

# POP SCIENCE



## Integrative Societal Resilience or 'One Resilience' Approach: Towards Optimal Health and Wellbeing

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### Background and Rationale

Emerging pandemic threats (EPT) are recognized as real challenges to health and global security. The technical, political, socio-economic, environmental and comprehensive security challenges posed by EPTs require holistic collaborative efforts- going beyond the health sector. Lack of preparedness is anticipated to result in massive socio-economic disruptions and loss of lives, as conveyed by the West African Ebola virus disease (EVD) outbreaks where the combination of spreading fear and uncertainty, and the imposition of movement restrictions and quarantine have heavily impacted on livelihood, business and essential services and economic activities, that have led to social devastation and unrest.

EPT is just one among the challenges in attaining optimal health. Disaster threats, which are multi-hazards and multifaceted in nature- including poverty, have the potential to result in massive socio-economic disruptions and loss of lives. Such negative consequences hinge on the extent and effectiveness of sectoral and systems collaboration, which is countered by the prevalence of sectoral and disciplinary silos- silos being basically characterized as the lack of collaborations of systems or sectoral efforts and resources being separately spent on common concerns. It is believed that lack of collaboration on overlapping concerns can be magnified upon further elaboration of the potential for collaboration and synergy among systems.

Therefore, 'One Resilience'<sup>1</sup> is introduced here as a proposed rallying point, movement and approach towards strategic systems' integration for attaining optimal health. One Resilience movement may be defined as the integration of security systems capacities along areas of sectoral interdependencies and synergies for the unitive attainment of health, food/water, energy, social, environmental and disaster resilience. By this approach, multi-systems and stakeholders (including political, military, civil society organizations, private citizens etc.) impacted by a human health problem (e.g. Ebola virus infection outbreaks) are expected to work better together to address the common problem. The initiation of a One Resilience movement may be likened to the now popular One Health movement, which was kick-started through the promulgation of the twelve Manhattan Principles in 2004<sup>2</sup>, aiming to promote an international and interdisciplinary approach to attain optimal health for people, animals and the environment. Since then, One Health has been able to harness growing support from the human, animal and environmental health sectors.

### Focus Areas and Objectives

Under the proposed more encompassing One Resilience approach, while health systems-focused efforts through approaches such as One Health must continue, broader sectoral and systems' actions to multi-spectral issues/concerns that are commensurate to infectious disease emergence/disaster risk and impacts must be mounted. The focus of actions should include, among others, services disruptions; disaster risk and impact reduction; climate change adaptation; poverty reduction; terrorism; atrocities and armed conflicts; population displacement; social discrimination; and regressive governance, social, traditional, and agro-industrial practices. These could encompass the unitive promotion of robust community-based farming and marketing, development of appropriate technologies, education to the poor, efficient land utilization and distribution, prevention of environmental degradation, peace and public security negotiations at all levels and angles, imposition of self-regulation, universal health coverage, etc. Therefore, it is implied here that societal resilience is the condition whereby optimal health and wellbeing of people is sustained.

One Resilience aims for the realization of optimal health through the attainment of systems' resilience (the ability of communities/society to be less impacted by disruptions- that in the face of disruptions, integrated systems are able to regain normalcy without unnecessary delays). One Resilience specifically aims for more holistic systems' restructuring and refining, beyond just effective multi-sectoral and interdisciplinary collaborations- e.g. biosecurity being merely focused

on the interface of animal-human-environmental health. One Resilience aims for broad security-resilience systems integration, focused on the interface of all interdependent systems.

### Expected Outcome

Health, food, water, energy, social and environmental security and resilience are attained collectively through the strengthening of cross-system dependency and synergy. Poverty reduction is a very relevant entity, as generally poverty alleviation means vulnerability reduction- this has been documented in relation to the likelihood of infectious disease emergence in impoverished community settings<sup>3</sup>. And, this is clearly demonstrated in the case of the spread of Ebola in West Africa. A One Resilience approach is expected to penetrate deeper into societal issues and problems.

One Resilience should ensure that long-term investments of money, time and effort directed to various societal security entities, are sufficiently protected, especially when disasters and disruptions hit. People and essential service sectors should be drawn to naturally support and depend on each other.

