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5th Annual Sustainable Development Summit (ISDS)**

The Future of Sustainable Development: Linking Education Science Policy and Society

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Education

Science

International Policy Arena

**Environmental and
related Conventions**

**UN System and
Regional Environmental
Programmes**

**Multiscale
International-National-Local
Policy Implementation**

Policy

Society

- What are the interactions between education, science and environmental policy for sustainable development?
- What is the role of high education and science in the environmental multiscale policy implementation?
- The case of biodiversity: policy framework, institutional chain, the Convention on Biological Diversity
- International University Network on Cultural and Biological Diversity (IUNCBD): methodology, mission, strategy and the *IUNCBD Biodiversity 2020 Action Plan*

The Challenges of our Planet: Policy-Management Implementation

"If we measured the world's response to environmental challenges solely by the number of treaties and agreements that have been adopted, then the situation looks impressive. Over 500 international environmental agreements have been concluded since 1972 (...) Yet despite the impressive number of legal texts and many good intentions, real progress in solving the environmental challenges themselves has been much less comprehensive,"

Achim Steiner
**United Nations Under-Secretary-General and Executive
Director, United Nations Environment Programme**
**("Measuring Progress: Environmental Goals &
Gaps", UNEP, 2012)**

“The international social world”

**Specialized
Law-making
and Institutions**



**Specialized
Law-making
and Institutions**

*“Ignorance” and “Conflicts
between rule-systems”*

Governance ?

Implementation ?

The International Law Commission, UN Doc.A/CND.4/L.682

“The fragmentation of the international social world has attained legal significance especially as it has been accompanied by the emergence of specialized rules or rules-complexes, legal institutions or spheres of legal practices..... The problem is that such specialized law-making and institutions building tends to take place with the relative ignorance of the legislative and institutional activities in the adjoining fields The result is conflicts between rules and rule-systems, deviating institutional practices and, possibly, the loss of an overall perspective of law.”

Advanced Perspectives:
the Outcomes of the Rio+20 Conference

Green Economy

**Institutional
Framework
for Sustainable
Development**

?

**How to implement Rio+20?
What Methodology ?**

*From Stockholm Declaration to Rio 92, IPBES and the
Rio+20 Conference on Sustainable Development*



Advanced Perspectives

**How to design and implement the Post2015 SDG ?
What Methodology ?**

PROPOSAL OF THE OPEN WORKING GROUP (July 2014) FOR SUSTAINABLE DEVELOPMENT GOALS FOR THE POST2015 DEVELOPMENT AGENDA

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

4.7 by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development



After years of debate we can explore innovative perspectives to revitalize and operationalize the discourse on sustainable development – the need of:

- a methodology and strategy to transform theories in actions
- a theory for the implementation of public choices: international conventions and multiscale regional/national policy measures

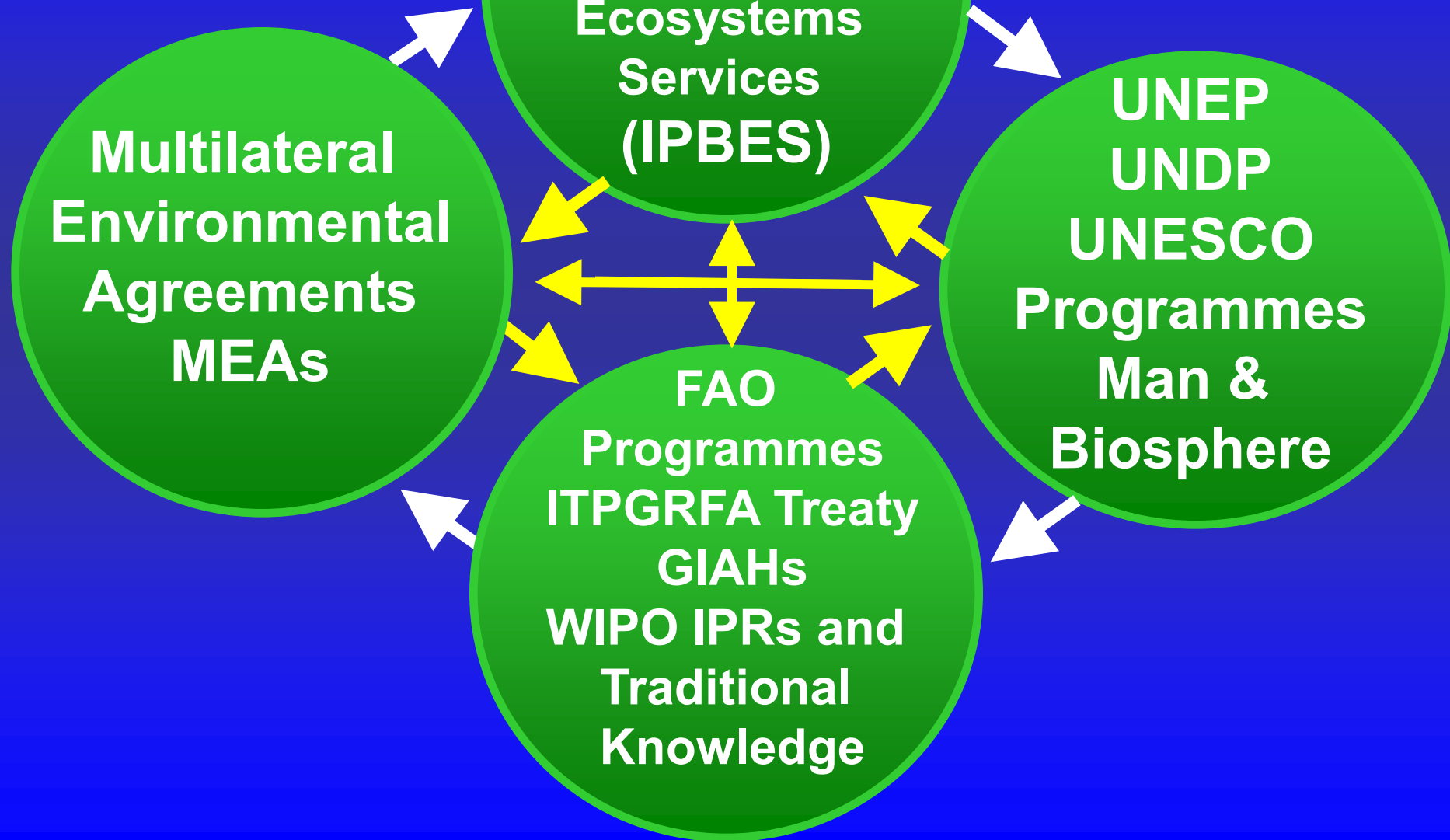


Applying institutional studies to the educational sector:

- institutional sustainability
- network economies and economies of scope, intersectorial integration
- the role of universities as institutional social drivers for sustainable development

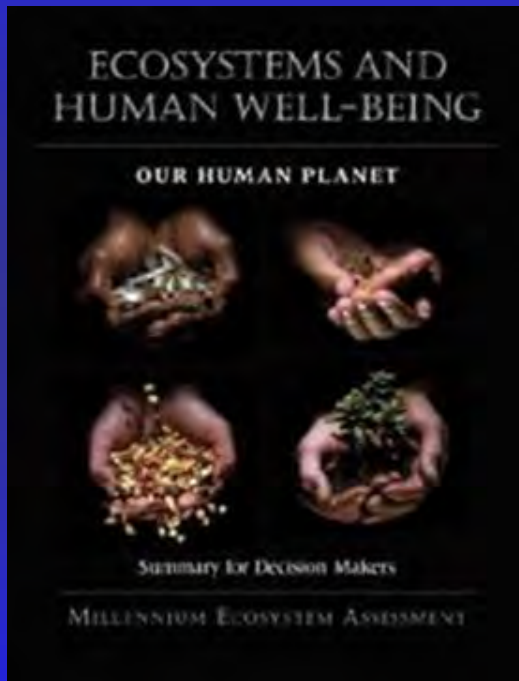
**The value chain of
Cultural &
Biological
Diversity**

