Lesson 3: Integration – what does it mean?

1. There is no simple “recipe”or computer software program that ensures that a good IWRM plan is produced in all circumstances.

Each IWRM plan will be different, depending upon local factors and conditions. A "one size fits all" solution will probably not work

2. “Integration” means different things to different people

There is “technical integration” where scientific descriptions of the environment being studied are reported in a compatible manner. Each report should be useful to the other groups involved.

There is “procedural integration” where an agreed set of protocols is used for all the aspects of the IWRM to try to make all the information accessible in a standard or known format.

There is “imposed integration” where one or a few agencies drive the process and define the scope, methods, format and reporting of the various aspects of the study.

There is “reporting integration” where the various aspects are summarized, analyzed and reported by an appointed group or unit (and they integrate the various aspects).

3. Relevant, affordable, and accessible information exchange is the key starting point for integration activities.

- **Relevant information is appropriate to the tasks, has been tested, is reliable and is of sufficiently high quality.**
- **Affordable and accessible information encompasses not only the cost of the data and information but also refers to the means and processes that the users already have to fully use such information.**
- **New systems and software should not be required unless absolutely necessary. It should also be in a format that can be used (or should be capable of easy transformation to a usable format).**
- **Equitable information access is also critical; users should not be discriminated against because of geography (distance), gender, economic, cultural or social issues**

There is a set of recurring conditions or decisions that are associated with successful IWRM projects. Not all successful projects have all of these conditions, but many of them are shared by many successful projects.

They are:

- **All participants agree to and share a common set of goals for the study area. These are defined in advance and modified as required.**
- **Information and data are accessible and provided to all participants.**
- **There is a well-understood "core" of basic information, shared by all, about all aspects of the study area.**

- Capacity building is targeted towards ensuring that all participants share a common set of basic knowledge, data and capabilities, especially in areas where they are not specialists.
- Genuine participatory decision making is the rule, not the exception.
- Conflict resolution procedures are available and used.
- Reporting is a collaborative process.
- Management and implementation are also collaborative.

Need for Integration-------

Referring to *Webster's Dictionary*,

The need for integration arises when we deal with a situation of a "regularly interacting or interdependent group of items forming a unified whole".

Integration, then, is the "art and sciences" of blending these items into a whole.

Definition of IWRM

IWRM deals with…problems that cut across elements of hydrologic cycle, that transcend the boundaries among water, land and environment, and that interrelate water with broader policy questions associated with regional economic development and environmental management (Mitchell, 1990)

IWRM is a framework for planning, organizing and controlling water systems to balance all relevant views and goals of stakeholders (Grigg,1999)

Integration Categories

- **Natural System**

  Water quantity (space and time variability) and quality
- **Human System**

  Water use, waste generation, water pollution, and water development

Natural System Integration

Freshwater	←→	**Coastal water**
Land	←→	**Water**
Green water	←→	**Blue water**
Surface water	←→	**Groundwater**
Quantity	←→	**Quality**
Upstream	←→	**Downstream**

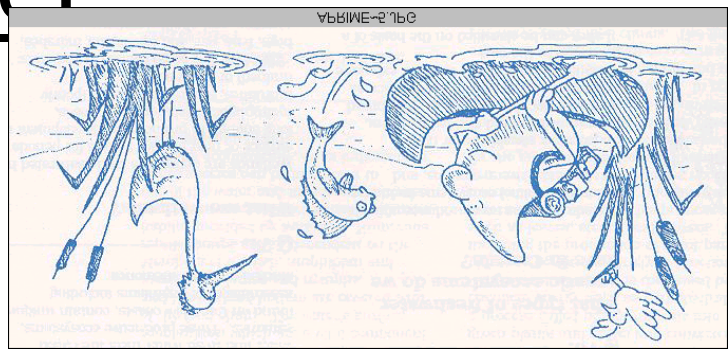
Human System Integration

- **Sectoral integration in WR planning, development and management**
- **Integration of water policy in national economic and social policy and development plans**
- **Integration of all stakeholders in planning and decision making process**

Human System Integration

- **Integration of water and wastewater management**
- **Integration of policy, legal and institutions for water development**
- **Integration of donors**

Functions of Water



Habitat Function

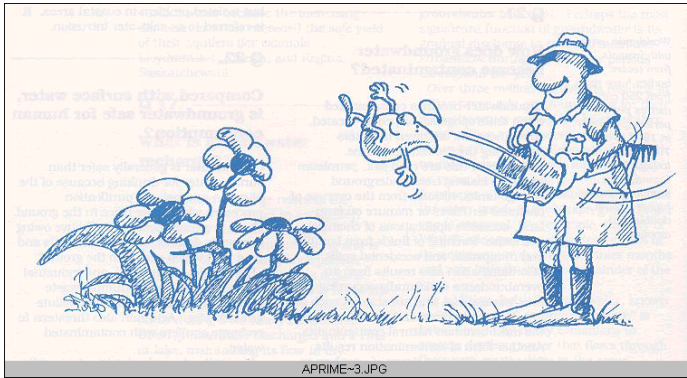
Carrier Function

Health Function

Societal

Biomass Production (green water)

Production Function



Production (blue water)

Shift of Thinking

Status Quo	Needs
Fragmentation	Integration
Single-risk assessments	Multiple-risk assessments
Avoidance of controversial issues	Engaging in controversial issues
Conflicts	Prioritization
Deterioration	Continuation