### Proposed Key Actions

Targeted initiatives must promote broad resilience objectives, cognizant that absolute efficiency of systems, especially in relation to mega disasters, is contingent on the interdependencies of sectoral approaches, and the capacity to enable strategic systems synergies. Of prime importance are the enabling of institutional mindset-change, whole-of-community mobilization, and enhanced integrative leadership, good governance and sectoral stewardship. In this regard, below are proposed key actions (or steps) for concerned multi-sectoral stakeholders and national/regional governments to pursue:

1. The first critical step (Step 1) is to elaborate the One Resilience approach and conceptual framework, and conduct a deeper analysis of systems' interdependencies and interconnectedness, and associated costs and benefits. Policy development could follow, and governance and resources committed.
2. The succeeding steps, as informed by Step 1, would include institutional restructuring (see below) and innovative systems capacity building. Capacity building is expected to be facilitated by better collaboration among stakeholders. Examples of capacity building agenda are presented in Annex 2.
3. Institute heightened measures on whole-of-society pandemic/disaster risk and impact reduction. Institutionalize sectoral leadership and operational interoperability. This requires strategic integration of interrelated issues within an integrative all-hazards risk and impact management framework and mechanism. These call for whole-of-government to mobilize and coordinate all relevant government departments and agencies. It requires enhanced systems management in an integrated sciences framework (including natural-health-social-industrial-security sciences) that forms systematic and sustainable bonds among a cadre of civil servants and private practitioners.
4. Strategically change the mindset of leaders, civil servants and all other actors- that no discipline or sector is marginalized and elimination of sectoral silos is achieved. Non-conventional approaches to cross-disciplinary learning must continue to be introduced—aiming to produce a global One Resilience workforce that can broadly manage integrated security-resilience systems at all levels.
5. Address above challenges as regional blocks and as a global community. There must rise a One Resilience leadership that can provide assurance that prevention, risk reduction and preparedness efforts across security systems are commensurate to pandemic/hazard risk and potential impacts, and that holistic approach for global good and inclusive benefit will ensure that no nation will be more vulnerable and disadvantaged than others.

Science and policy research promotion bodies must set these actions in the context of 'systems innovation' (involving enacting legislation, capacity-building

<sup>1</sup>History of One Health, <http://www.cdc.gov/onehealth/people-events.html>

<sup>2</sup>Sustained Global Attention to Emerging Pandemic Threats and Risks: The need to strengthen One Health systems and Whole-of-Society preparedness, <http://philscitech.org/2015/1/1/013.html>

<sup>3</sup>Mapping of poverty and likely zoonoses hotspots, <http://www.ilri.org/node/1244>

and policy advocacy). As One Resilience embodies regeneration of an integrative social, economic, political-security and governance paradigm, and implies overhauling collaborative mechanisms, policy research plays an important role in laying down the foundation and enabling integrative sectoral capacity building, which entails innovation in products, processes, services and systems. Thus, the first critical step proposed is the methodical analysis of systems' interdependencies and interconnectedness (refer to Annex I for the proposed approach to Step 1). From this step, strategies to whole-of-systems resilience can be methodically developed and their feasibility further explored. Considering the nature of this initiative, all sectoral stakeholders are required to work collaboratively to see the proposed actions through.

**Guiding Principles**

The case presented here is beyond mere terminologies or catchphrases. It is about the ability of sectors and systems to be driven to think and work together as one for achieving optimal health and wellbeing, and societal resilience. Philosophically, the One Resilience approach should bring about 'unity of humanity in mind and action'. It is hoped that the call for unbiased involvement of all sectors and systems will effectively remove disciplinary and sectoral boundaries, and enable "whole-of-government" mobilization and coordination to better promote innovation and ensure national competitiveness.

**Annex 1.**

**Step 1: Establishing the One Resilience Conceptual Framework**

The first key step to One Resilience implementation is to construct a conceptual framework showing relationships of all societal stakeholders and synergistic functional systems towards achieving "Optimal Health". For instance, the following are the existing functional systems that have not been effectively synergized, or have traditionally operated in silos:

- 1) Biosecurity (including One Health)
- 2) Health security (Referring to primary health care and universal health coverage)
- 3) Food security
- 4) Energy security
- 5) Environmental security (including conservation)
- 6) Social security (all aspects of poverty reduction, education, social services)
- 7) Protection security (referring to peace and order)
- 8) Disaster security

**Defining Security-Resilience Interrelationships and interrelatedness**

The above security systems are disaster/crisis vulnerable- in the face of mega disasters, all security systems must be robust enough to better cope with the destruction and disruptions, and be able to recover faster- e.g. food production systems (How secure are national and global systems?)

What are interdependencies among areas of concern?- e.g. how does food security-resilience relate to biosecurity? How does one impact on the other?

Infectious Disease (ID) Outbreaks have been documented to impact on food security, energy security, livelihood, and other systems. Specifically, Ebola virus disease in West Africa heavily impacted agricultural production and commerce-therefore- bioenergy crop production, services operations and supply chains, livelihood, public security (prompting riots, criminality), and general human (family) health and wellbeing are disrupted.