**The need of
an integrated policy**



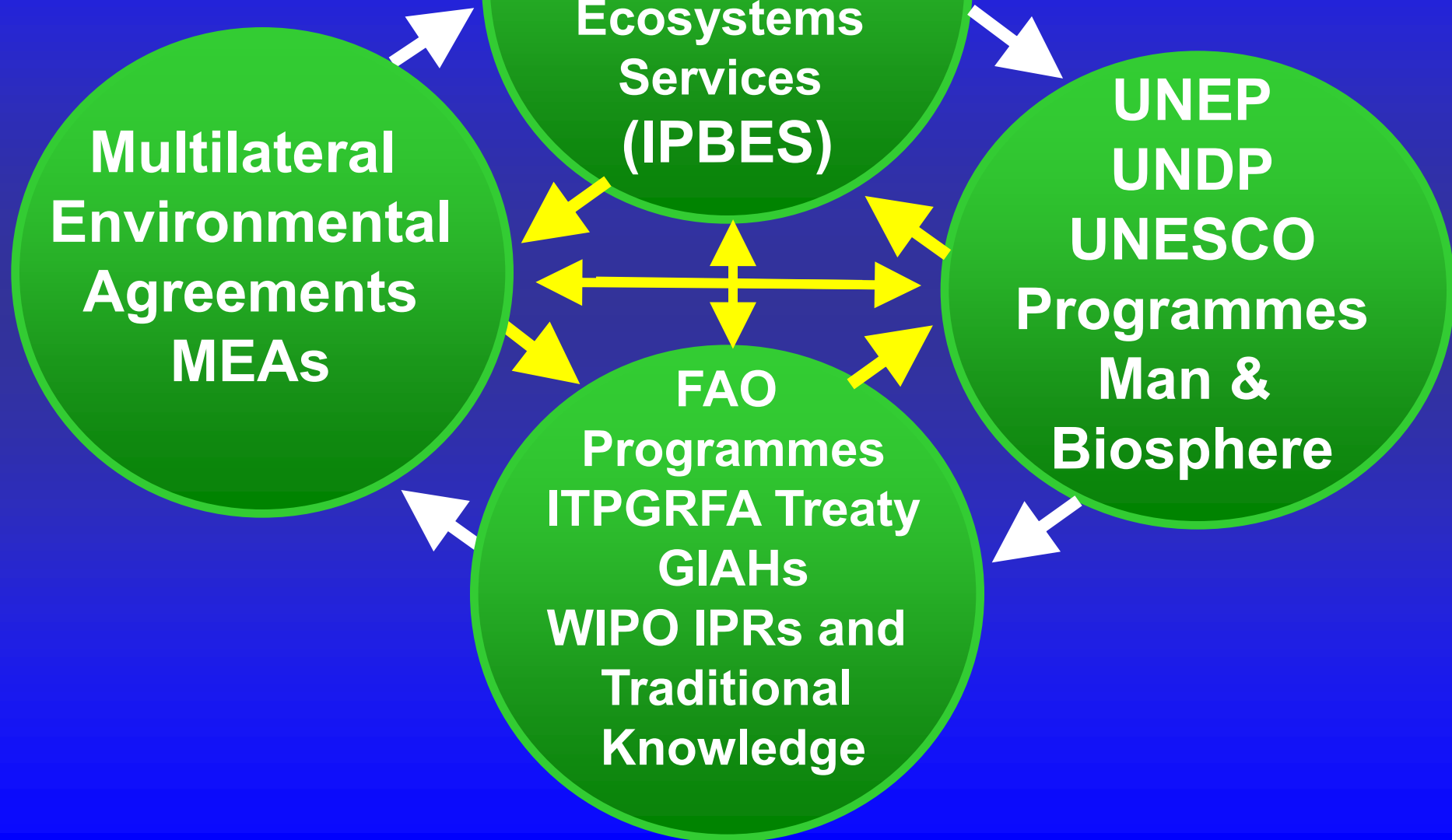
IPBES: a breakthrough in Science and Knowledge Systems

- “Multidisciplinarity” connotes an approach that crosses many disciplinary boundaries, knowledge systems and approaches to create a holistic approach, focusing on complex problems which require expertise across two or more disciplines. Multidisciplinarity arises when scientists (including natural and social scientists), policy and technical experts, natural resource managers, other relevant knowledge holders and users, interact in an open discussion and dialogue giving consideration to each perspective.



**The value chain of
Cultural &
Biological
Diversity**

**The need of
an integrated policy**



MEAs, complex interconnections and cross-disciplinary complexity: Science, Policy and Society

Environmental Conservation Sustainable Development

- Environmental economic and institutional sustainability
- Cultural identity
- Governance
- Poverty eradication
- Livelihood
- Green Economy
- Conservation and promotion of local natural resources
- Technology Transfer
- Scientific Development
- Institutional Capacity Building
- Multiscale Policy Implementation
- Local Management

**Entry-point: biodiversity,
cultural diversity**

What theoretical approach and methodology ?

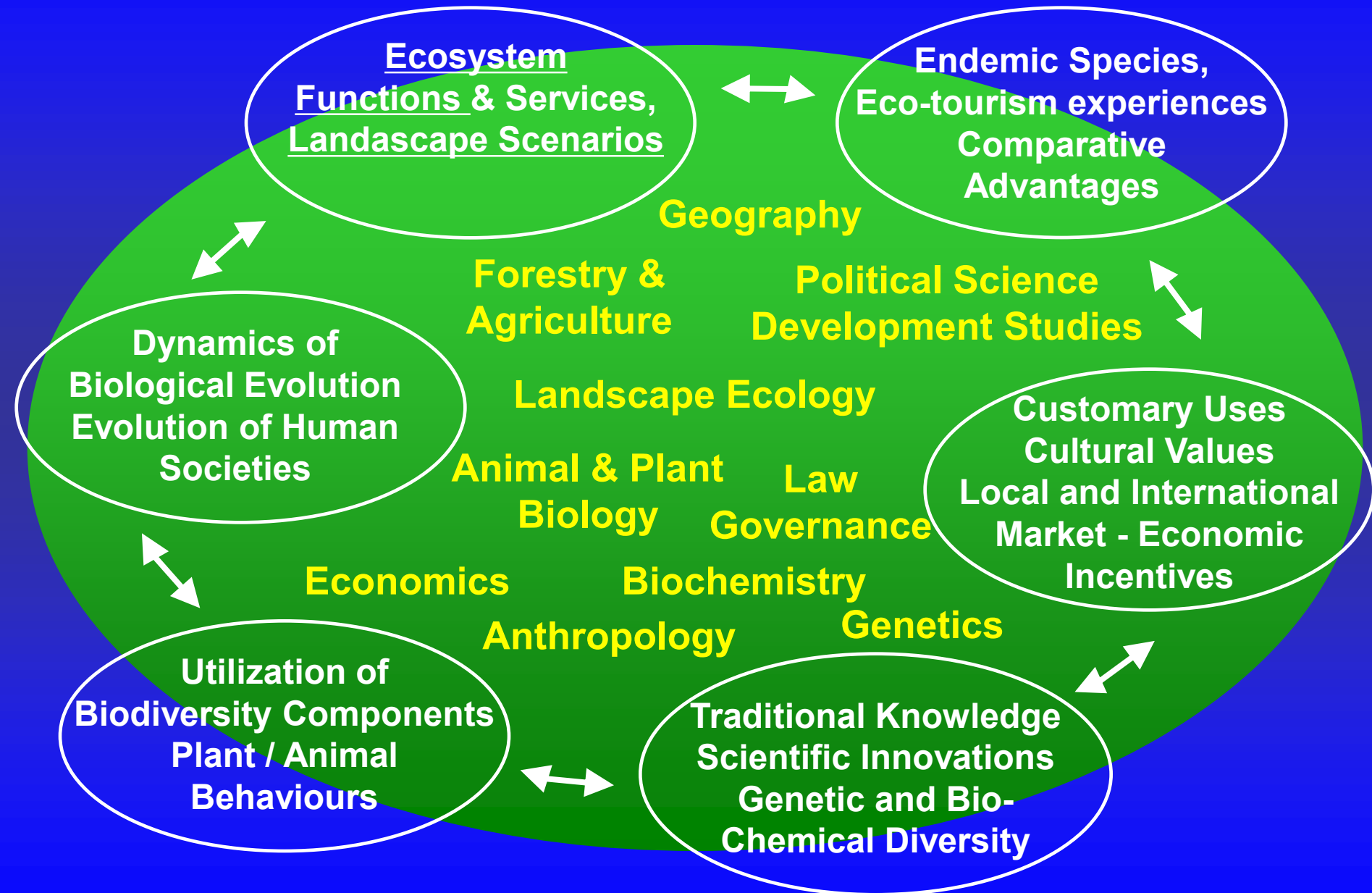
The need of a system of studies

Sistematising complexity:
science, policy, society

What are the public choices ?

The international
policy arena

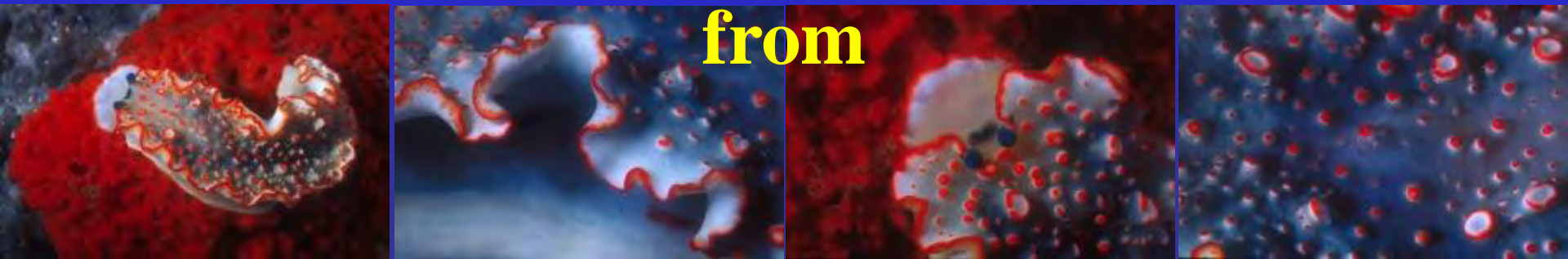
Biological Cultural Diversity: an educational cross-disciplinary journey opened to society