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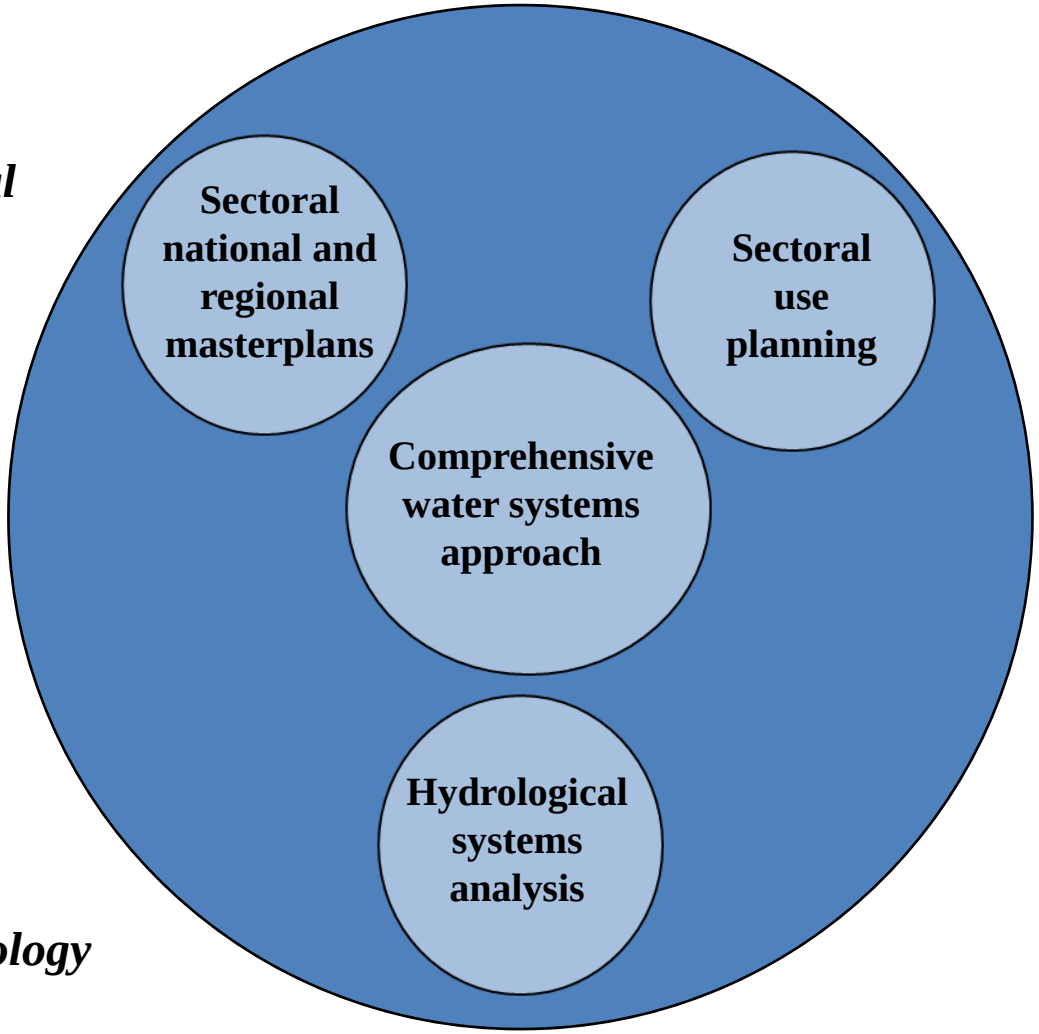
Comprehensive approach in water resources management



