contract placing them in charge of the design, construction supervision and organisation of operation and maintenance and operation (for 6 years) of Megech and Ribb Irrigation Schemes (18 000 ha).