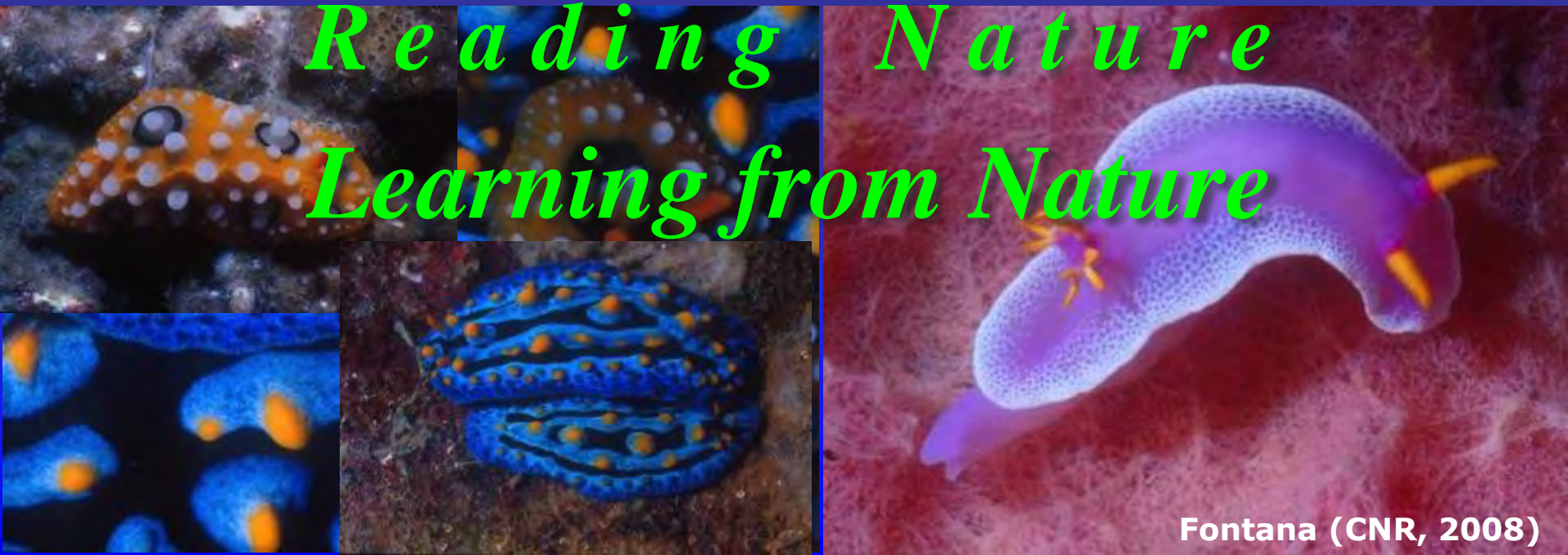


How to select promising natural sources ?

In natural science the learning processes start
from



Reading Nature
Learning from Nature





Learning
from
People

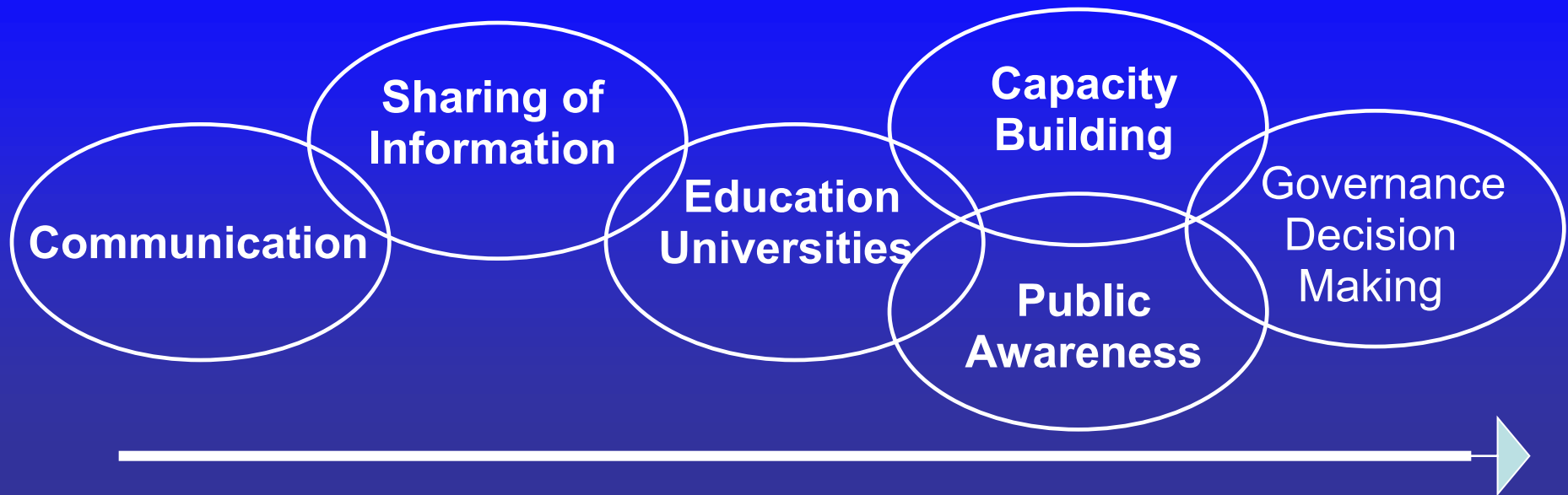
Biodiversity education is a learning process that integrates natural science, social science and society

Learning
with
People



Learning
for
People

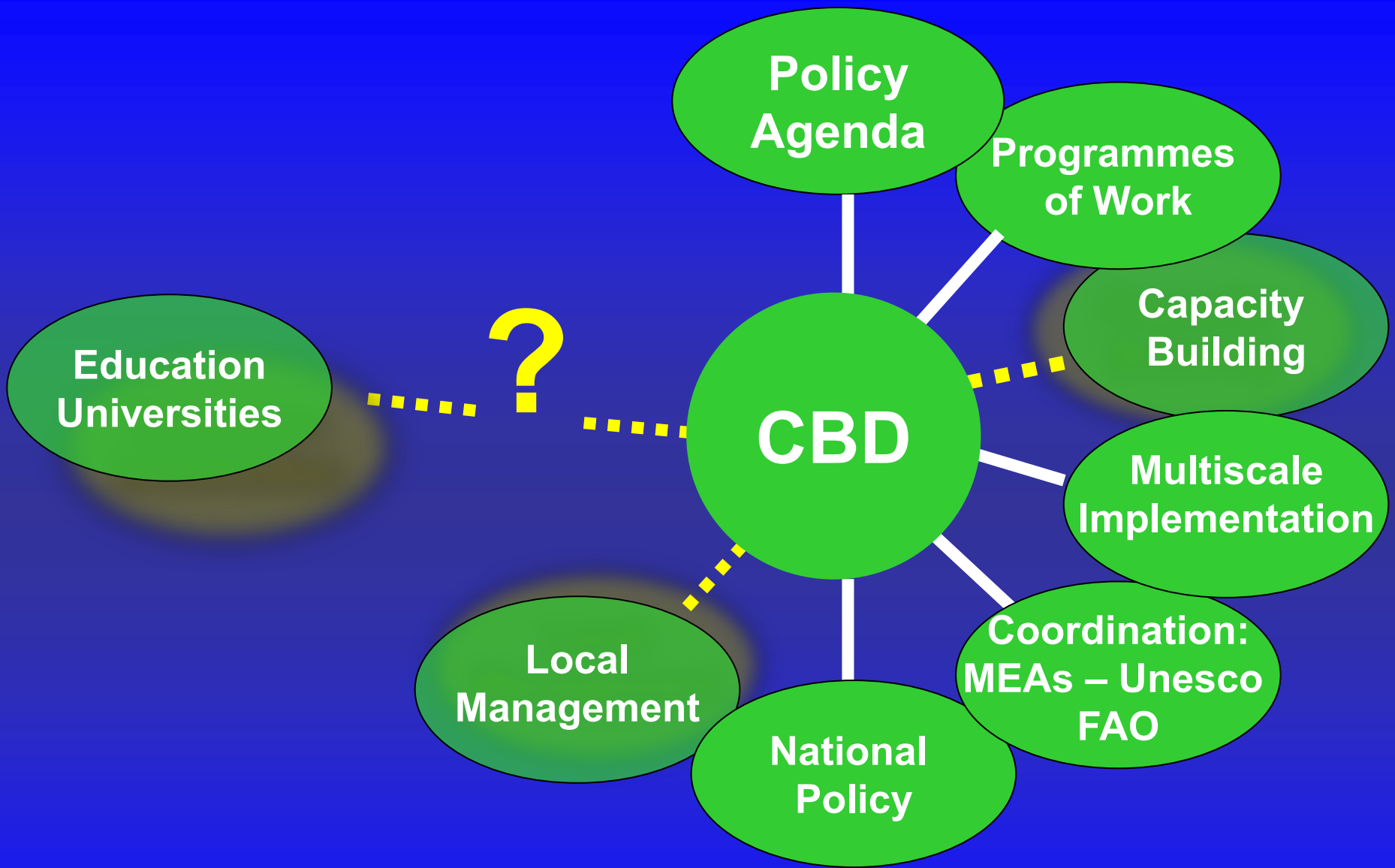
The Value Chain of the CBD Implementation



Who are the actors of this long term process?

Education is a fundamental element in the value chain of the CBD implementation. Universities are the only institutions: (1) time by time present at local level, (2) with a long lasting and very appropriate mission – education and research (3) with the largest and most suitable human resources and target – researchers, teachers, students, young people who represent the future of a country.