International relations

Legal structures

Psychology

Economy

technology

Ecology

Structure of administration

Sociology

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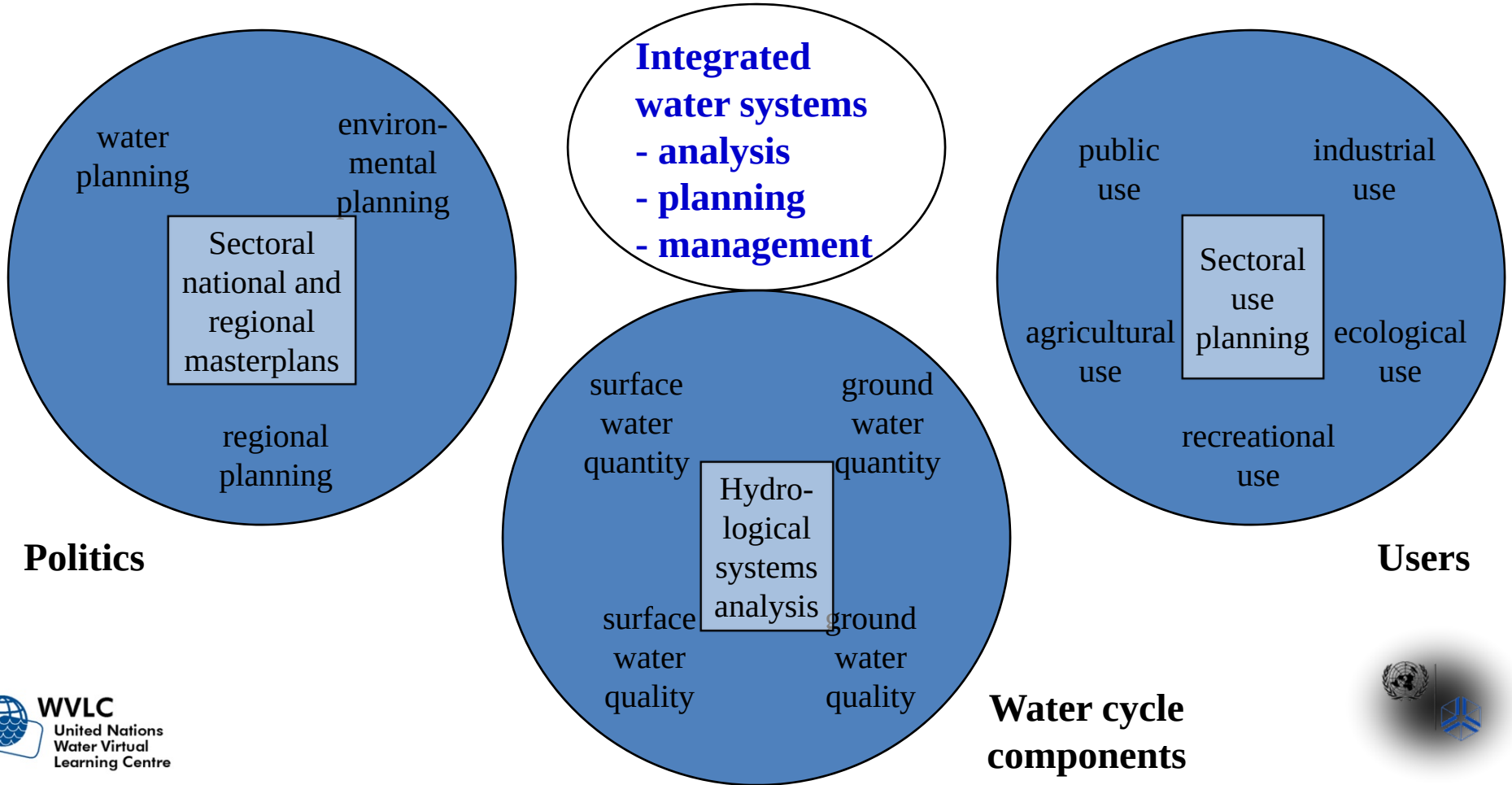
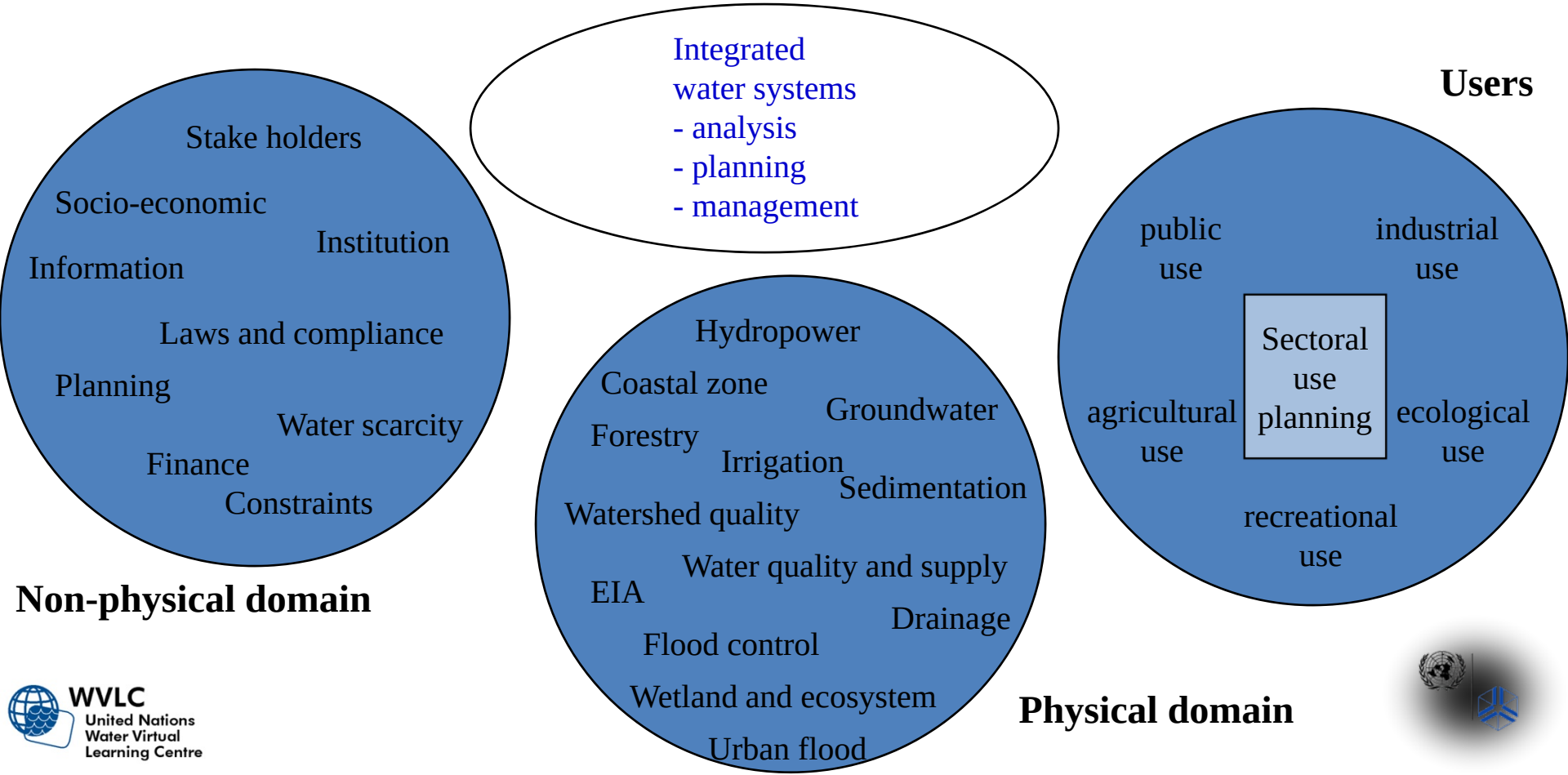
Integrated approach in the analysis, planning and management of water systems



