Complex Adaptive Systems Approach

Some connections with
UDsm/Sociology & Social Anthropology
Conceptualization

- Social systems – Human systems
  - Complexity
    - Interacting, inter-dependent parts, activities, processes
      - Diversity, differentiation
      - Conflict is inherent
    - DynamiSM
  - Adaptation
    - Continuity, capacity to change, respond = nature/access to assets
    - Asking question; What influences people’s livelihood choices
    - Unpredicted, the human mind (adds to complexity)
Societal dynamism

- Internal processes – External processes
- Evolving - Inevitability of change
- Multiple influences
- Multiple actors
Change and Dynamisms

- What influences (from where)?
- Why?
- How influencing?
- What do people do and why?
CAS - In teaching? – some aspects

• Qualitative Research
  • Asking questions, issues as emergent
  • Ethics & Reflexivity – eg power issues = the Researcher (even in PRA) and the Development worker (Often = How we can help, or what needs to be done)

• Human Ecology & Society, the Environment and Development
  • Ecosystems approach = Interacting, dynamic and changing inter-relationships between people and the environment
  • Adaptation = control, complexity (rules of interaction change), density and mobility
  • Under what conditions do we make choices about the environment? – information
    • Policy decisions v/s giving people choices
CAS in research - Example

- Coastal communities in coastal and marine environment management - objectives
  - Livelihoods
  - Health of the marine environment
Coastal communities

- Understanding what is there and how people understand
  - The people – diverse, value systems, perceptions, experiences
  - Institutions – norms, structures
  - Livelihoods and livelihood choices
  - Contexts – social, eco, political, ecological - processes
- Opportunities, Resilience / Vulnerabilities
  - Challenged, but crafty
  - Systems with fluid, permeable boundaries – challenging to contain a process within certain parameters

- Management
  - Response options, adaptation needs (reasons for learning, copy, evade, )
  - = The people should change? Other Decision makers?
The people
Complexities? – PR methods
Livelihoods/env mngt – how, why

Mtando – seine – net

Seaweed production
Access, power – not always technology
Levels of change – making connections

Rice cultivation in mangrove areas

CBO mangrove planting
Addressing Scales

- Temporal,
- Spatial
- Power scales?
  - Governance = Govt policies v/s local people jurisdiction
- Knowledge scales?
  - Shoreline erosion
CAS = Improved understanding-

- Lack of mandate to institute binding laws for all stakeholders regarding management

- Inability to control certain levels of community dynamics eg demographics (eg migration), rapid changes in resource use patterns

- Limited ability to handle certain issues of scale – both temporal and spatial – governance
Reflections – on application of CAS

• Theories are evolving – change -BUT– skepticism in Qualitative research – esp in setting parameters for generalization, monitoring and evaluation

• Although – largely – (Us/We) - Linear thinking is embedded in our ways (technocratic), the KIA

• Complexity, complexities ? – from whose perspective?

• Community level = Multi-levels of power – decision making systems
  • Who makes decisions over use of resources, influences livelihood choices
  • Political motivations, socio-cultural standards of behaviour

• Networking beyond a locality to address issues of spatial scale
  • Easier to operate in comfortable zones = BUT – where tenure is an issue?
    Fishing – seasonal migration, fishing space ‘ours’

• Implementation – rigidity – linear applications/interventions (if this then this)
Way forward- collaboration with Academic Inst

- Contribution to knowledge
  - Integrating the CAS methodology into relevant Teaching Courses – eg Qualitative Res and Human Ecology Courses
  - Building the capacity of students to ask questions rather than linear thinking

- Application
  - Research activities
  - UDSM/Institute of Resource Assessment of CASS (multi-disciplinary)