SUSTAINABLE LIVELIHOODS AND COMPLEXITY THEORY

- **I THINK, THEREFORE, I AM**

  - Descartes

- **I AM BECAUSE WE ARE**

  -African Philosopher

Science and Development: Historical Evolution

Natural Science Evolution	Social Science Evolution	Development Evolution
Newtonian • Mechanical • Deterministic • Universal laws • Linear • Predictability • Value free science	**Modernism** • Used Newtonian principles to analyse society • Positivism • Objective (value free social science) • Utilitarianism	**Industrialisation** • Modernisation theories of development • Development as the development project • Log-frame • Input-output models • Top-down • State led • Delivery of development • Economic growth

Science and Development: Historical Evolution

Natural Science Evolution	Social Science Evolution	Development Evolution
Quantum Era • Probabilistic theories • Inherent uncertainties • Thermodynamic laws	**Post-Modernism** • Critique of positivism and universalism • Importance of local context • Importance of values, power, and knowledge • Statistical	**Human Development** • Participation • Endogenous • Decentralization • Social Development • Bottom-up

Science and Development: Historical Evolution

Natural Science Evolution	Social Science Evolution	Development Evolution
Chaos & Complexity • Post Normal Science • Self organisation • Non-linearity • Feedback loops • Co-evolutionary processes • Biological sciences	**Non-Modernism** • Critique of Post-Modernism • Accepts some phenomena as universal and some contextual • Embraces complexity and uncertainty • Creative renewal supersedes established power and knowledge	**Sustainable Dev. (SL)** • Environment development balance • Holism • Intrinsic development • Systems approach • Integrated bottom-up and top-down • Shift from needs approach to assets approach • Increasing returns • Importance of knowledge and information • Issues of scale

Challenges of Working with Complex Systems (1)

- Complexity of a system increases as the numbers of interdependent components, actors, and relationships within the system increase. It further increases as the complexity of its components, actors and relationships increases, ie their degrees of freedom increase.

- Ecological systems as well as social systems are usually complex. Livelihoods are derived from the interface of these. Sustainable livelihood systems are, therefore, complex systems.

- Complexity means that the range of inter-connections between cause and effect are too numerous to be able to predict a specific outcome from a particular intervention. For example, targeting the poor for poverty reduction and the resulting capture, conflict, etc., may result in the poor becoming poorer and rich, richer.

Challenges of Working with Complex Systems (2)

- Complexity theory suggests that instead of trying to deconstruct social systems as the route to finding interventions that allow communities to be adaptive and successful, we need to stand back and look for these rules within the complexity of the system itself.

- One way to do this in practice is study a range of, e.g. local watershed projects that have demonstrated success in adaptability and sustainability, deduce the key rules governing the success and develop a model which could be scaled up to a regional program of watershed development projects.

- The problem with the above is that human systems are made up of conscious individuals aware of and capable of making choices, ie societal systems cannot be reduced to generic rules or laws that govern human behavior. While a few rules may exist that govern a given social system, it does not follow that these will apply to other social systems.

Challenges of Working with Complex Systems (3)

- What complexity theory supports is not the identification of a set of golden rules but a process that encourages the emergence of a set of rules peculiar to each different social organisation or sub-system.