Course layout for Comprehensive Water Resources Management



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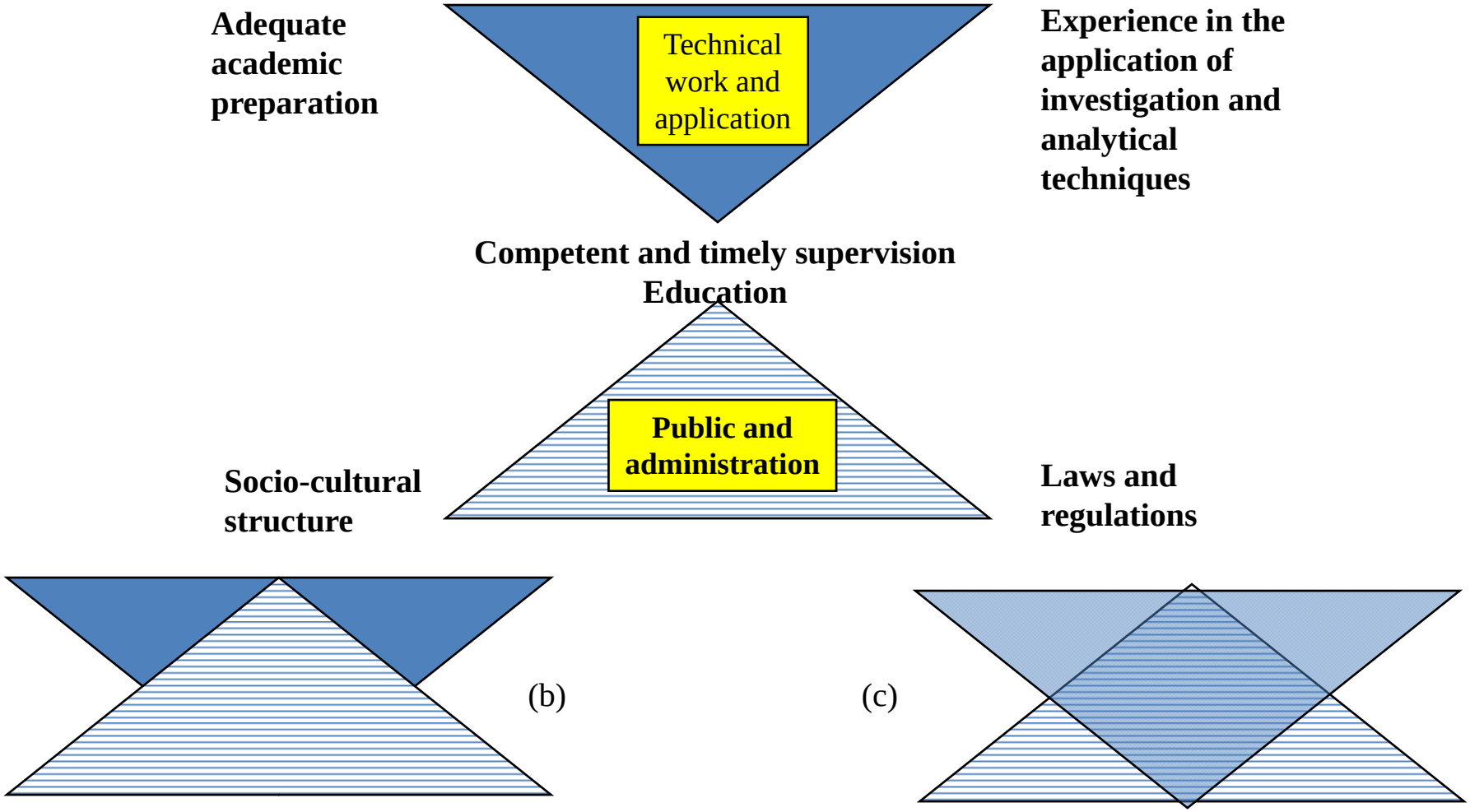
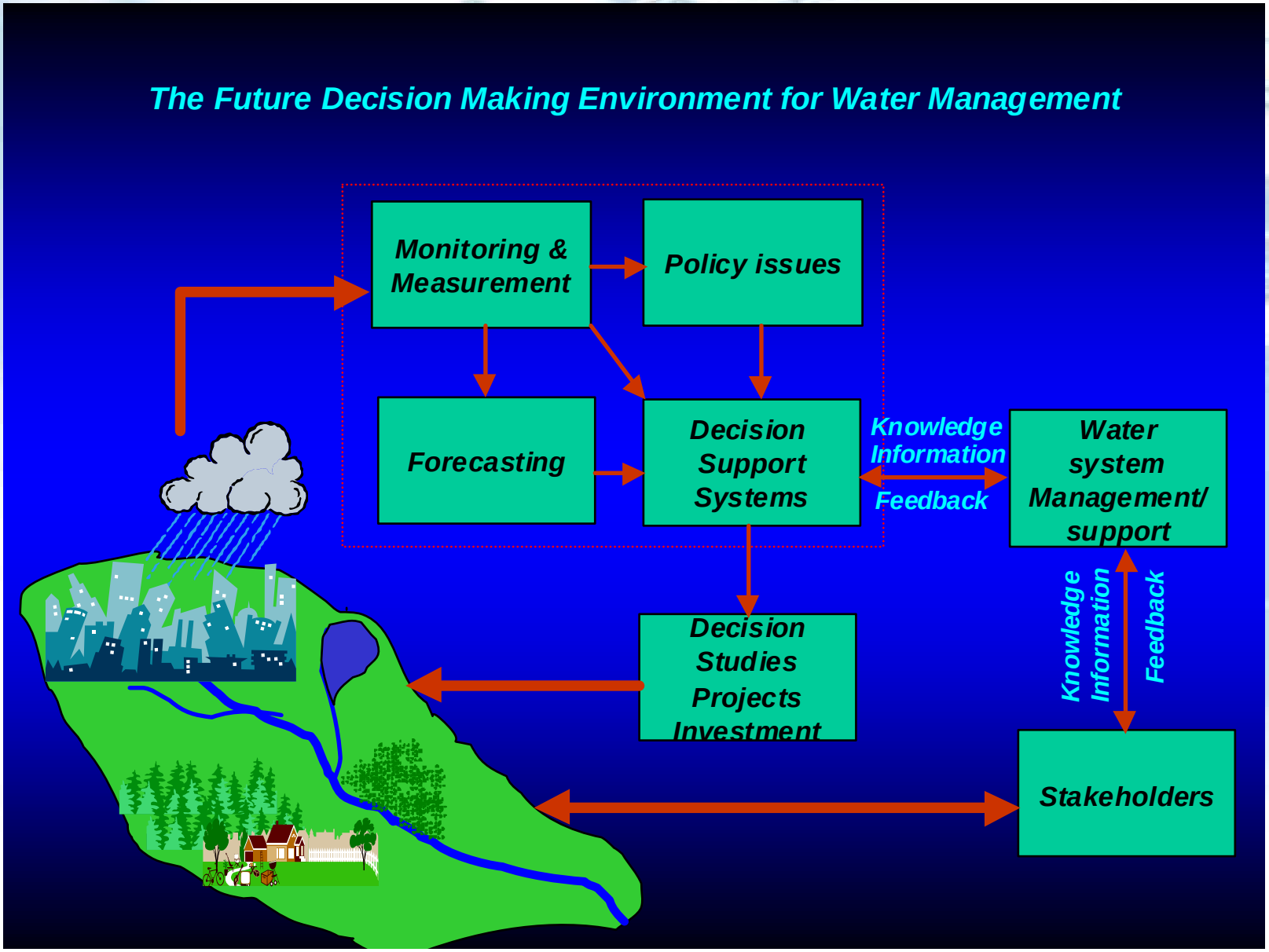