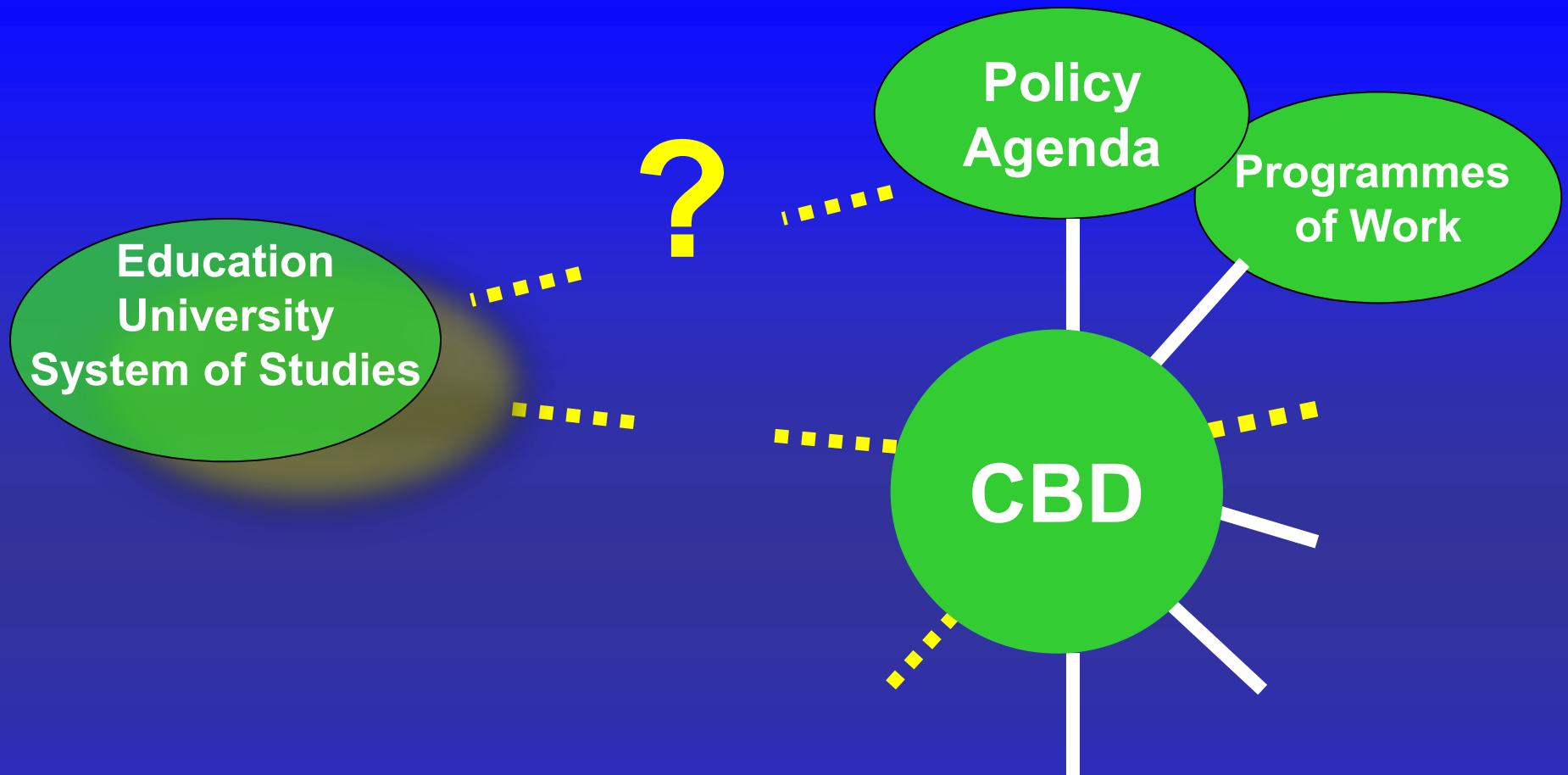
Universities are of paramount importance because they play a key role for capacity building and public awareness – which are the milestones for good governance and effective policy making.



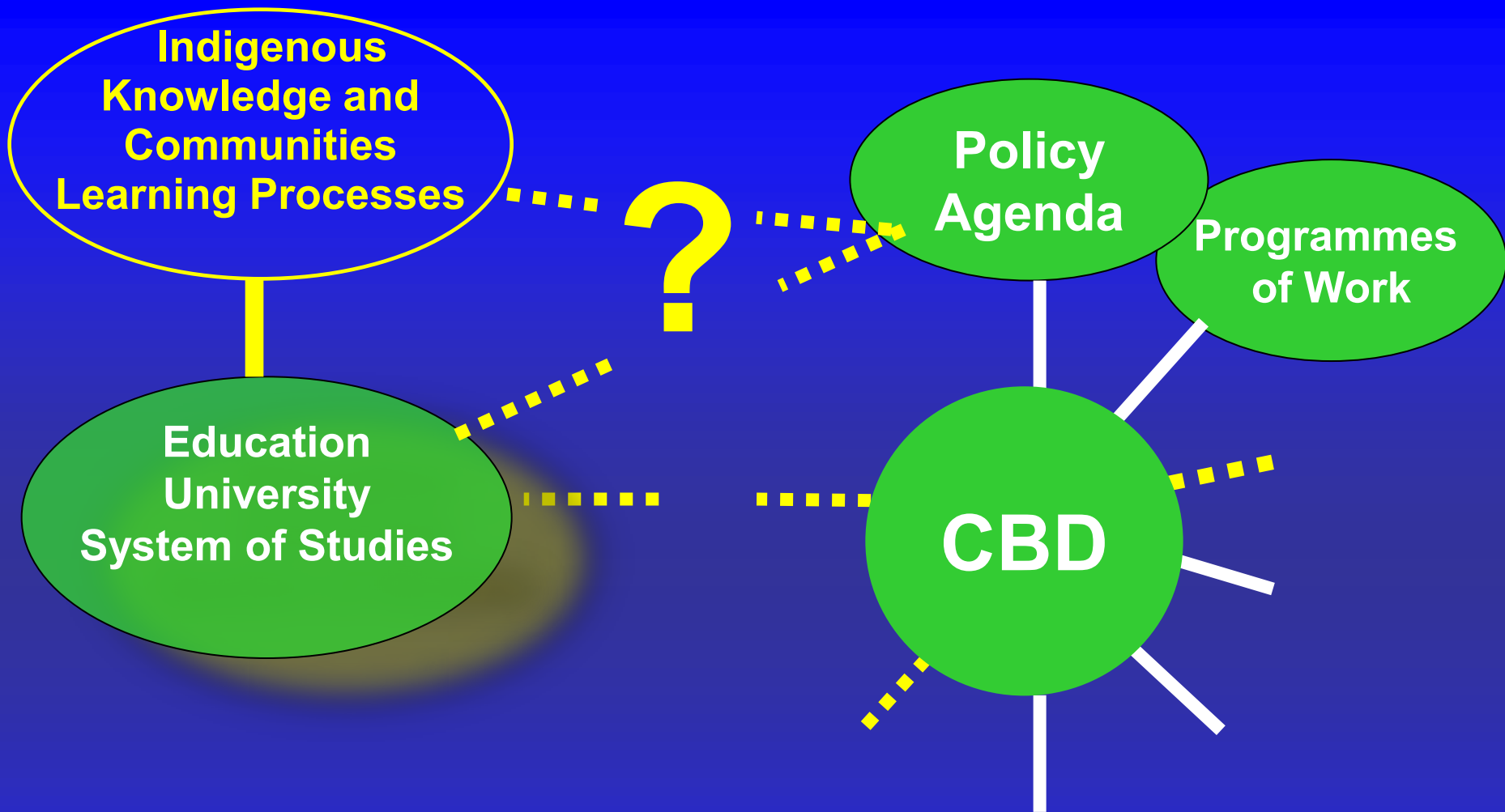
In the reality the results of our analysis pointed to the complex implementation processes of the CBD policy agenda and programmes of work, highlighting weaknesses and gaps with respect to capacity building, local management and overall education.



In particular we identify (1) the gap of communication and knowledge between the university system of studies and the International Organizations – among them the CBD,(2) the gap between education and capacity building, (3) the very limited role universities play in disseminating and linking the CBD policy agenda and programmes of work to the local context to which they belong.



How to tackle these challenges? The key point is to bridge the gap of coordination, communication and knowledge between universities and the CBD policy agenda and programmes of work. So far only very few academic activities are linked to the CBD policy framework. In addition these activities are individual initiatives and not expression of an ordinary system of studies



How to tackle these challenges? The key point is to bridge the gap of coordination, communication and knowledge between universities and the CBD policy agenda and programmes of work, combining formal and informal education, academic perspectives and indigenous knowledge and science.

The Cooperation Mission of the International University Network on Cultural and Biological Diversity

On the base of this analysis the Research Centre of Developing Studies of the University of Rome Sapienza has developed a methodology and innovative strategy designed for addressing CEPA – Communication, Education and Public Awareness – and capacity building challenges. As a result the CBD Secretariat and Sapienza University have signed a Memorandum of Understanding and Cooperation.

Key activities under the MoU and Cooperation:
"promotingcooperation activities,
establishing and coordinating networks with
other universities and concerned.....
institutions".

