

**International Development and
Systems Thinking:
Opportunities for Learning
and Innovation.**

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Evolution of my Systems Thinking and Practice

- **Tao of physics , Capra.(1978?) (at IARI).**
- **Ph.D work on chemo-dynamics of pesticides in tropical agro-ecosystems at UWI.**
- **Entropy law and the economic process(Georgescu-Roegens) in my paper for Carribbean Ecology and economics (at CEHI)**
- **(At IISD) my search for a theory of SD for Sustainable Livelihoods (SL) and my visit to Santa Fe Institute**

Evolution of my Systems Thinking and Practice (cont'd)

- **UNDP, U of Guelph, U of Waterloo(Checkland Waterloo(Checkland Soft Systems), U of of F Gainesville.
oston U:School of Public Health. 1993 to
resent and future.
: complex adaptive systems approach to HIV-
-AIDS (see concept paper and conference
eport); (with U of Guelph) SL and ESH
oach to agric. and rural development
rural development**

THE DEVELOPMENT CONCEPT

- Perception, Myth, Fantasy or Reality?
- Truman(1949) : underdevelopment
- Search for causes:terms of trade,unequal exchange,dependency,protectionism, market imperfections, corruption, lack of democracy and entrepreneurship, colonization and capitalist exploitation
- Backwardness and poverty real ?

EVOLUTION OF THE CONCEPT

- Development as growth(per capita of poor)
- Improved quality of life (social, cultural etc)
- But growth remained central concern with increasing inequalities
- IDS(1970) inclusive,participatory approach with emphasis on people, jobs ,children.
- Human Development 1974
- Basic needs late 1976
- Endogenous development late 1970's
- Sustainable Development (1992)

DELIVERING DEVELOPMENT

- Creating and Engineering Development by some (developers) for others (developees)
- Linear and predictable
- Development as the project
- Understanding will create change, hence emphasis on experts not facilitators
- Developers not required to learn
- Participation only as means

DELIVERING DEVELOPMENT CONTD

- Assumption of and reliance on replicability
- Sustainability of project as criterion of success
- Evaluation of stipulated outputs not of myriad outcomes stipulated or not
- Evaluation more for judgement than for learning.
- Project structure restricts room for learning and change
- The developer seeks to transfer more, while the developpee expects more and more

MILLENNIUM DEVELOPMENT GOALS (MDG's) for 2015

- Eradicate extreme hunger and poverty
- Achieve universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, Malaria ,etc.
- Ensure environmental sustainability
- Develop a global partnership for development

CIDA's SAE PRINCIPLES

- Local ownership
- Improved donor co-ordination
- Stronger partnerships
- Results based approach
- Greater policy coherence
- Good governance
- Building capacity
- Engaging civil society

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
<u>Newtonian</u> <ul style="list-style-type: none">• Mechanical• Deterministic• Universal laws• Linear• Predictability• Value free science	<u>Modernism</u> <ul style="list-style-type: none">• Used Newtonian principles to analyse society• Positivism• Objective (value free social science)• Utilitarianism	<u>Industrialisation</u> <ul style="list-style-type: none">• 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
<p data-bbox="217 504 599 561"><u>Quantum Era</u></p> <ul data-bbox="123 582 674 772" style="list-style-type: none">• Probabilistic theories• Inherent uncertainties• Thermodynamic laws	<p data-bbox="738 504 1191 561"><u>Post-Modernism</u></p> <ul data-bbox="725 582 1207 1172" style="list-style-type: none">• Critique of positivism and universalism• Importance of local context• Importance of values, power, and knowledge• Statistical	<p data-bbox="1252 504 1829 561"><u>Human Development</u></p> <ul data-bbox="1239 582 1759 915" style="list-style-type: none">• Participation• Endogenous• Decentralization• Social Development• Bottom-up

Science and Development: Historical Evolution

Natural Science Evolution	Social Science Evolution	Development Evolution
<u>Chaos & Complexity</u> <ul style="list-style-type: none">• Post Normal Science• Self organisation• Non-linearity• Feedback loops• Co-evolutionary processes• Biological sciences	<u>Non-Modernism</u> <ul style="list-style-type: none">• Critique of Post-Modernism• Accepts some phenomena as universal and some contextual• Embraces complexity and uncertainty• Creative renewal supersedes established power and knowledge	<u>Sustainable Dev. (SL)</u> <ul style="list-style-type: none">• 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.