Effectiveness of measures (technical and administrative) according to their share in the decision-making process : (a) technical works dominant over the others: not sufficiently effective; (b) administrative decision dominant over technical works; not sufficiently effective; © administrators and technical personnel enrolled: most efficient application


The Future Decision Making Environment for Water Management
Monitoring & Measurement
Policy issues
Forecasting
Decision Support Systems
Knowledge Information
Feedback
Water system Management/ support
Knowledge Information
Feedback
Decision Studies Projects Investment
Stakeholders

IWRM Principles

Principle 1: Water as a Finite and Vulnerable Resource

- **A holistic approach**
- **Resource yield has natural limit**
- **Effects of human activities**
- **Upstream-downstream user relation**
- **A holistic institutional approach**

IWRM Principles (2)

Principle 2: Participatory Approach

- **Real participation**
- **Participation is more than consultation**
- **Achieving consensus**
- **Creating participatory mechanism and capacity**
- **The lowest appropriate level**

IWRM Principles (3)

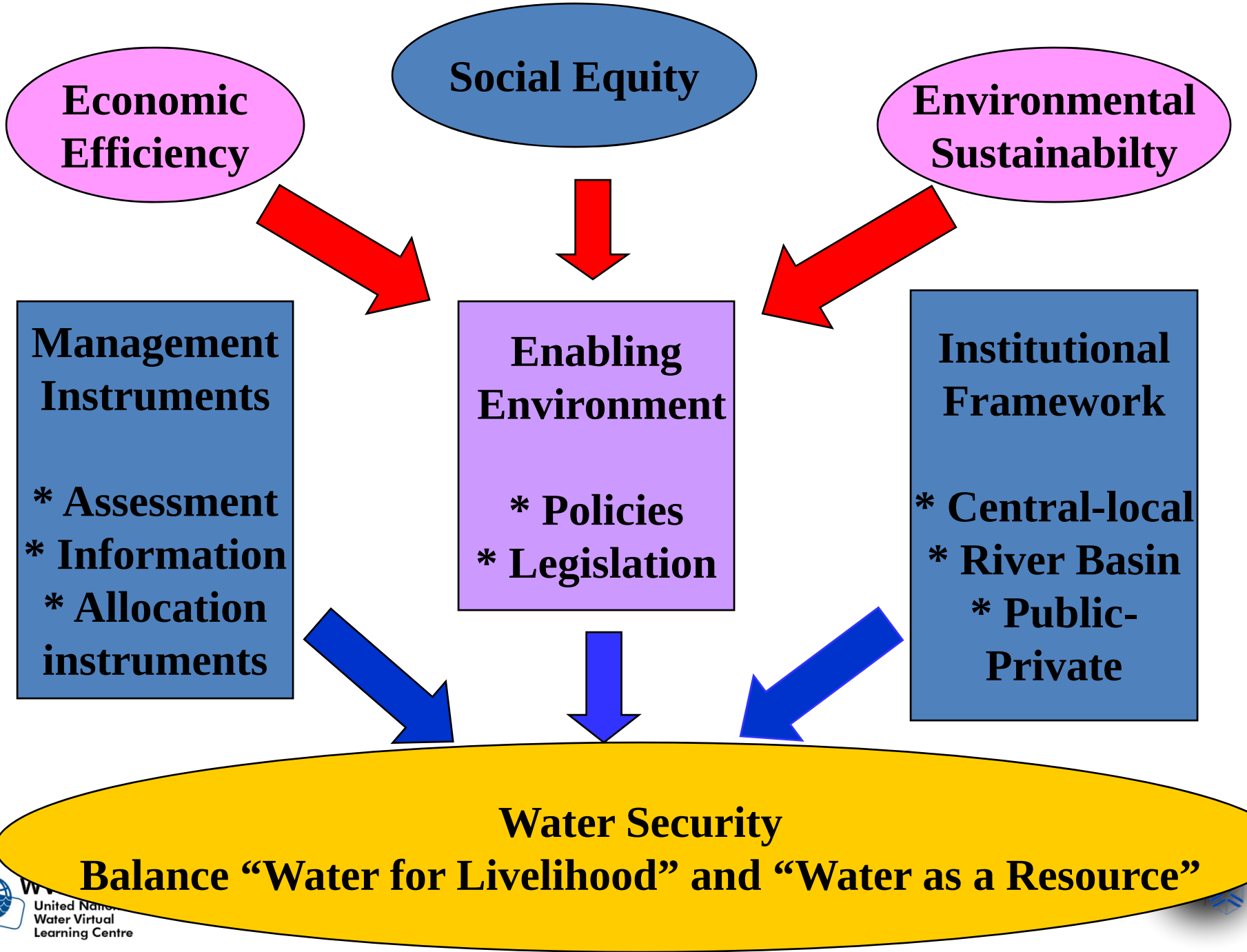
Principle 3: The Important Role of Women

- Involvement of women in decision-making
- Women as water users
- IWRM requires gender awareness

IWRM Principles (4)

Principle 4: Water as an Economic Good

- Water has a value as an economic good
- Useful water value and cost concepts
- The goal of full cost recovery
- Managing demand through economic instruments
- Financial self-sufficiency versus water as a social good