The operative initiative of this strategy:

**International University Network
on Cultural and Biological Diversity**

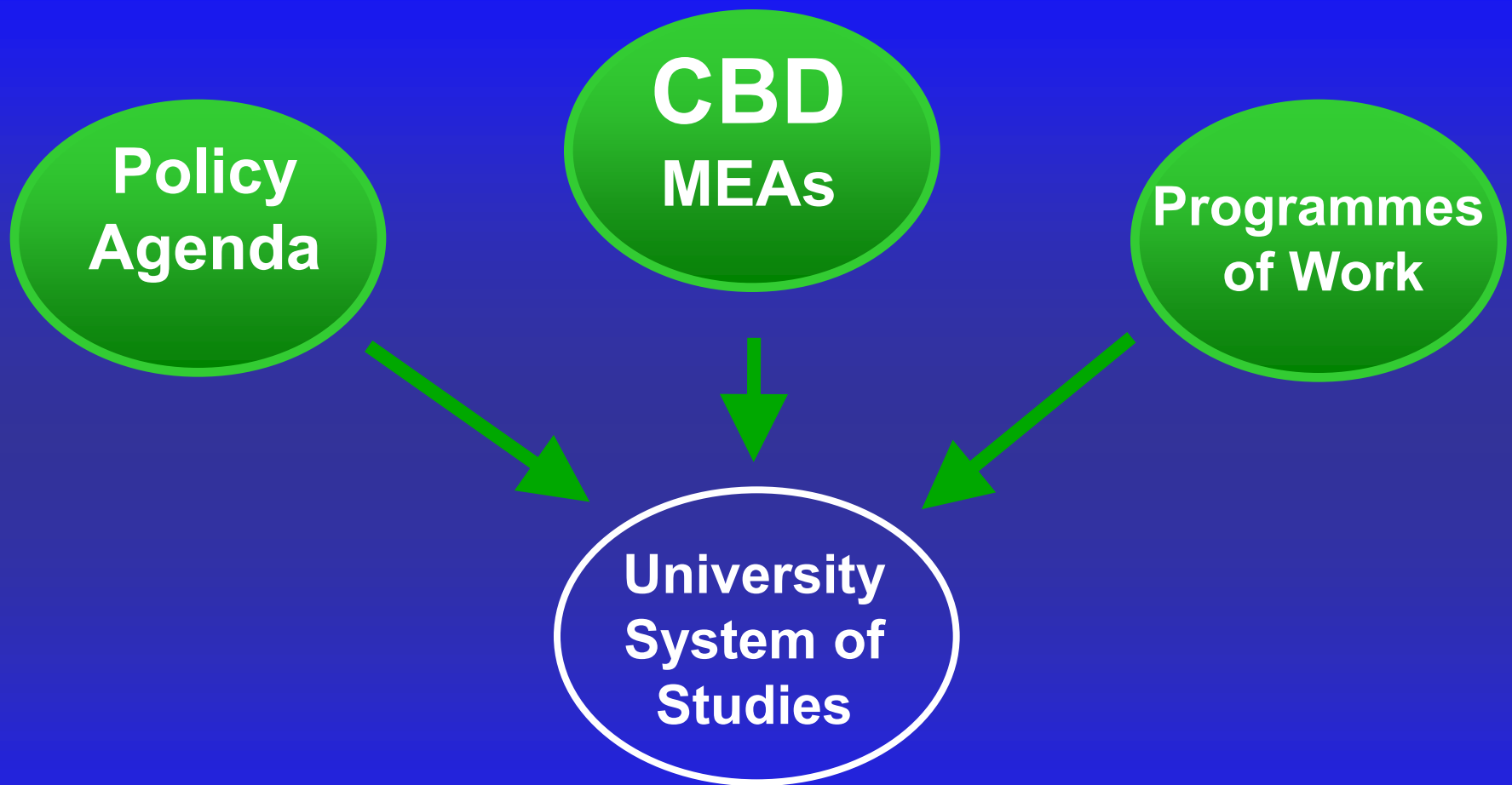
**Established in accordance with the CBD Secretariat, and
focused on the universities of developing countries
and South-South-North collaboration**

The International University Network on Cultural and Biological Diversity

The University Network aims at:

- (1) introducing a new paradigm of relationships between international conventions and universities, giving an operative contribution to the CBD Secretariat**
- (2) allowing universities to bridge the gaps previously highlighted and play a fundamental role as local social drivers opened to society, local/indigenous communities, experts, policy makers**
- (3) offering a transdisciplinary scientific contribution to policy making and implementation and local management through the internalization of the CBD and associated programmes of work (among others, UNEP, UNESCO and FAO) in the academic system of studies**

Biodiversity is a tool for education. Education should be a fundamental tool for the CBD implementation



(4) disseminating and introducing the CBD policy agenda and programmes of work in the university system of studies, bridging the gap between academic and institutional policy perspectives

The International University Network on Cultural and Biological Diversity

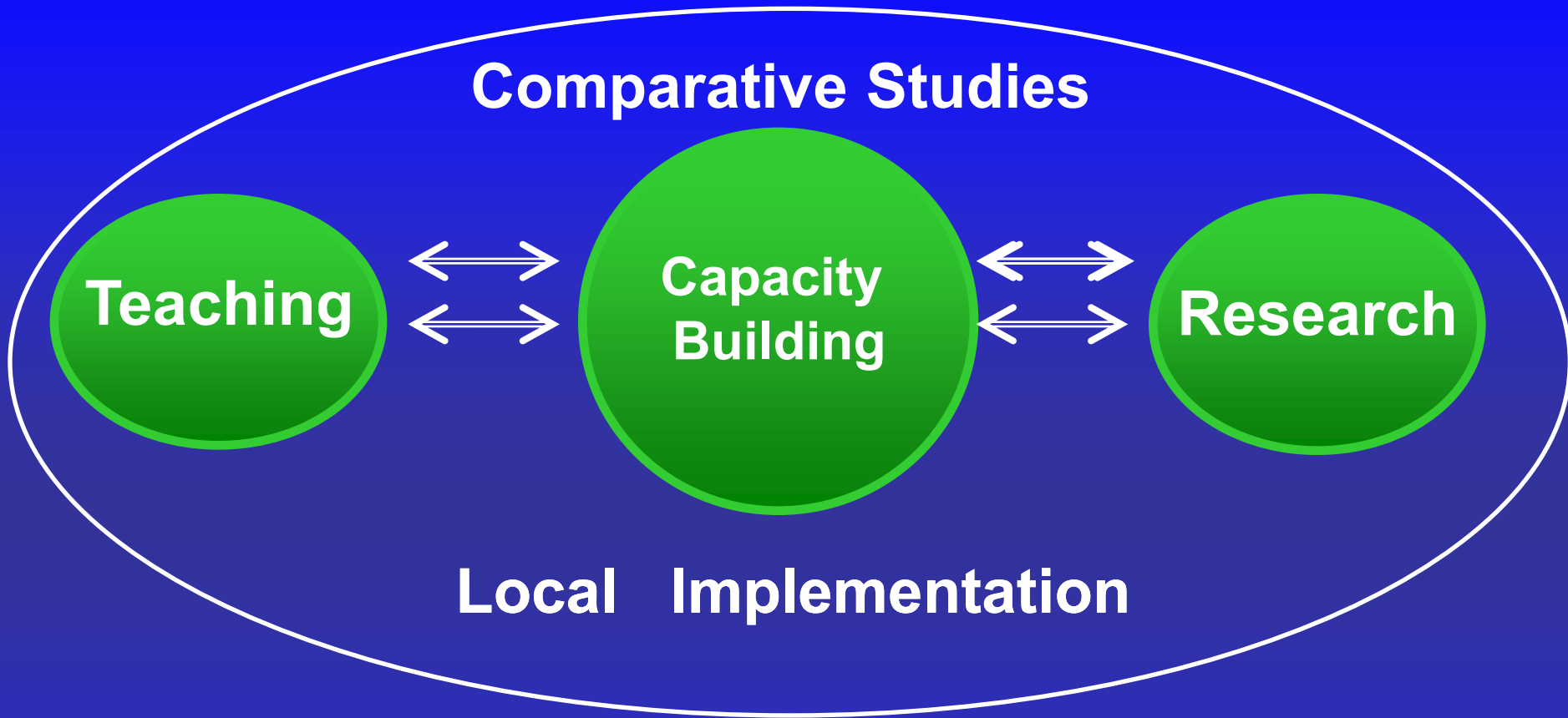
The University Network aims at:

(5) translating the CBD policy agenda and programmes of work in new contains for courses and academic programmes
with the involvement of representatives of communities and experts

(6) institutionalizing these programmes in the academic system of studies

(7) offering a coordinated international platform of information, knowledge, research questions and research/teaching programmes
in order to develop and reply transdisciplinary academic studies,
initiatives and curricula linked to the ongoing CBD and related
organizations policy agenda and programmes of work

Matching Scientific with Policy-Management Perspectives



(8) developing joint research/teaching/capacity building initiatives and events in order to strengthen local capacities, exchange and compare local experiences and case studies at international/national multi-scale level, achieve high standards of advanced studies, link universities to the local implementation of the CBD, provide tools to grow a critical mass of experts



**(9) designing
innovative
curricula/initia
tives taking
into account
the local
context**



Communication, education, capacity building and implementation processes should be integrated in a unique long-lasting strategy and action plan that feed the never-ended “life cycle of the CBD”