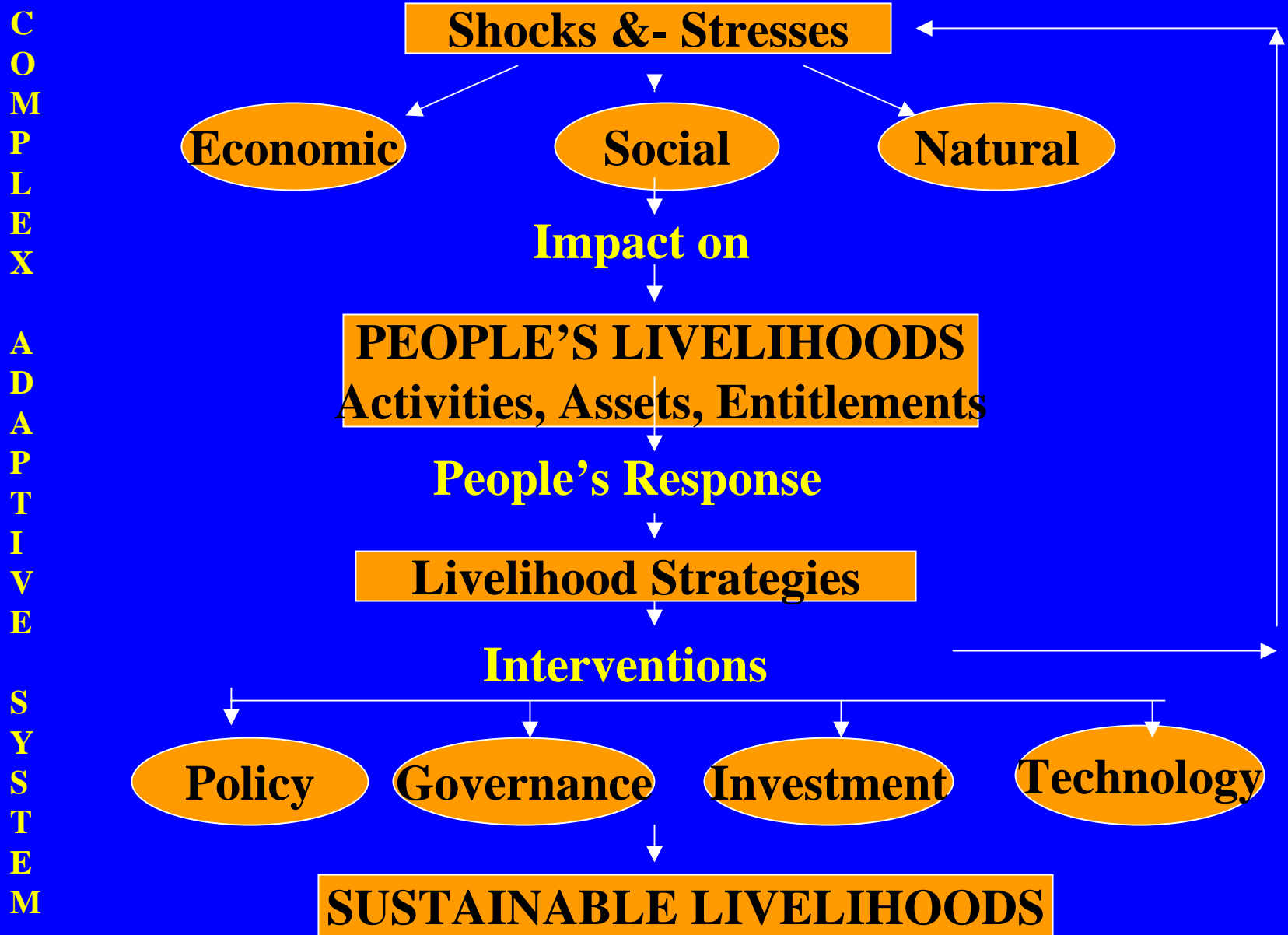
Challenges of Working with Complex Systems (3)

- 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.

