Context of Resilience

Manisha Bhinge
Vice President, BRAC USA
Defining Resilience

- **Resilience**: the capacity of a system to absorb disturbance and reorganize while undergoing change, so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker et al. 2004; Folke et al. 2010).

- **Resilience** is about neither persistence nor change but about balancing and integrating both in an adaptive cycle.

- The key resilience question is the resilience of what to what?
“Imagine you are on a boat docked in a calm harbor and you want to quickly carry a brim-full cup of water across a stateroom without spilling. Now imagine the same situation but with the boat in rough seas. In harbor, the solution is simple: just walk quickly, but not so quickly that the water spills. At sea, speed is a secondary concern; now the real challenge is to maintain balance on an abruptly pitching floor. The solution now is to find secure handholds and footholds and to flex your knees to absorb the roll of the boat. In harbor, the solution is a simple optimization problem (walk as fast as possible but not too fast); at sea the solution requires you to enhance your ability to absorb disturbance – that is, enhance your resilience against the waves.”

Walter V. Reid in the foreword to Brian Walker and David Salt, Resilience thinking. Sustaining Ecosystems and People in a Changing World
Bug world vs. Cog world

Resilience thinking and efficiency come into conflict with looking at the paradigm of Socio-Ecological Systems

**Bug World**
- A complex adaptive system
- Variety of interactions
- Self organizing system
- No single point of control
- Emergent behavior
- Non-linear
- Secondary feedback loops

**Examples:**
- Ecosystems
- Economies
- Organisms

**Cog World**
- A complicated system
- Interconnected
- Complicated but simple
- Predictable
- Linear
- Cannot adapt to change
The Ball in the Basin

Framework for understanding the state of stability in a socio-ecological system

**The Basin**
- Set of states with the same functions and feedback loops.
- Acts as a basin of attraction: the system is attracted to the bottom of the basin.
- Shape of the basin is always changing. System is never in a “stable-perfect” equilibrium.

**The Ball** - Current state of the system

**The Boundary** – Tipping point – system moves towards a different equilibrium.
Basin of Attraction – Planetary Boundaries

Planetary Boundaries
A safe operating space for humanity

- Climate change
- Biodiversity integrity
- Land-system change
- Freshwater use
- Biogeochemical flows
- Nitrogen
- Ocean acidification
- Atmospheric aerosol loading
- Stratospheric ozone depletion
- Novel entities
- Genetic diversity


Design: visas
Revisiting the Definition of Resilience

- *Resilience*: the capacity of a system to absorb disturbance and reorganize while undergoing change, so as to still retain essentially the same function, structure, identity, and feedbacks” (Walker et al. 2004; Folke et al. 2010).

- *Resilience* is about neither persistence nor change but about balancing and integrating both in an adaptive cycle

- The key resilience question is the resilience of what to what?
Resilience through Adaptive Cycles

Weak

CONNECTEDNESS

Strong

Little

CAPITAL STORED

Much
1. Release or Creative Destruction
   Ideas are born
   Opportunity, Release of resources, paradigm changes

2. Reorganization or Exploitation
   Idea is developed
   Experimentation, Rapid prototyping, fail fast and fail often

3. Conservation and Scale
   Idea is established
   Standardization, efficiency, preservation and growth

3. Institution and Consolidation
   Idea is launched as a produce/process/organization
   Dynamic start up, institutionalization and systems

Poverty Trap

Rigidity Trap
Adaptive Cycles at Cross Scales

Governments and Policy

Established institutions

Start ups
Roles of Technology

For our partnership – How does technology help navigate complex socio-ecological systems

- Sensemaking for socio-ecological systems – aggregation of interdisciplinary variable; developing and testing new methodologies for measurement and analysis
- Rapid prototyping and real-time feedbacks
- Understanding states, patterns and trends within systems
- Creating perspectives across scales and sectors
- Visualizing context for policy, advocacy and crowding-in actors

The key resilience question is the resilience of what to what?
Resilience in Asia

For our region, key stresses and emergent crisis affecting the socio-ecological system

- Climate change and frequency of natural disasters
- Unplanned urbanization
- Population dynamics (Youth bulge, gender gap, ageing)
- Food security and production
- Management and access to water
- Labor markets and migration

The key resilience question is the resilience of what to what?
Rapid Urbanization

MEGACITIES ON THE RISE
More than half of the world’s megacities - cities with 10 million or more people - are now in Asia. By 2025, Asia will likely have 21 out of a global total of 37 megacities.

ASIA’S MEGACITIES BY 2025
Bangalore, India
Bangkok, Thailand
Beijing, PRC
Chennai, India
Chongqing, PRC
Delhi, India
Dhaka, Bangladesh
Guangzhou, PRC
Hyderabad, India
Jakarta, Indonesia
Karachi, Pakistan

Kolkata, India
Lahore, Pakistan
Manila, Philippines
Mumbai, India
Osaka-Kobe, Japan
Shanghai, PRC
Shenzen, PRC
Tianjin, PRC
Tokyo, Japan
Wuhan, PRC

* PRC = People’s Republic of China

TOP 25 CITIES BY POPULATION DENSITY IN 2007 (person/square kilometers)

Source: Asian Development Bank

www.bracusa.org
Tremendous Opportunity

Pic credit: Paul Butler, visualizing friendship
Thank You