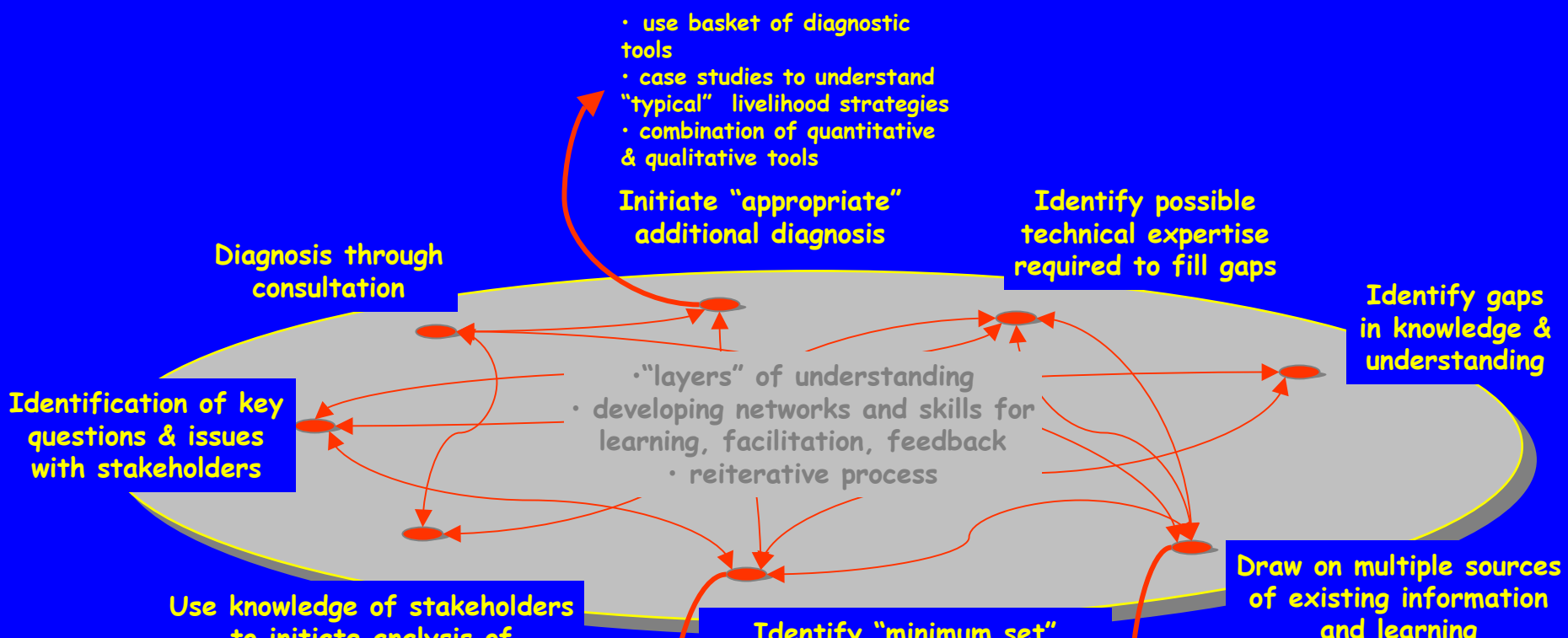
- Recent application of conflict management and consensus building processes to livelihood projects (Papua New Guinea, India, Cameroon and Fiji - Michael Warner, ODI) suggest that these processes can provide pathways to the formulation of such rules, both micro-micro and micro-macro.

