17.181 / 17.182 Sustainable Development: Theory and Policy

Spring 2009

The Core – High Level Definition

We define sustainable development as:

- **The *process* of *meeting* the needs of current and future *generations***

- **Without undermining**

- **The *resilience* of the life-supporting properties of nature and the *integrity* (or cohesion) of social systems".**

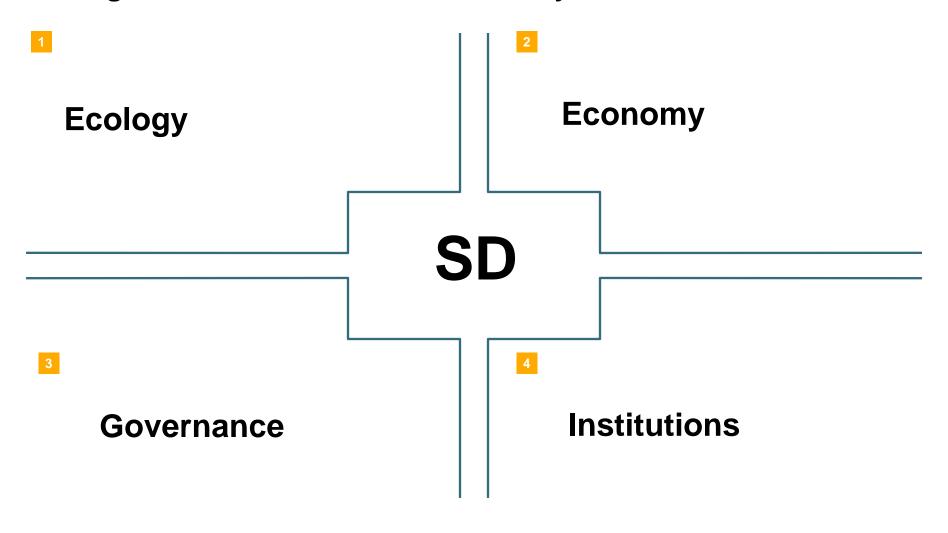**What are the properties of this definition?**

KEY PIECES

- Dimensions
- Processes
- Principles
- Output

DIMENSIONS

Extending this definition further, in this course we differentiate among four dimensions of sustainability as follows:

PROCESSES

1. **Ecological systems with**
   - balance
   - resilience
2. **Economic systems with ecological congruence**
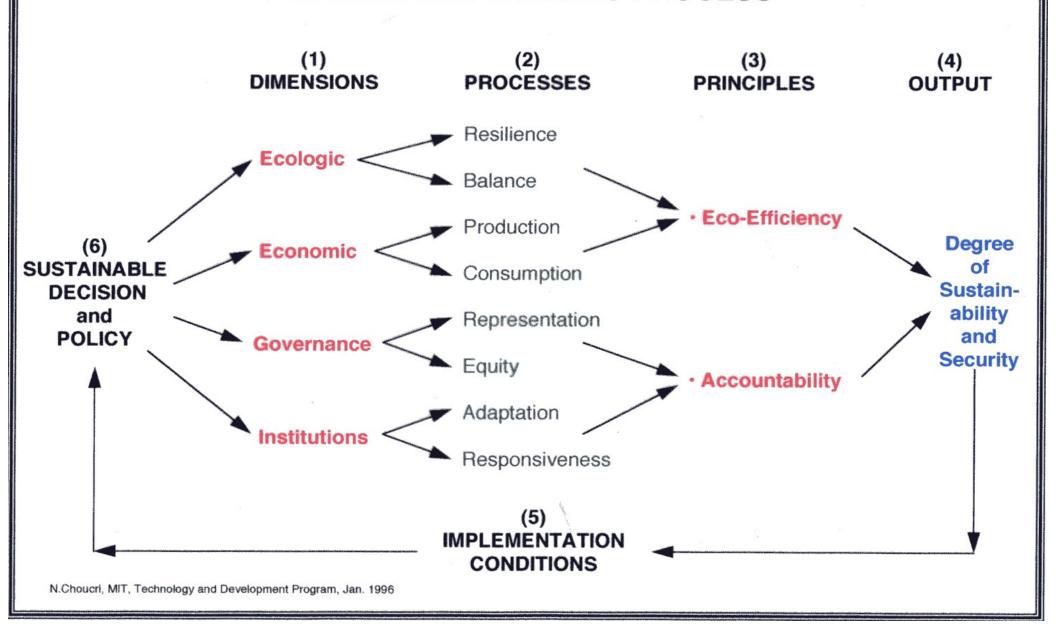   - eco-production
   - eco-consumption
3. **Governance modes with**
   - participation
   - accountability
4. **Institutional performance with**
   - adaptation
   - feedback

SUSTAINABLE DEVELOPMENT
as an
INTEGRATED DYNAMIC PROCESS

(1)
DIMENSIONS

(2)
PROCESSES

(3)
PRINCIPLES

(4)
OUTPUT

(6)
SUSTAINABLE
DECISION
and
POLICY

Ecologic

Resilience

Balance

Economic

Production

Consumption

· Eco-Efficiency

Governance

Representation

Equity

Institutions

Adaptation

Responsiveness

· Accountability

Degree
of
Sustain-
ability
and
Security

(5)
IMPLEMENTATION
CONDITIONS

N.Choucri, MIT, Technology and Development Program, Jan. 1996

PRINCIPLES*

- **ECO-EFFICIENCY**

- **ACCOUNTABILITY**

* To guide decision and policy

The Proposition

The core proposition of this course is that:

If all conditions hold,

Then the system is (or can be) sustainable.

What can be done?

GENERIC and ESSENTIAL?

DE-   MASSIFICATION

DE-   SPACIALIZATION

DE-   CENTRLIZATION

DIS- AGGREGATION

DE-   NATIONALIZATION

DIS- INTERMEDIATION

Source: J.S. Brown and P. Druid, *The Social Life of Information* (2000)

The Implications

(1)   Sustainability conditions and strategies are
        context-dependent

        Subject to definitions and system boundary.

(2)   There are alternative paths to sustainability

(3)   There are some specific criteria for process,
        path, and expected outcomes

        Depending on the state profile