An aerial photograph showing a wide, winding river with a muddy brown color, meandering through a vast, dense green forest. The river forms several large, rounded loops. The sky above is filled with heavy, grey clouds, and the horizon is visible in the distance.

MAINSTREAMING ENVIRONMENTAL SUSTAINABILITY IN WATER RESOURCES MANAGEMENT

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OUTLINE OF PRESENTATION

- INTRODUCTION
 - ecosystem-water connection
 - environmental sustainability

- REVIEW & OBSERVATION
 - where are we with mainstreaming environmental sustainability in the context of water resources management ?

- MOVING FORWARD
 - recommendations for realising environmentally sustainable water resources management



ECOSYSTEM-WATER CONNECTION

Ecosystem services

Provisioning services, e.g.

- Food
- Freshwater
- Wood and fiber
- Fuel

Cultural services, e.g.

- Aesthetic
- Spiritual
- Educational
- Recreational

Regulatory services, e.g.

- Climate regulation
- Flood regulation
- Disease regulation
- Water purification

Supporting services, e.g.

- Nutrient cycling
- Soil formation
- Primary production

Ecosystem services:

Essentially the benefits we derive from nature / environment:

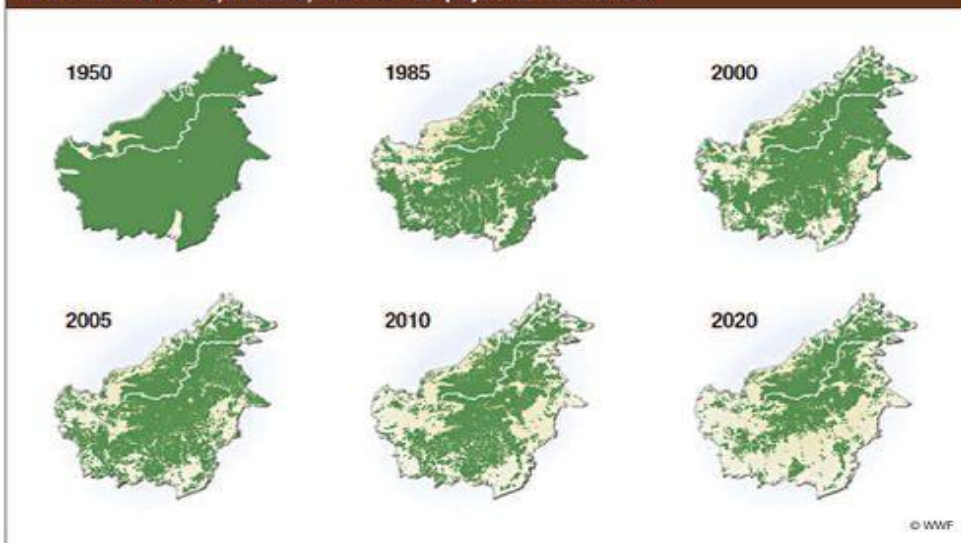
- *Processes by which nature / environment produces resources*
- *Raw materials provided by nature*

Essential inputs to many productive activities e.g. agriculture, forestry, industry, tourism, energy generation, mining etc