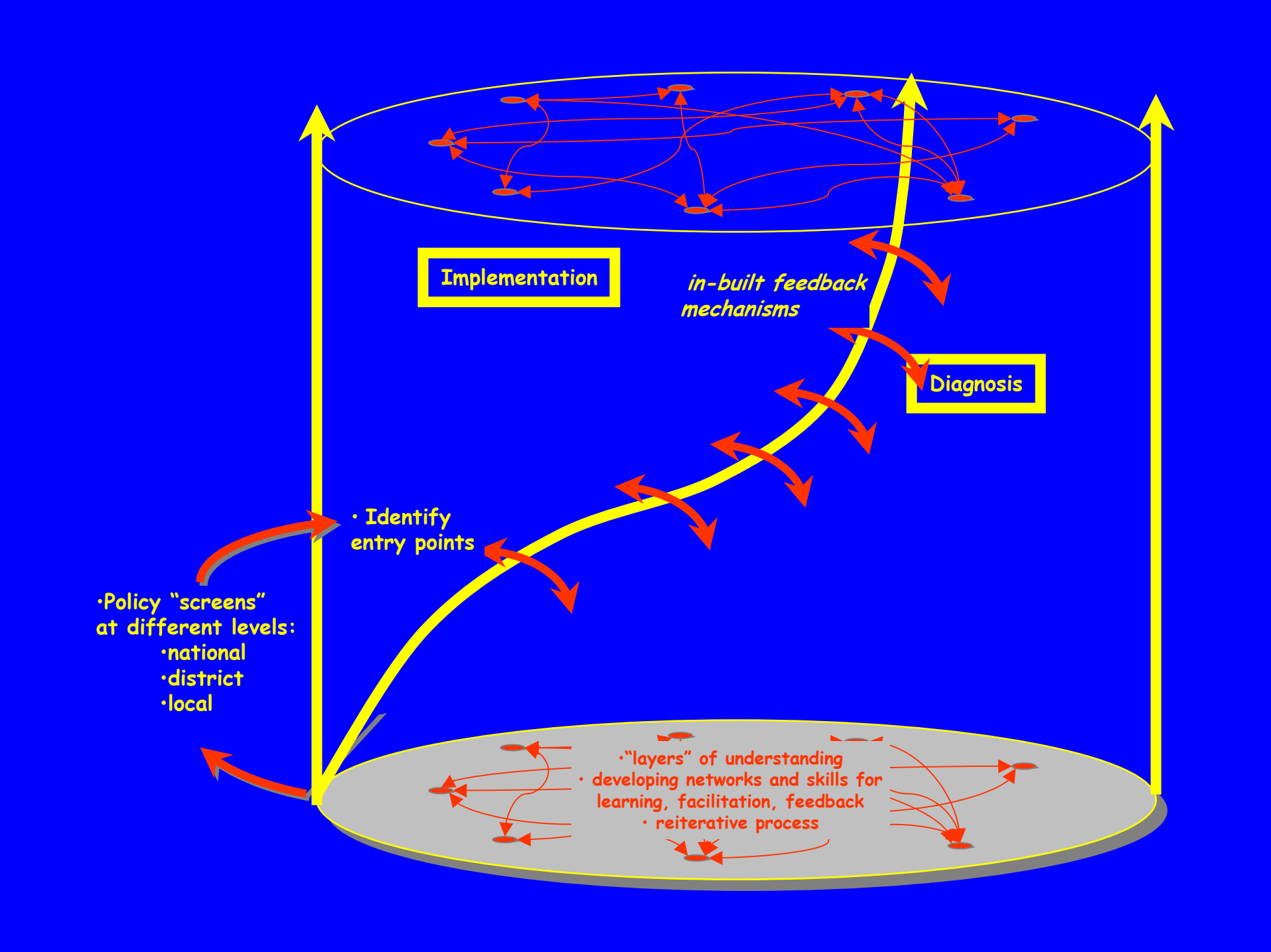
SUSTAINABLE LIVELIHOODS THEORETICAL PRINCIPLES

Sustainable Livelihoods	More Traditional Approaches
Embraces complexity	Assumes complexity away
Non-Linear	Linear
Uncertainty	Blue print
Surprise	Predictability
Dynamic co-evolutionary systems	Physical systems (at best)
Learning process	Expert driven
Adaptive	State-transition/ input-output

Figure 1: Sustainable Livelihoods Framework

Diagnosis in the Sustainable Livelihoods Approach




Implementation
in-built feedback mechanisms
Diagnosis
· Identify entry points
·Policy "screens" at different levels:
·national
·district
·local
·"layers" of understanding
· developing networks and skills for learning, facilitation, feedback
· reiterative process

BOUNDARY JUDGEMENTS

- Shift from problems, solutions and normal organisational life
- To people, purposes and interacting issues emerging in conflict and /or cooperation
- Draw tentative boundaries around stakeholders, focussing on clients, raising issues and dilemmas
- The boundaries define the action area
- Who is inside and benefits from it?
- Who is outside and does not?
- What are the consequences?
- How do we feel about these?
- Boundaries are temporary and partial

DEEPENING SYSTEMIC APPRECIATION

- Opening four windows on the action area
- ♦Systems of Processes (efficiency and reliability)
- ♦Systems of Structures (effectiveness)
- ♦Systems of meaning (agreements etc)
- ♦Systems of knowledge-power
- (emancipating the privileged and unshackling the underprivileged)
- ✞Prismatic thought ✞ options for action

Organisational Learning and Transformation

- (Using learning scenarios and systemic evaluation
- First scenario learns in the context of the future we might be heading for
- Second scenario learns about ideal futures
- Third scenario learns of ways to close the gap i.e. ways to move to ideal system properties or to shift the boundaries

All three scenarios are continually revisited

- Systemic evaluation of issues and dilemmas of systems of processes, structures, meaning and knowledge power, indicates performance of projects in these terms
- Provides information for reflection on and change where necessary
- Seek balance between instrumental action and experiential action.