**CBD
POLICY
implementation**

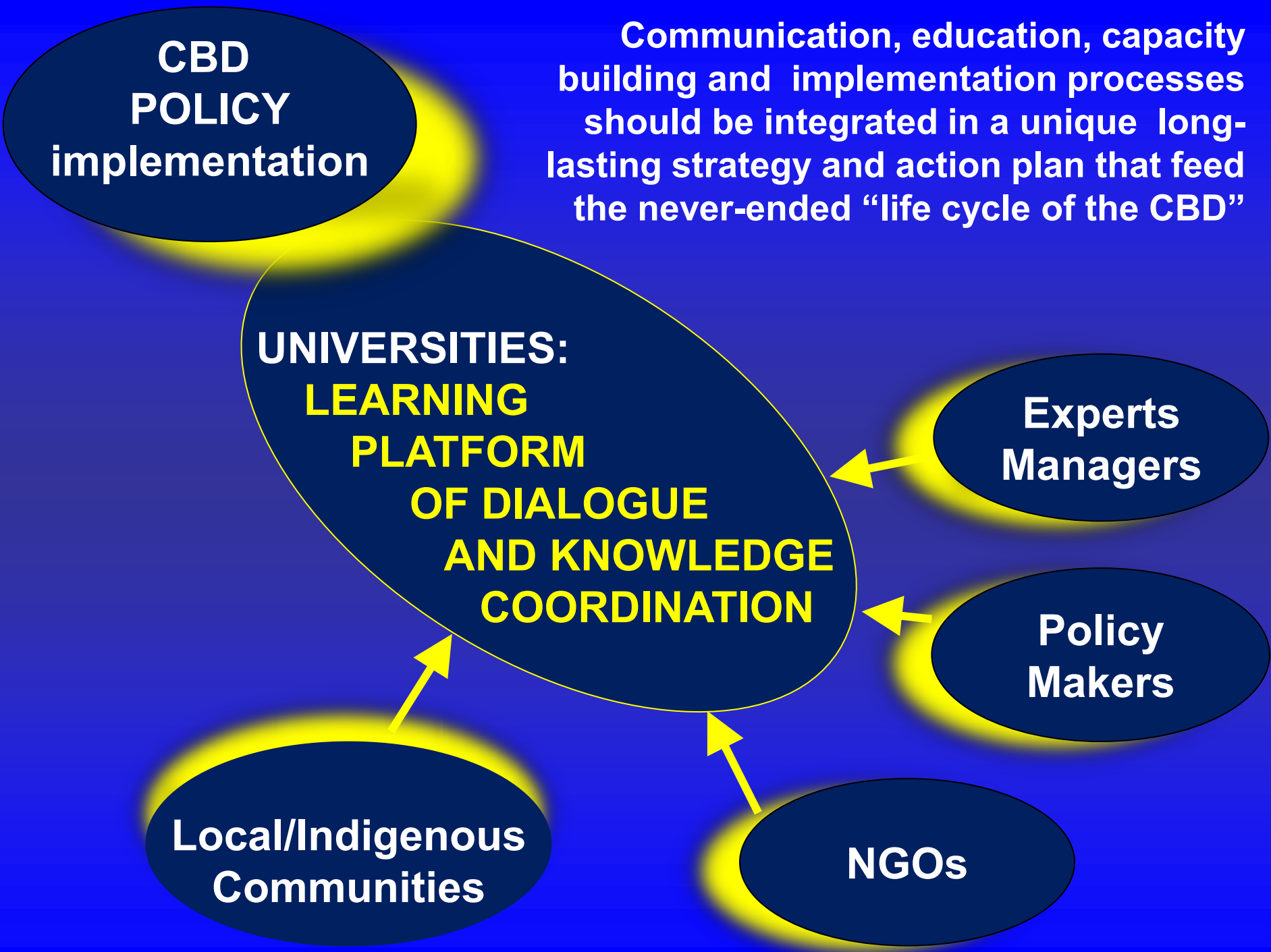
**UNIVERSITIES:
LEARNING
PLATFORM
OF DIALOGUE
AND KNOWLEDGE
COORDINATION**

**Experts
Managers**

**Policy
Makers**

**Local/Indigenous
Communities**

NGOs



IUNCBD Network

**Scientific-Academic
Perspectives**

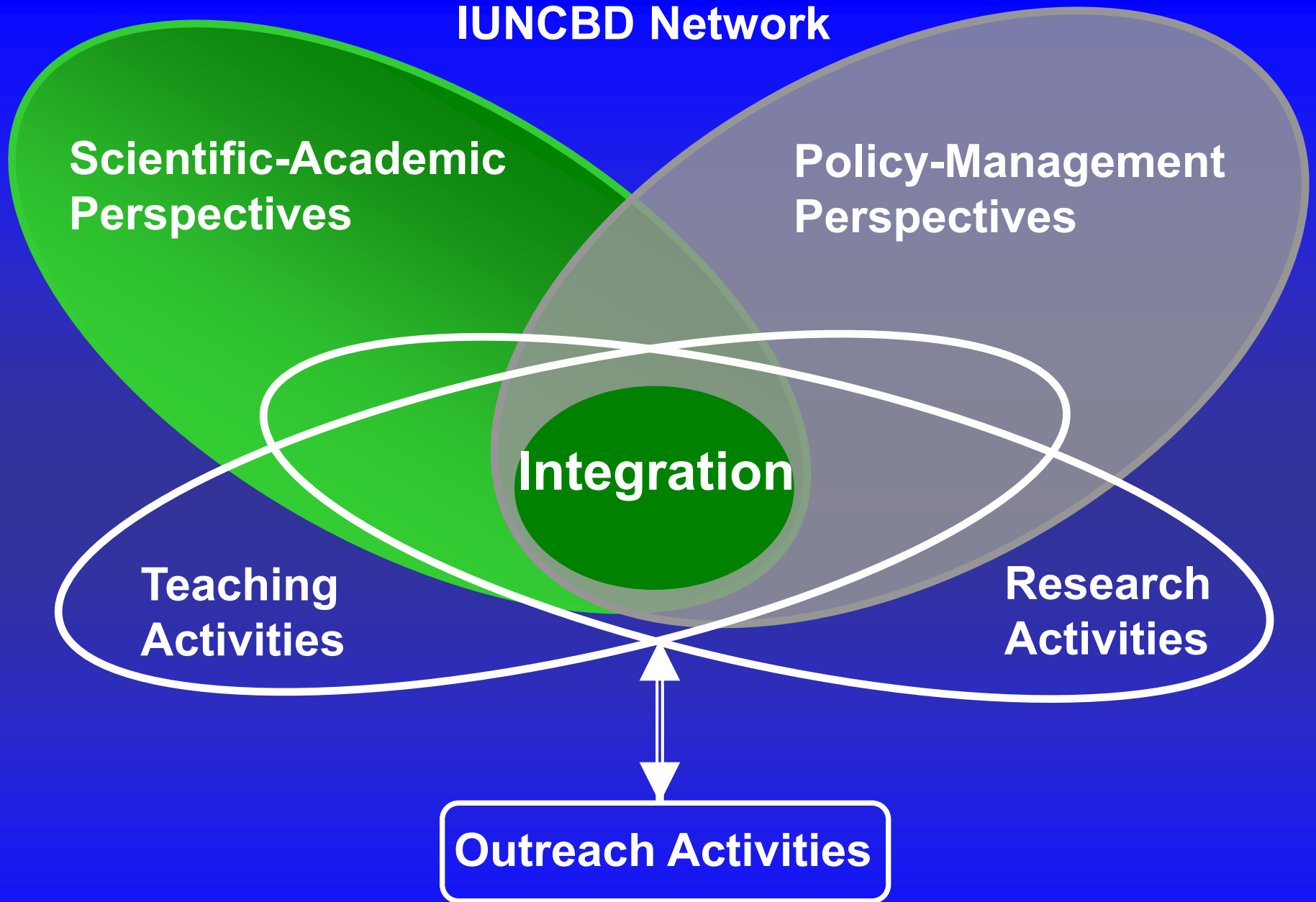
**Policy-Management
Perspectives**

Integration

**Teaching
Activities**

**Research
Activities**

Outreach Activities



The IUNCBD Network functioning and the implementation at the University of Antananarivo:

1. Integration between the activities:

1.1 Teaching



1.3 Research

1.2 Outreach

2. Integration between fundamental dimensions:

- 2.1 Education**
- 2.2 Capacity Building**
- 2.3 Communication**
- 2.4 Public Awareness**
- 2.5 Policy Implementation and Local Management**

International University Network on Cultural and Biological Diversity (IUNCBD)

**Programmes
and initiatives
developed by each
university partner**

**Activities directly
developed by three units
of the IUNCBD International
Coordination Platform**

**Three Units of the IUNCBD International Coordination Platform –
selected and invited policy makers, academicians, experts, students:**

- International Scientific Committee**
- International Coordination Research Group**
- International Students Coordination Units**

IUNCBD Network Structure and Functioning

University member

University member

University member

University member

University member

University member

University member

IUNCBD Coordination
Platform :

International Scientific
Committee

International Coordination
Research Group

International Students
Coordination Units

Planning the participation in the IUNCBD University Network

**Programme and initiatives developed by
each university partner on the basis of local
needs and expectations and
the mission of each university**

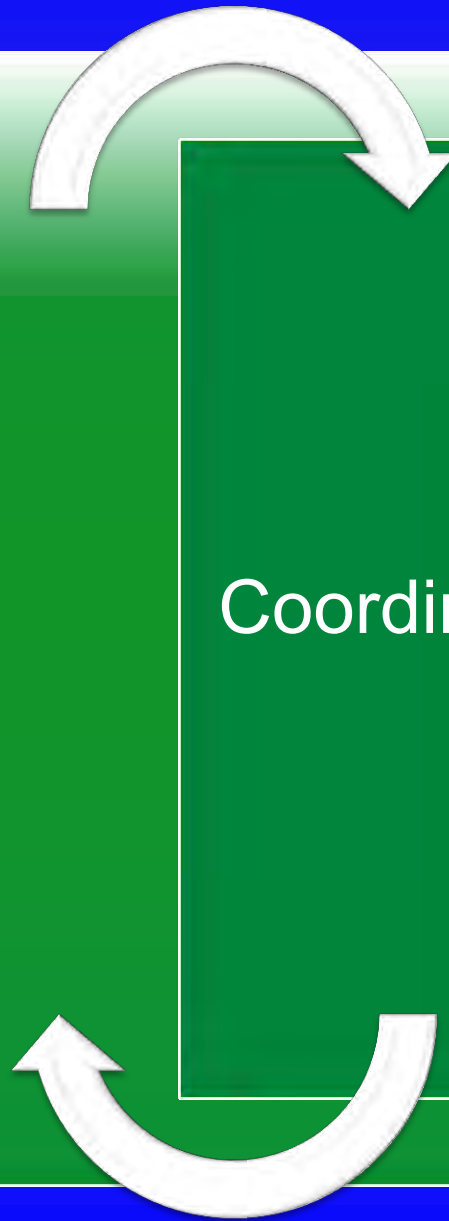
IUNCBD Network Structure and Functioning

IUNCBD member:

- Teaching
Research
Outreach
Programme
- Action Plan

IUNCBD

Coordination Platform



A close-up photograph of an elephant's head, focusing on its eye and the deeply wrinkled texture of its skin. The elephant's eye is partially visible, looking towards the left. The skin is dark and has a complex, layered pattern of wrinkles. A white rectangular text box is positioned in the upper left corner of the image.