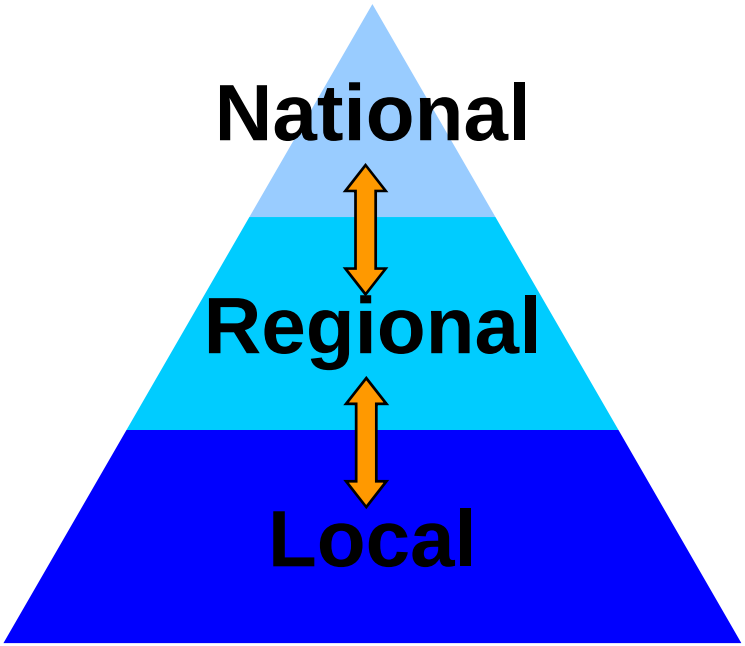

Economic Efficiency
Social Equity
Environmental Sustainabilty
Management Instruments
* Assessment
* Information
* Allocation instruments
Enabling Environment
* Policies
* Legislation
Institutional Framework
* Central-local
* River Basin
* Public-Private
Water Security
Balance "Water for Livelihood" and "Water as a Resource"

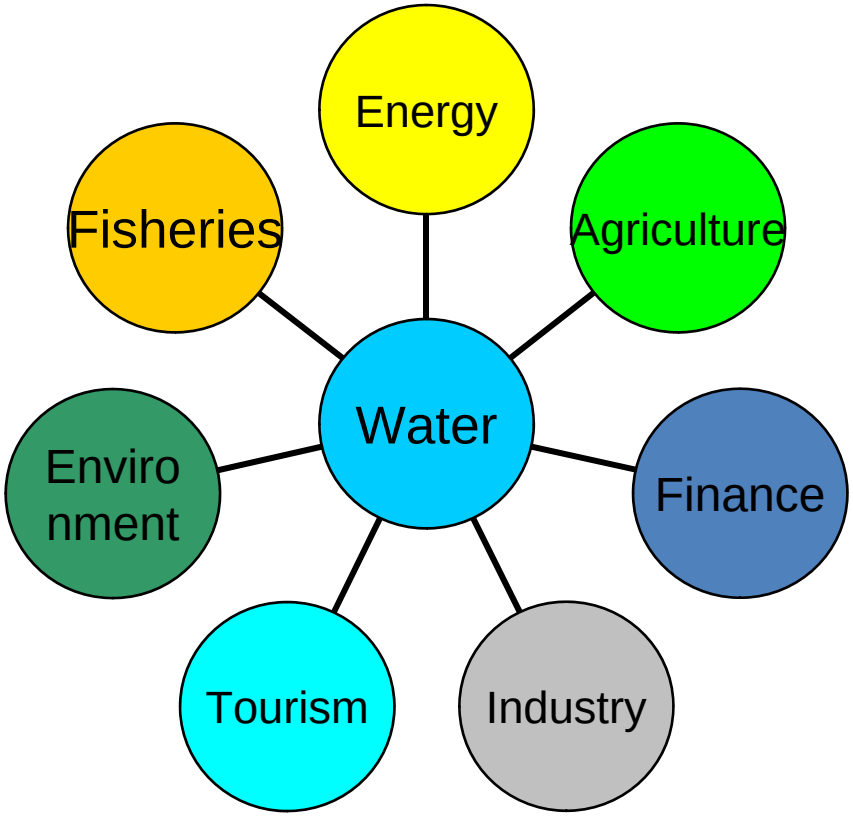
Definition of IWRM (GWP-TAC, 2000)

A process that promotes the coordinated development and management of water, land and related resources to maximize resultant economic and social welfare in an equitable manner without compromising the sustainability of the vital ecosystems

To conclude

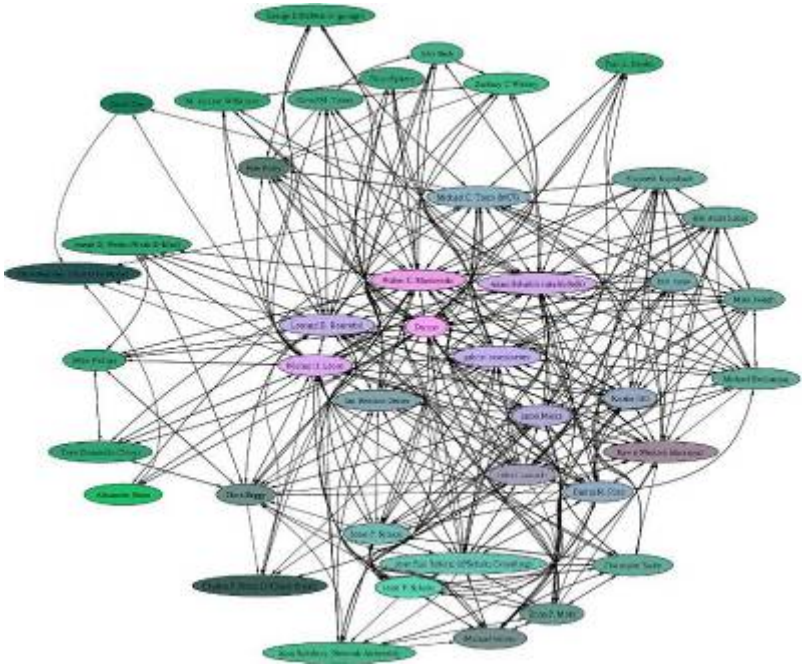
The basics of integration



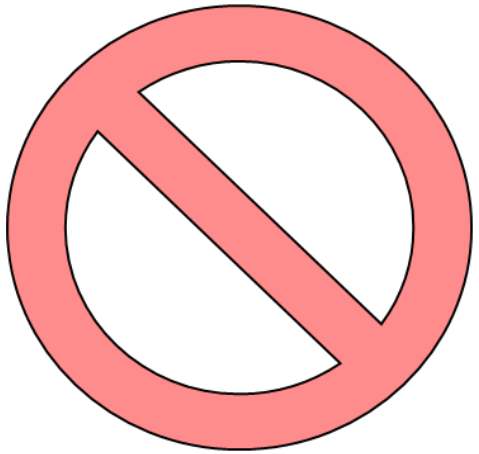


Misconceptions

IWRM demands wholesale integration.