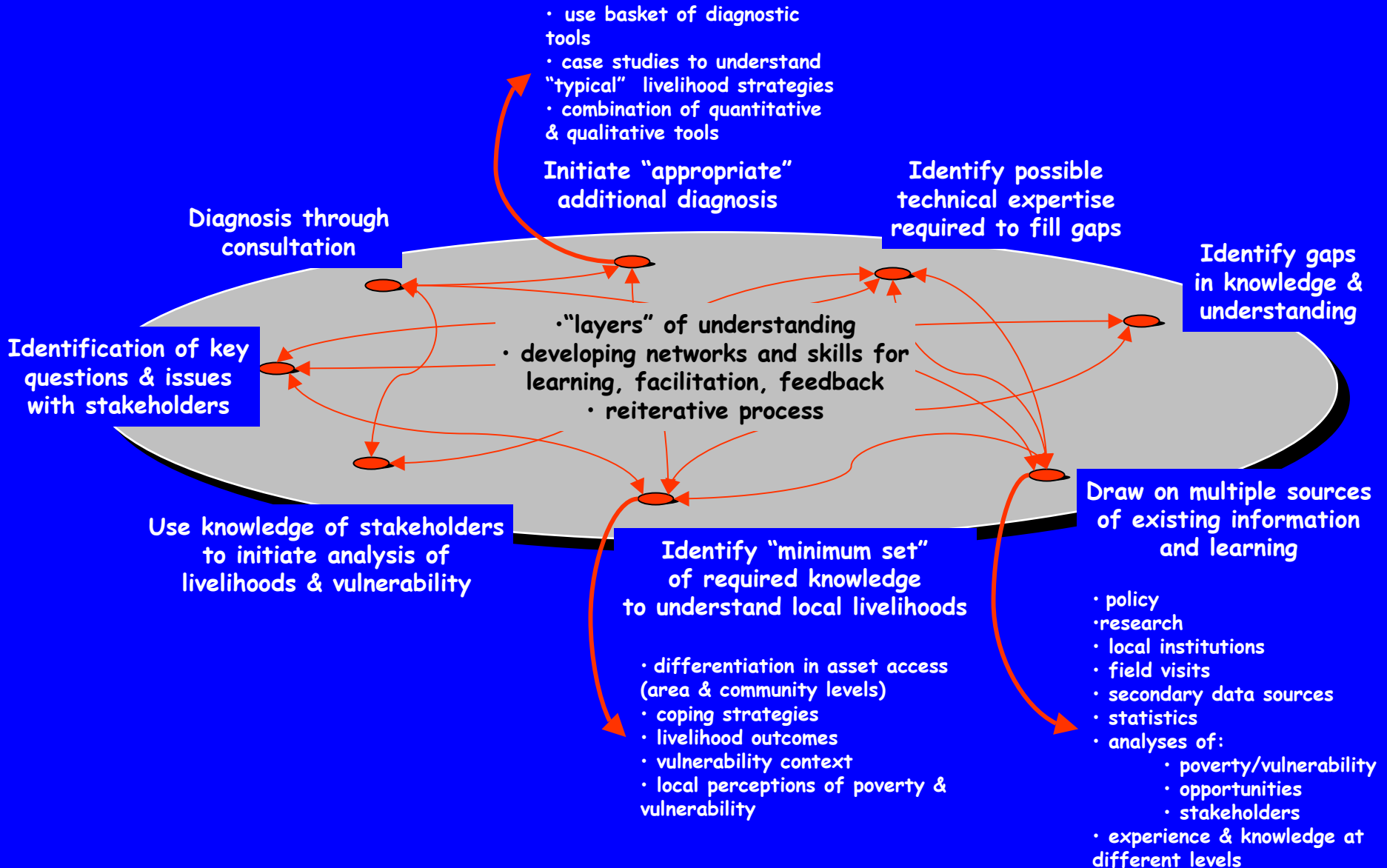
SUSTAINABLE LIVELIHOODS THEORETICAL PRINCIPLES

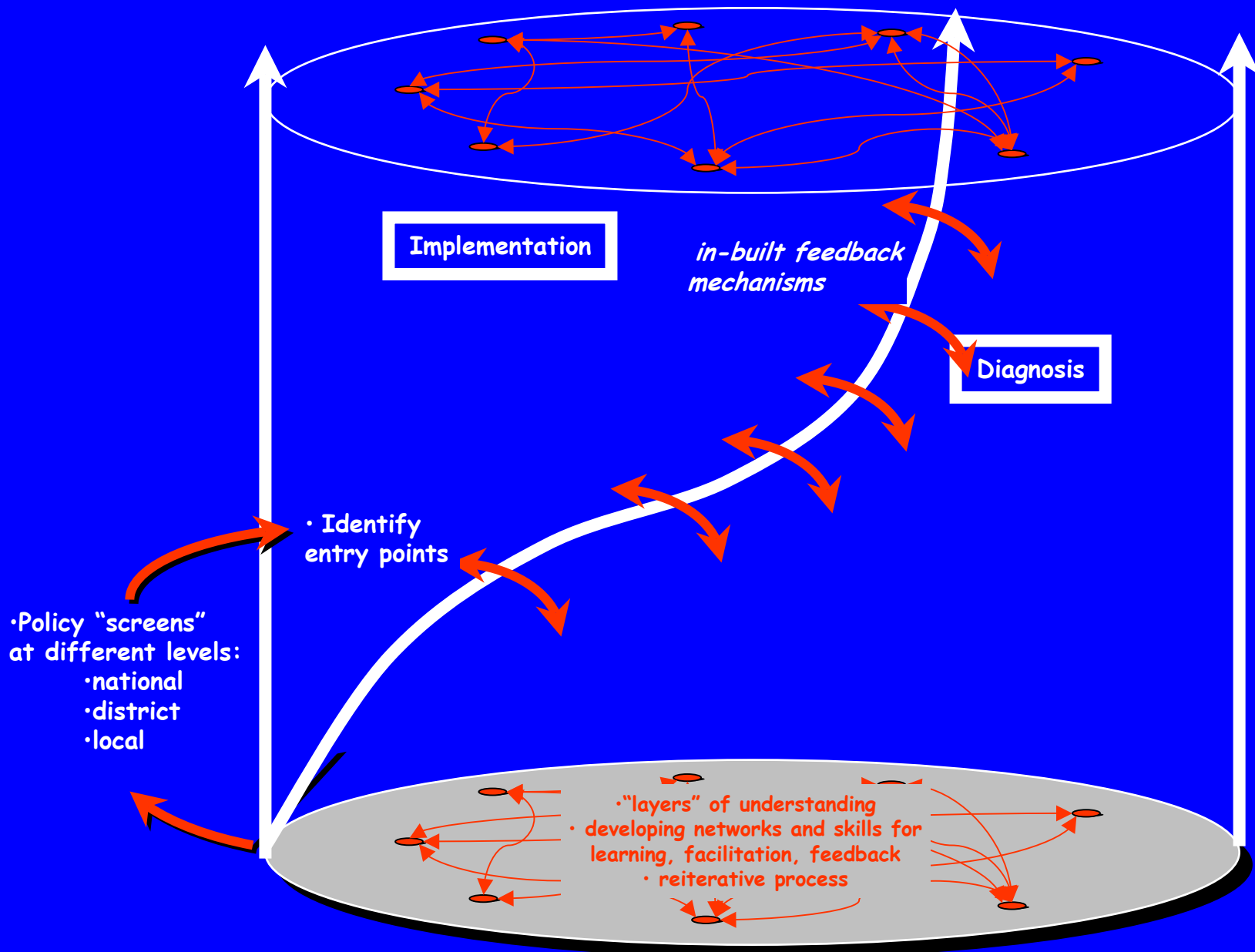
Sustainable Livelihoods	More Traditional Approaches
Embraces complexity	Assumes complexity away
Non-Linear	Linear
Uncertainty	Blue print
Surprise	Predictability
Dynamic co-evolutionary systems	Physical systems (at best)
Learning process	Expert driven
Adaptive	State-transition/ input-output

Figure 1: Sustainable Livelihoods Framework



Diagnosis in the Sustainable Livelihoods Approach





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.