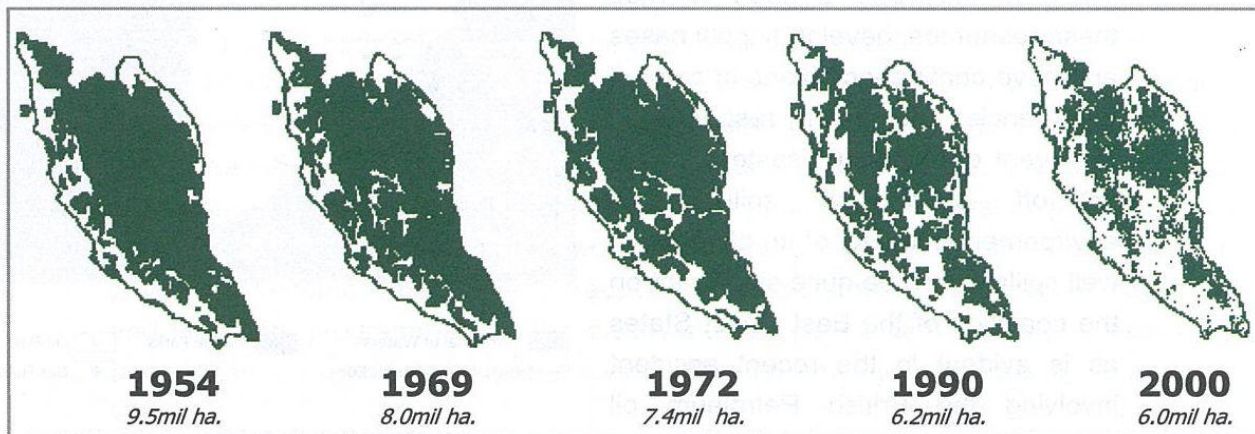
- Maintaining healthy ecosystems helps ensure water availability, water management functions and other ecosystem services
- Water plays a crucial role in the delivery of many ecosystem services
- At the same time, ecosystem also need water for functioning (i.e. ecosystem is also a water user) in order to continue to provide important social, ecological and hydrological functions

ECOSYSTEM-WATER CONNECTION

Deforestation in Borneo, Indonesia, 1950-2005 and projections towards 2020



- Intact and protected catchment areas (under natural forest) vital to safeguard availability of water
- Other benefits: reduced flood risk, degradation of water quality, maintenance of ecosystem services
- Good water infrastructure and services alone cannot guarantee long term water availability



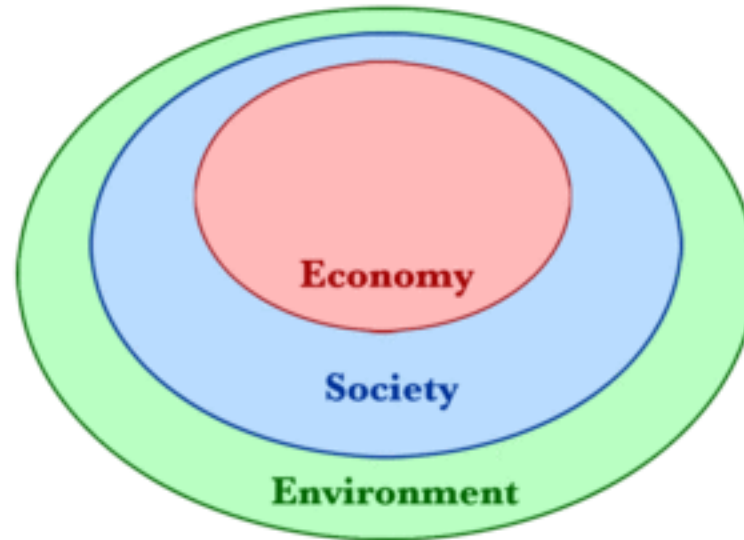
Source : 1954, 1969 & 1972 – Jomo et al. (2004) after Aitken et al. (1982: 161).
1990 – Jomo et al. (2004) after Anon (1992), 2000 – Stibig et al. (2002: 11).

State	Extent of natural forest cover (%) [based on 2009 data]
Melaka	2.99
Pulau Pinang	4.90
Perlis	12.39
Selangor	17.30
Johor	18.82
Negeri Sembilan	23.28
Kedah	35.38
Kelantan	36.90
Pahang	38.80
Terengganu	40.54
Perak	45.01

Forest cover has a strong influence on quantity of water yield and is therefore an important indicator



ENVIRONMENTAL SUSTAINABILITY



- Sustainability is the relationship between environmental, economic and social dimensions.
- Economic and social development and the environment are fundamentally interdependent.
- Both economy and society are constrained by the environmental limits.
- Society is embedded in and cannot survive without a healthy natural environment, and an economy cannot survive without society.