**IUNCBD Network
international
pilot case developed by
each university member on
the basis of :**

- **Analysis of the cultural and biological diversity multi-scale international/national Policy Agenda taking into account local contexts, implementation processes, needs and views of local/indigenous communities**
- **Identification of the Science/Policy/Management interface and priorities**
- **Design of key cross-disciplinary areas**
- **Design and development of an integrated Teaching/Research/Outreach Programme**

**Strategy,
Mission and methodology of
the IUNCBD Network**

**Participation in
the IUNCBD University Network:
Teaching/Research/Outreach
Programme**

Flexible options to enrich the academic programmes through the participation in the IUNCBD Network:

- 1. Series of thematic seminars, intensive modules in current courses, thematic thesis design and advisory**
- 2. Establishment of a Teaching-Research-Outreach Programme**
- 3. Establishment of a research centre**
- 4. Design and development of new courses, master, Phd Programme**

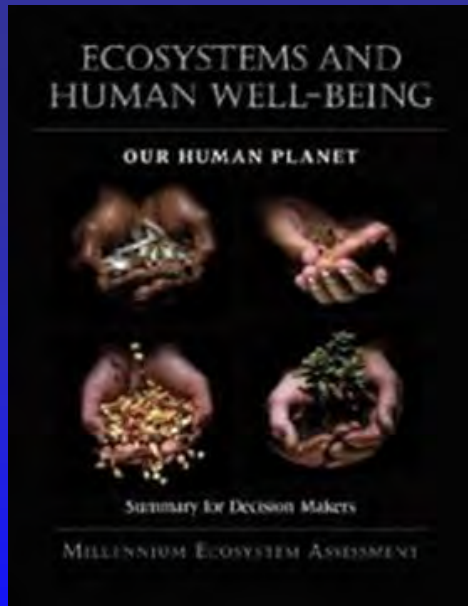
Action Plan

3.

Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods"

Programme Outlines for discussion - Scientific areas to be selected



1. Overview and introduction
2. Integrating cultural and biodiversity systems – challenges and policy interface. Documentary and case study
3. Biodiversity systems and assessment tools
4. Functioning of cultural diversity systems
5. Indigenous knowledge, innovations and practices. Case study on traditional medicines and medicinal plant
6. Policy, law and governance
7. Social and economic dimensions
8. Methodology for policy analysis

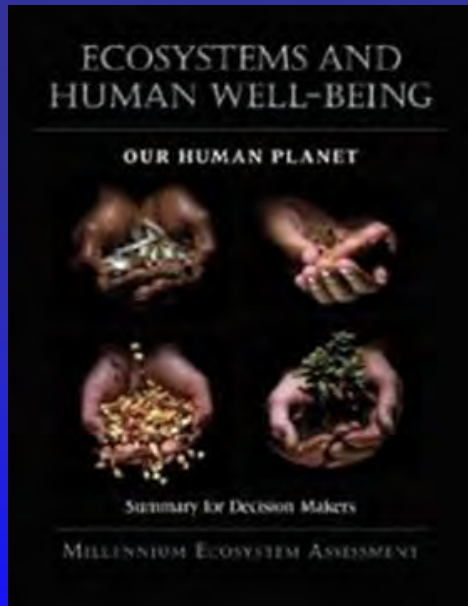
Action Plan

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Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods"

Programme Outlines for discussion - Scientific areas to be selected



9. Methodology for policy analysis
10. International Conventions and Organizations. Multilateral Environmental Agreements (MEAs); Convention on Biological Diversity (CBD)
11. Challenges and priorities in the multiscale policy agenda
12. Policy implementation strategies and processes - local management, monitoring and enforcement of policy measures
13. Management tools – institutional mapping, identification of key stakeholders, multisectoral and spatial analysis

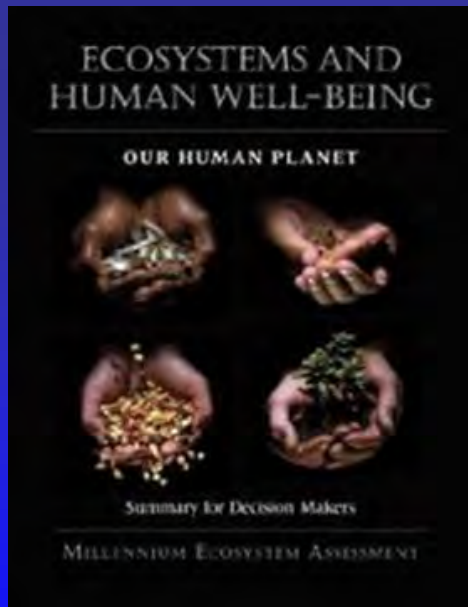
Action Plan

3.

Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods"

Programme Outlines for discussion - Scientific areas to be selected



- 14. Research methods – e.g. policy oriented research gap analysis
- 15. Project design
- 16. Thematic issues in the CBD national implementation
- 17. Field project with community participation and reporting

Action Plan

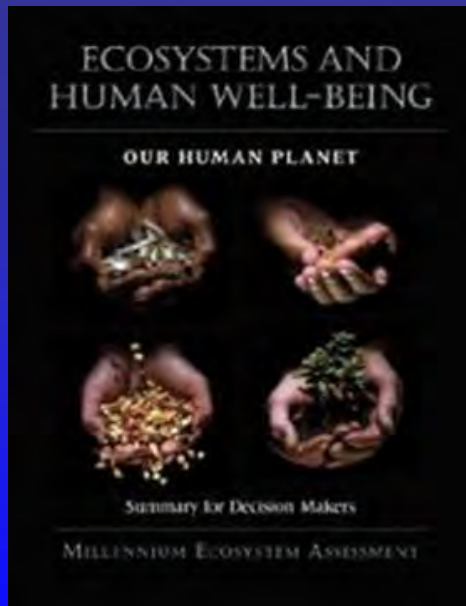
3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods"

Contents of selected modules

1° Module: "Biodiversity and cultural systems - research methods for integrating science and policy-management perspectives"

1. Biodiversity and cultural systems - research methods for integrating science and policy-management perspectives
2. Inter-linkages between biological diversity and cultural diversity
3. Multidisciplinarity. Knowledge systems, knowledge holders and users
4. Interface with policy processes and multiscale implementation
5. Multisectorial, spatial and trans-disciplinary policy analysis

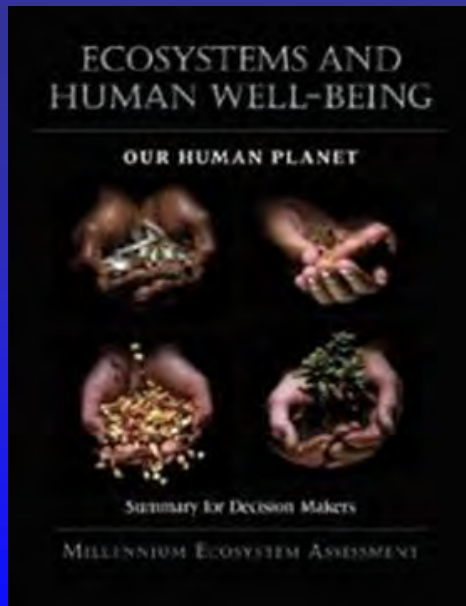


Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

1° Module: "Biodiversity and cultural systems - research methods for integrating science and policy-management perspectives



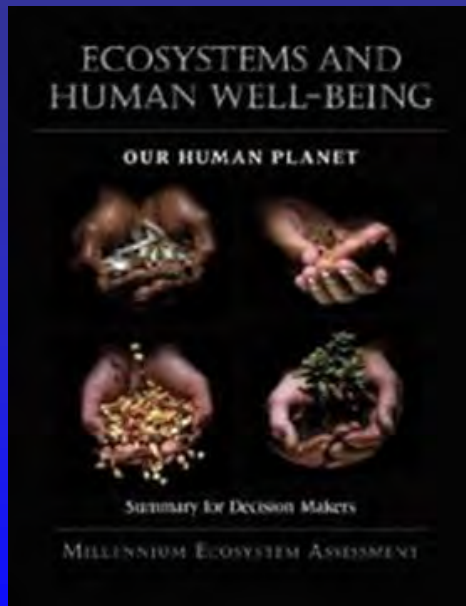
6. Institutional mapping and identification of key stakeholders
7. Local management, indigenous peoples and local communities
8. Ethical, cultural, social and governance dimensions
9. Community participatory research action
10. Access to data in policy sectors - Communication and information sharing
11. Design and planning of policy/management oriented research

Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

2° Module: "Biodiversity and cultural systems in the International Conventions and Organizations"



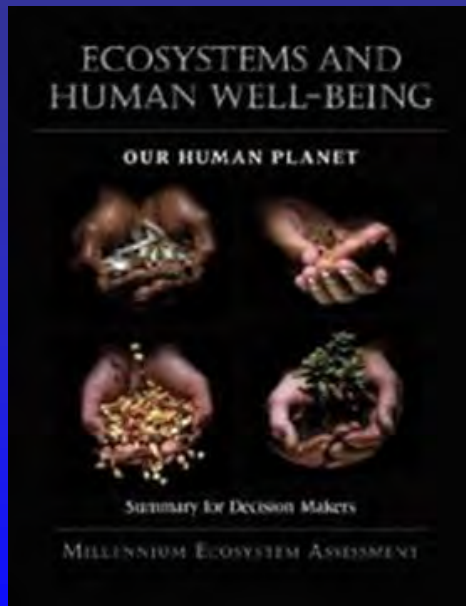
1. Challenges and current debate: Sustainable Development Goals (SDGs), Intergovernmental Platform on Biodiversity and Ecosystems Services (IPBES)
2. Coordination between Environmental Conventions and International Organizations
3. Convention on Biological Diversity (CBD)
4. Multilateral Environmental Agreements (MEAs)

Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

2° Module: "Biodiversity and cultural systems in the International Conventions and Organizations"



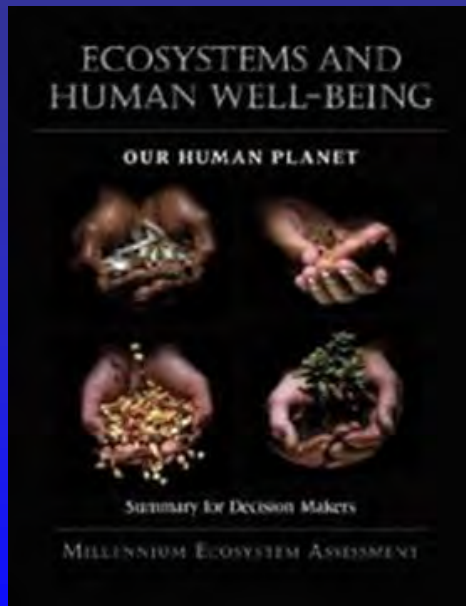
5. UNEP thematic areas
6. FAO, UNESCO, UNDP, WIPO agendas and programmes
7. Trans boundary ecosystems and regional coordination
8. National multisectorial coordination

Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

3° Module: "Biodiversity and cultural systems in The Convention on Biological Diversity (CBD)"



1. Rationale, Scope, Objectives
2. CBD Strategic Plan 2011-2020 and Aichi target
 - 1.1 Implementation, monitoring, review, evaluation
3. National Biodiversity Strategy and Action Plan
 - 2.1 Coherence with biodiversity related Conventions
 - 2.2 Livelihood and poverty eradication
 - 2.3 Trade and economic dimensions

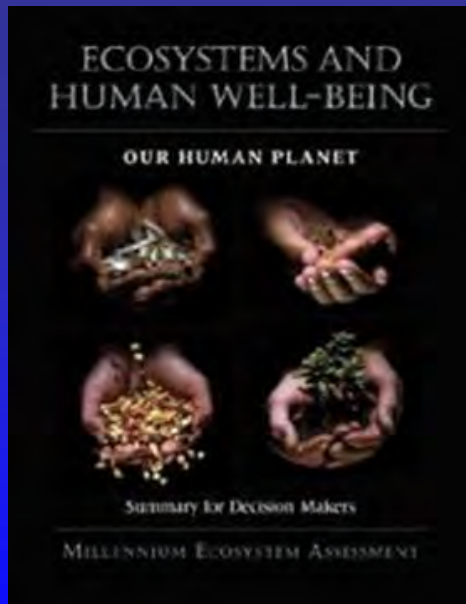
Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

3° Module: "Biodiversity and cultural systems in
The Convention on Biological Diversity (CBD)"

2. National Biodiversity Strategy and Action Plan
- Incentive measures
- 2.4 Climate Change and ecosystems-based adaptation
- 2.5 Inter-linkages between human health and biodiversity
- 2.6 Agro-biodiversity and rural systems
- 2.7 Customary use of the components of biodiversity
- 2.8 Traditional knowledge, innovations and practises

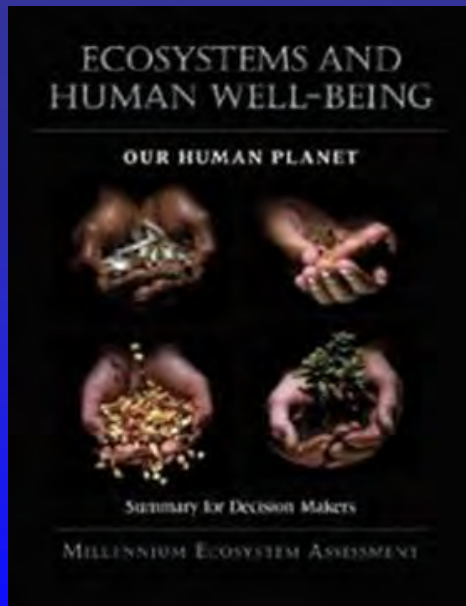


Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

4° Module: "Biodiversity and cultural systems in the Nagoya Protocol "



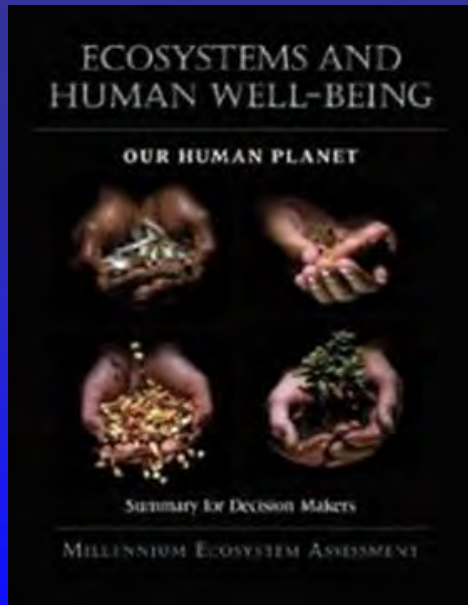
1. Rationale, Scope, Objectives
2. Utilization of genetic resources - research and development
3. Commercial and non-commercial research
4. Access to genetic resources
5. Access to traditional knowledge associated to genetic resources

Action Plan

3. Teaching Options

3.2 Summer School or Course "Biodiversity and Cultural Diversity - Science, Policy and Research Methods" Detailed contents of selected modules

4° Module: "Biodiversity and cultural systems in the Nagoya Protocol "



1. Fair and equitable benefit sharing accruing out of the utilization of genetic resources
2. Fair and equitable benefit sharing accruing out of the utilization of genetic resources
3. Prior informed consent (PIC) of the country of origin
4. Prior informed consent (PIC) of indigenous/local communities
5. Mutually agreed terms
6. Customary law and community protocols
7. Monetary and non monetary benefits

Pilot case for the implementation of the IUNCBD Network:
University of Antananarivo – Madagascar
Research/Teaching Programme
Biodiversity Policy & Management

Genetic Resources – Medicinal Plant:

Local Communities, Benefit Sharing and Value Network Analysis
within the context of the CBD and the Nagoya Protocol



The Research/Teaching Programme “Genetic Resources – Medicinal Plant: Local Communities, Benefit Sharing and Value Network Analysis” within the context of the CBD and the Nagoya Protocol integrates:

(1) academic/scientific perspectives



(2) Policy Perspectives

CBD, Nagoya Protocol :

“Utilization of Genetic Resources and Traditional Knowledge ...Prior Informed Consent of the Country of Origin and Local Communities Mutually Agreed Terms”

(3) Local Context and Multiscale Implementation: Partnership with the NGO MAT: Management of Forest Areas and Research Action with Malagasi Students



How to interpret and apply binding principles and provisions taking into account.....



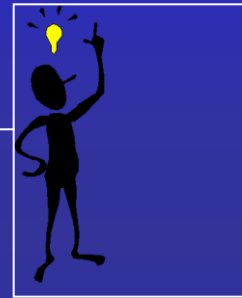
Complex Balance Comparative Studies

Madagascar

Other Universities in Africa, Asia,
Latin America ?

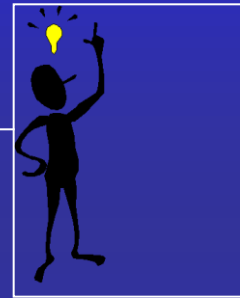


What is the fundamental role of High Education and Universities in this arena?



The IUNCBD Network Action Plan “Biodiversity 2020: Linking Education Science Policy and Society

Protection and Promotion of Cultural and Biological Diversity
CESDEV – University of Ibadan is member of
the IUNCBD Network



Biodiversity & Society: Education, Capacity Building, Science, Economy, Policy..... Knowledge Generation...Drivers.....

“I believe that the great part of miseries of mankind are brought upon them by false estimates they have made of the value of things.”

Benjamin Franklin,



Thank you



International University Network on Cultural and Biological Diversity

Coordinator: Prof Pierluigi Bozzi

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Department of Economics – Department of Plant Biology and Ecology

University of Antananarivo, Madagascar

Department of Economics, A.S.J.A. St Joseph University, Madagascar

IUNCBD hosted at SPES - Research Centre of Development Studies

Sapienza University of Rome