Sectoral decision-making should be abandoned entirely.



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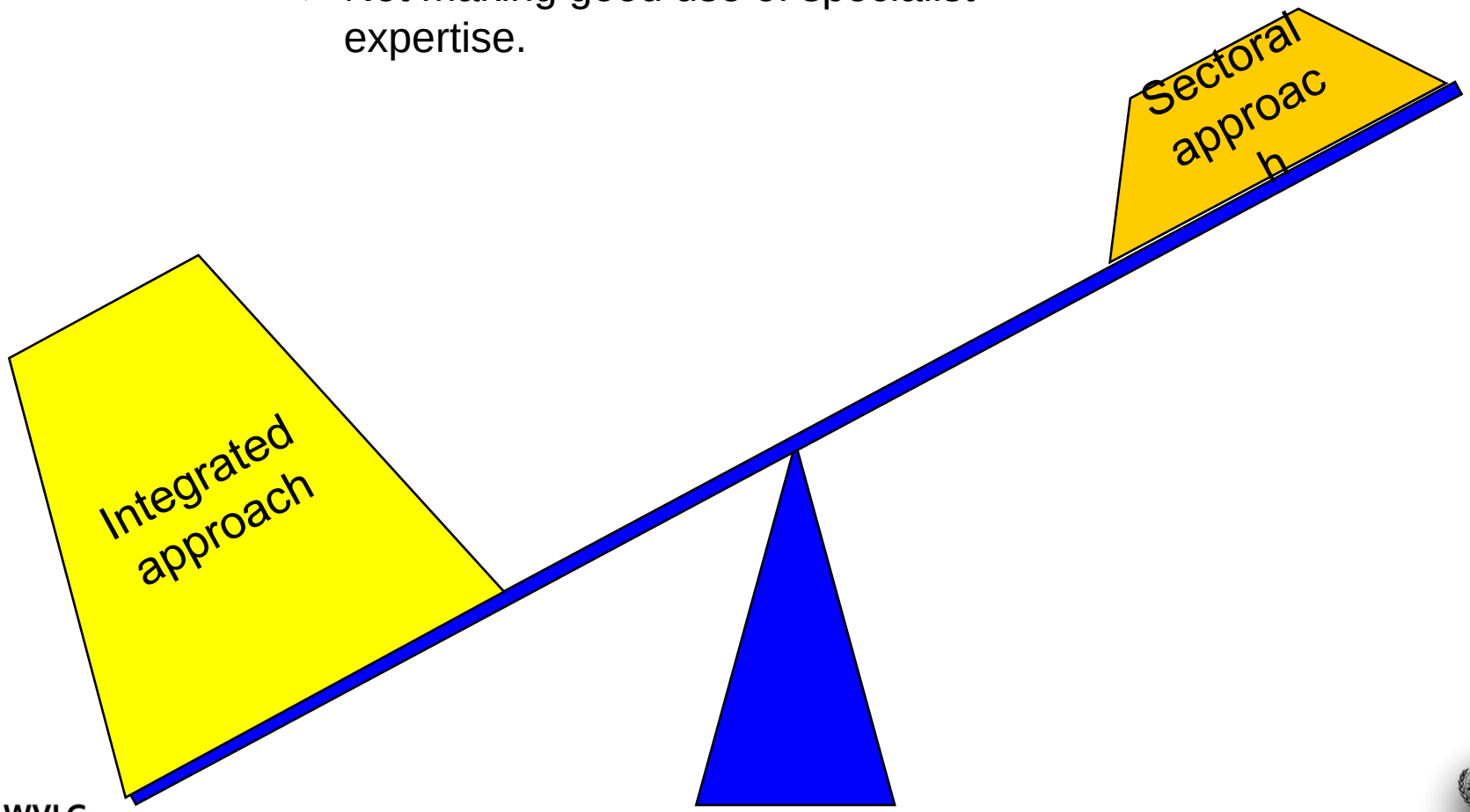
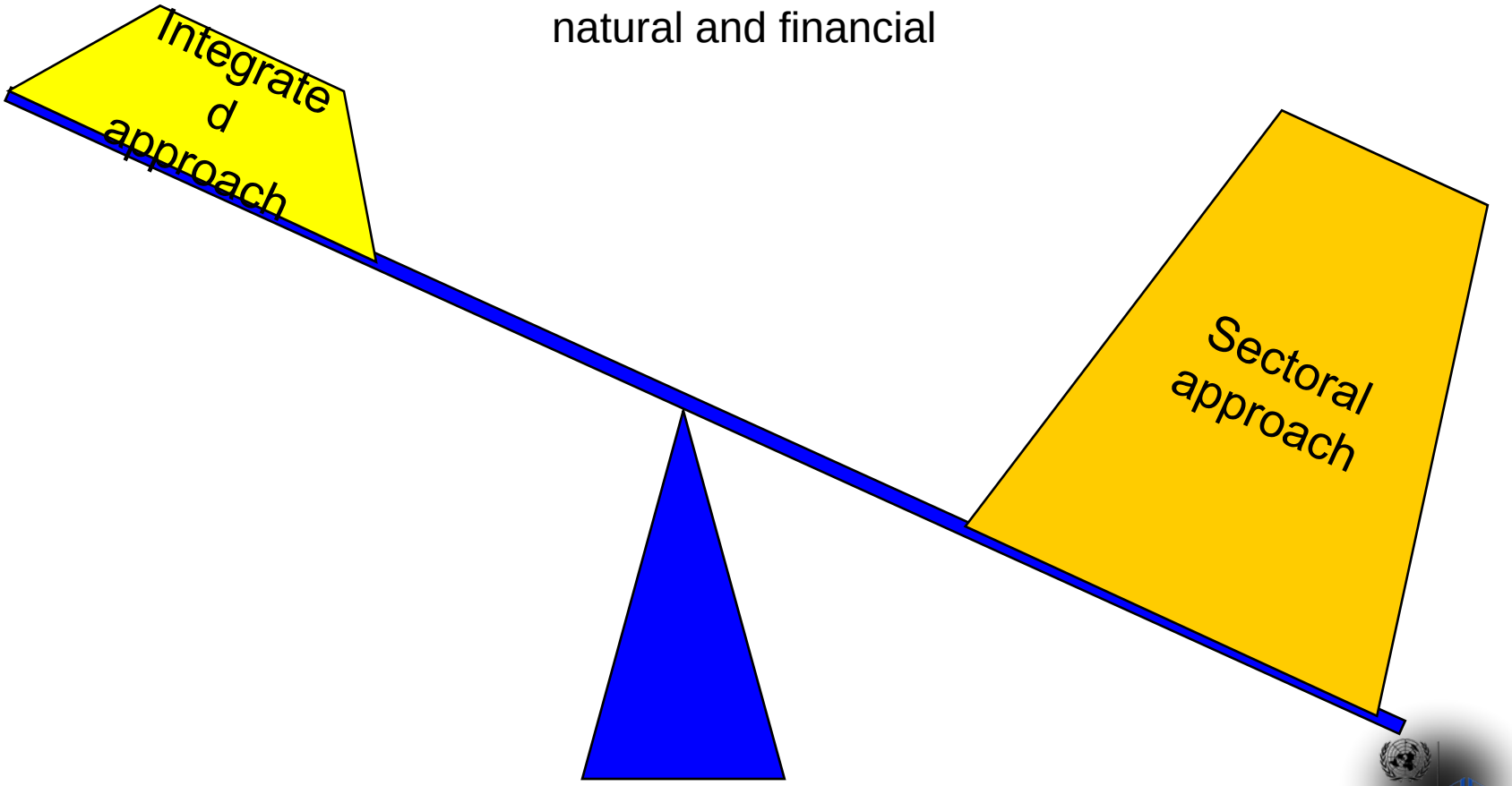
Risks of fully integrated approach