MAINSTREAMING ENVIRONMENTAL SUSTAINABILITY (1)

- Why is there a need to mainstream environmental sustainability?
 - Because maintaining good environmental quality and the integrity of freshwater ecosystems lead towards economic and social wellbeing
- What is meant by mainstreaming environmental sustainability?
 - It means integrating or internalizing goals and actions related to conservation and sustainable use to safeguard water resources (including freshwater ecosystems that provide and sustain water) into the economic and development policies, plans and programmes of all related sectors
 - It is about making environmental sustainability ‘everybody’s business’ – it requires involvement and collaboration of different organisations, groups and the society at large
 - Managing water resources requires multiple stakeholders to conduct diverse management interventions. Mainstreaming is about mobilising the necessary concerted actions according to the priorities of existing policies, plans and programmes



MAINSTREAMING ENVIRONMENTAL SUSTAINABILITY (2)

NATIONAL WATER RESOURCES POLICY (NWRP)

- Policy statement:
 - The security and sustainability of water resources shall be made a national priority to ensure adequate and safe water for all, through sustainable use, conservation and effective management of water resources enabled by a mechanism of shared partnership involving all stakeholders
- Policy objectives:
 - Protecting the integrity of the environment, ecosystems and natural heritage
 - Setting out the means and measures for the adoption of water resources conservation plans at multiple scales to complement and strengthen existing land resources, physical and other related development plans
- Of the four guiding tenets:
 - *Water for the environment* – protection of the water environment to preserve water resources (surface and groundwater) and natural flow regimes, biodiversity and cultural heritage along with mitigation of water related hazards
- Of the three policy principles:
 - *Water resources sustainability* – recognising water resources are the catalyst for environmental wellbeing and national development, and therefore should be sustained for present and future uses



MAINSTREAMING ENVIRONMENTAL SUSTAINABILITY (3)

- Of the four core areas:
 - Water resources sustainability – comprising 6 targets, 8 strategies, 18 strategic action plans
 - Partnerships and Capacity building and Awareness – complementary core areas under the NWRP
 - The strategic action plans are complementing the goals of 13 existing national policies

GOVERNMENT TRANSFORMATION PROGRAMME (GTP)

- The GTP is the overall engine of change supported by the NKRA (National Key Results Area) that correlates to a priority area for change that is deemed to have the greatest impact on the rakyat
- Of the 7 existing NKRAs, there is none dedicated to environmental sustainability that relates to water resources



MOVING FORWARD

- There is already on-going transformation of environmental planning and management from a largely sector-based to an integrated approach. The mainstreaming process will further support the transformation.
- There is already recognition that healthy ecosystems are the underlying basis for sustainable water resources and need to internalize environmental sustainability goals– as reflected in the NWRP (at the policy level) but may not be the case across the other key national policies
- Equally important for effective and meaningful mainstreaming is in ensuring the translation of the policy into actions / implementation (i.e. programmatic and operational level) – the political will and availability of suitable mechanisms
- Need for a shared perception of the issues, priorities and suitable actions as well as active and active participation of all stakeholders
- Key pre-requisites to achieve mainstreaming:
 - good governance in decision making and in the implementation of the decisions
 - access / availability and sharing of information and resources
 - awareness and knowledge
 - existence of institutional capacity
 - collaborative effort – need to be extended beyond formal institutions (i.e. government); private sector and society too has a role to play



MOVING FORWARD

- Need for changes in how we perceive and manage river basins – to ensure water for ecosystems, and ecosystems for water
 - when planning land and water development, important to value ecosystem services to avoid un-intended tradeoffs that may be detrimental to long term water security
 - e.g. assessing water requirements (environmental flows) and when making allocation decisions , ecosystem must be viewed as a water user
- At the river basin scale, conducting water accounting to determine where and how water resources in a basin is being used – to provide knowledge and opportunity for better allocation of water to different users including the ecosystem and improve management arrangement to resolve conflicts between competing users and planning for development in the basin

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Thank you

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