Community-Based Approaches to Health Promotion

- **From Health Services to Health Promotion: Lalonde Report(1971) 7.1% GNP being spent on health with declining outcomes, hence shift to lifestyle, environment, human biology, Org's**
- **From lifestyle (victim blaming etc) to social model:social determinants of health: to enabling people to increase control over and improve their health. (self-empowerment)**
- **Prerequisites for health:peace,shelter education, food, income, justice equity, ecosystem.**

Ottawa Charter

- **Build public policy**
- **Create supportive environments**
- **Strengthen community action**
- **Develop personal skills**
- **Re-orient health services**

Social model(society, structures, policy, population) vs lifestyle to PCHP. People vs. Policy debate continues.

Health Promotion

- **Positive health and well being**
- **Whole of Life : holistic, ecological, systems, interdisciplinary, intersectoral**
- **Complex amalgam of bodily, mental , social, and spiritual states which on the whole change fairly slowly , so best to view HP as development.**
- **Everyday life and and community(livelihoods etc.)**
- **Balance of power in human and health domains**

HP: Concept(Raeburn, Rootman)

- Health promotion is an enterprise involving the development over time in individuals and communities of basic and positive states of and conditions for physical, mental, social and spiritual health. The control of and resources for this enterprise need to be primarily in the hands of people themselves, but with back up and support of professionals, policy makers and the political system. At its heart are 2 key concepts : *development* and *empowerment*.

PCHP

- **Strength , Resources, or Asset building approach.**
- **Community perspective**
- **Facilitatory Role for Professionals**
- **Empowerment**
- **Participation**

Some Myths of Community

- **Organised group**
- **In one physical location**
- **Gender blind**
- **Behaves as a distinct simple unit**
- **Community would take control if given the chance**
- **Remains the same over time**
- **What is true of one is true for another (best practices)**

Some Realities of Community

- **Heterogeneity(gender, age, ethnicity, class, power etc.)**
- **Weak organisational capacity**
- **Might not be in one place**
- **Interacts with the overall society**
- **Empowerment is high risk**
- **Best practices might not be always best**

Limits of Local Level Action

- **Does not scale up nor replicated easily**
- **Very limited impact relative to scale of problem in developing countries**
- **Easily reversed by changes in politics, macro-policy, natural disasters etc;**
- **BUT : Visible results, easier to report, and therefore attractive with tendency to focus on local and neglect system effects,**

CAS characteristics

- **Surprise and Uncertainty**
- **Emergence and Self –organisation**
- **Non-linear dynamics and feedback loops**
- **Attractors, Tipping points, Tagging**
- **Holarchy *vs* Hierarchy**
- **Co-evolutionary dynamics**
- **Interactions among large numbers of actors and variables, degrees of freedom, causes and effects.**

Applications to HIV-AIDS

- **Community level action: Lumumbashi**
- **Institutional setting Guerrilla vs military**
- **Societal systems challenge**
- **Implications for development co-operation :
pure science challenge, applied research, policy,
programs.**
- **In the face of verticals like 3x5, GFATM. etc.**
- **We need a systems approach to health systems**

Conclusions: What have we learned (or should have learned)

- **Participation of multiple stakeholders (introduced without formal systems work)**
- **Multiple scales and temporary boundaries: apply principle of subsidiarity with caution**
- **Use different orthogonal approaches to policy analysis in complex situations**
- **The log frame is good for project outputs but not so good at development outcomes**

Conclusions .

- **Linear reductionist thinking is not wrong, just partial truths and must be used within its limitations.**
- **Crude limited even perverse simplifications of reality(e.g GNP, HDI etc.) will continue to be dominant in real politics and policy, the challenge will be to communicate complexity simply not to simplify complexity**

A Practical Way Forward ?

- **The UKSS partner with Department for International Development (DFID) UK by identifying some strategic individuals in and out of DFID to apply systems thinking to selected international development challenges. This could lead to an EU scale initiative.**
- **You might find CIDA an interested partner in North America , which could lead to OECD.**
- **Involve some developing countries for global shift to systems thinking in development work.**