GLOSSARY OF TERMS

Complex systems are made up of heterogeneous elements that interact with each other. The interactions of these elements produce a unique effect that is different from the effects of just the individual elements.[1]

Systems thinking is a broad paradigm concerned with interrelationships, perspectives and boundaries.[2]

Systems science approaches are a broad class of analytical approaches that aim to uncover the behavior of complex systems. A distinction is made between *hard* systems methodologies (e.g. quantitative dynamic model building) and *soft* systems methodologies (e.g. qualitative, action-based research methodologies.[3]

Agent-based modeling uses computer simulation to study complex systems from the ground up, by examining how individual elements of a system (agents) behave as a function of individual properties, their environment, and their interactions with each other. Through these behaviors, emergent properties of the overall system are revealed.[4]

Group model building is a participatory approach that is used to build the capacity of a group to use systems thinking to develop causal loop diagrams and other system dynamics models.[5]

Network analysis is a research method and scientific paradigm that focuses on the relationships among sets of actors. The actors can be any type of entity that can have a relationship or tie with other entities (e.g. persons, animals, organizations, countries, websites, documents, and even genes).[6]

System dynamics is based on the premise that complex behaviors of a system result from the interplay of feedback loops, stocks and flows, and delays. The focus is on building models to represent the dynamic complexity of collective, often high-level phenomena.[7]

Community-based system dynamics differs from other group model building or participatory modeling approaches because of its explicit focus on developing systems thinking capabilities among community members, including an endogenous or feedback perspective, appreciation for non-linear system behavior, and an emphasis on operational thinking.[8]

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