- Getting mired in complexity.
- Not making good use of specialist expertise.



Risks of fully sectoral approach

- Overlooking negative impacts on environment and other sectors
- Inefficient use of resources—natural and financial



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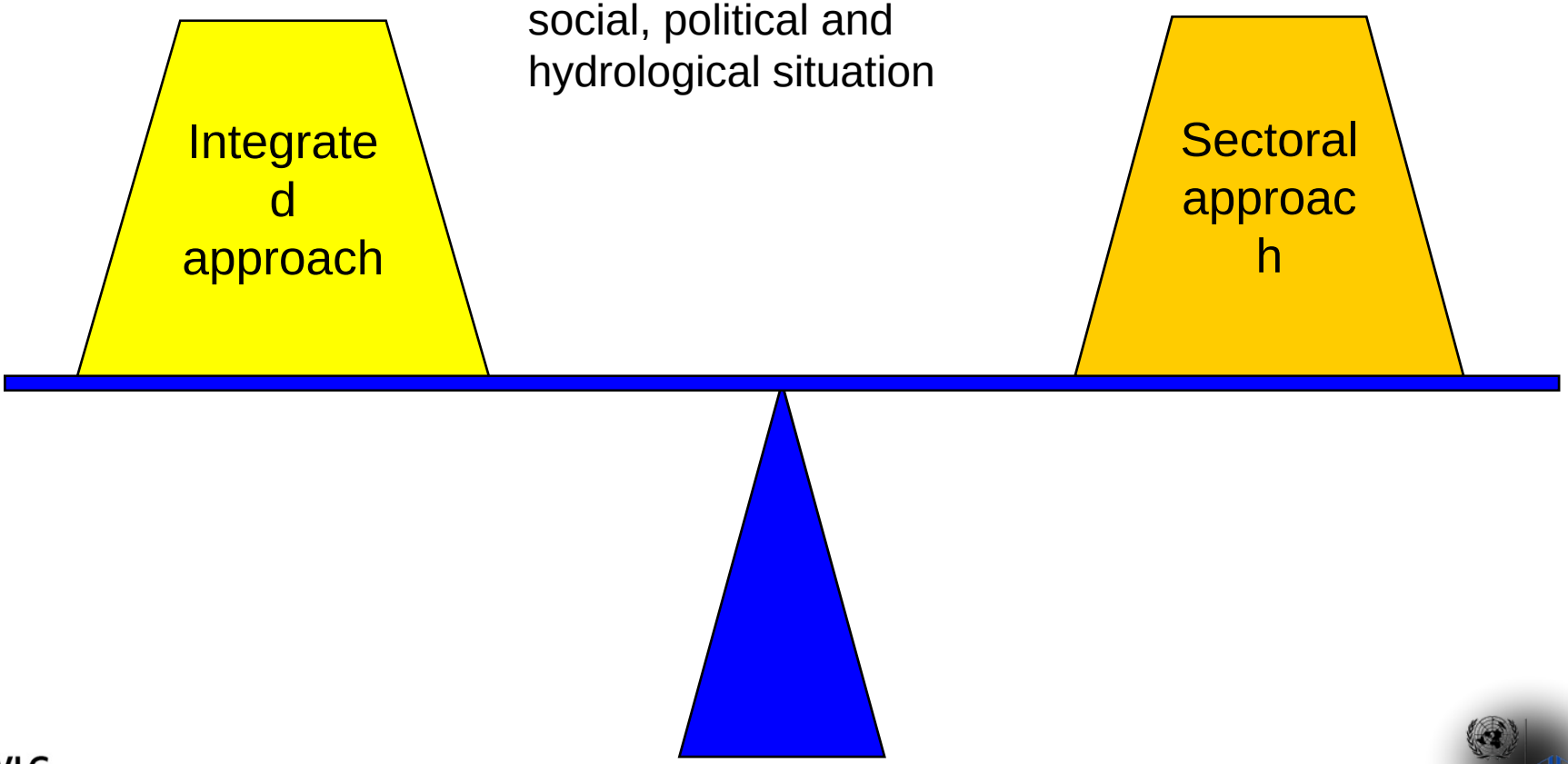
Finding a balance

Each country needs to decide where integration makes sense based on its social, political and hydrological situation



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