The integration of systems into a broader platform or framework recognizes the multi-faceted nature of Optimal Health (i.e. all aspects of harm, hazards and poverty risk reduction). The conceptual framework for integrated security systems needs to be established (this integration is called One Resilience Approach)

To do this, all systems stakeholders should engage in a cross-system dialogue (a workshop) where a synergy matrix will be developed, as below:

Security-Resilience Interrelationships and interrelatedness- an exercise where participants (government, industry and university sectors), will provide inputs on cross-system impacts. The outputs of this exercise will further benefit from a review of related literature.

**Example for Biosecurity in relation to other systems**

Security-Resilience Entities	How is Bio-security impacted by the lack in the other security-resilience entities?	How does lack of Biosecurity impact on other security-resilience entities?
Health	<ul style="list-style-type: none"> <li>Compromised disease prevention</li> </ul>	<ul style="list-style-type: none"> <li>Burden on entire health system</li> </ul>
Food and Water	<ul style="list-style-type: none"> <li>Non-biosecure farming practices</li> <li>Debilitation of health states</li> <li>Compromised human health and</li> <li>Proliferation of wildlife trade</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce</li> <li>Threat to agriculture</li> <li>Water contamination</li> </ul>

Energy Production	<ul style="list-style-type: none"> <li>Compromised hospital care and laboratory testing</li> <li>Compromised farm biosecurity</li> <li>Compromised human health and welfare</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Mass housing	<ul style="list-style-type: none"> <li>Exposure to biohazards</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Sustainable livelihood	<ul style="list-style-type: none"> <li>This impacts on poverty, which will counter multiple aspects</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Education and community outreach	<ul style="list-style-type: none"> <li>Inefficient health delivery</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Public Safety and Security	<ul style="list-style-type: none"> <li>Disrupted access to health care</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Disaster risk reduction, mitigation and response	<ul style="list-style-type: none"> <li>Disrupted access to health care</li> <li>Burden on health services capacities</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>
Environmental protection	<ul style="list-style-type: none"> <li>Burden on health services capacities</li> </ul>	<ul style="list-style-type: none"> <li>Lack of workforce- and inputs</li> </ul>

**Determining shared needs and capacities:**

NEEDED SUPPORT	Biosecurity	Health security	Food security	Energy security	Environmental security	Social security	Protection security
Biosecurity	xxxxxxx						
Health security		xxxxxxx					
Food security			xxxxxxx				
Energy security				xxxxxxx			
Environmental security					xxxxxxx		
Social security						xxxxxxx	
Protection security							xxxxxxx

The above matrix should show what support one needs from others. The following should show what support each can offer to others.

OFFERED SUPPORT	Biosecurity	Health security	Food security	Energy security	Environmental security	Social security	Protection security
Biosecurity	xxxxxxx						
Health security		xxxxxxx					
Food security			xxxxxxx				
Energy security				xxxxxxx			
Environmental security					xxxxxxx		
Social security						xxxxxxx	
Protection security							xxxxxxx

These should be based on real capacities of systems to provide support across other systems. **This is what we have not yet realized very well because these systems have traditionally operated in silos.**

If we can fill these matrices completely, then the conceptual framework will be formed and actions can be actualized through policies and institutional changes, and strategic action-implementation plans. The process must instill in everyone the 'crisis mentality'- for people naturally unite when faced with life and death situations. We must perceive the continuing state of poverty as such.

However, before reaching the synergy matrix stage, the initial step is for each system to map out its key essential functions, and the enabling functions or elements- e.g. for biosecurity to effectively prevent infectious disease emergence and outbreaks, this must be enabled by numerous elements including providing families with means to acquire food and earn livelihood- so that they need not

depend on wildlife trade (as we can see poverty reduction is a key focus area). This is just an example. There should be more aspects involved.

Example:

System	Key Essential Functions	Enabling Elements/Functions
Biosecurity	Prevent infectious disease emergence and outbreaks/ pandemic impacts	Providing families with means to acquire food and earn livelihood- so that they need not depend on wildlife trade

**Summary of One Resilience System Management Considerations (examples)**

- All-hazards (multi-impact) approach

- High-level National Platform (e.g. Non-Traditional Security Council)
- Multi-sectoral-disciplinary sub-platforms (per security-resilience entity)
- Designation of most qualified line agency as lead and oversight (per sub-platform)
- Designation of multidisciplinary RRTs/ TWGs (per sub-platform)
- Designation of Institutional Disaster Focal Point(s) (per stakeholder organization)
- Define links between authorities (Sub-platform Interrelatedness)
- **Leadership and governance (national & regional/global)**
- **Whole-of-systems approaches**
- **Systems' interdependencies**
- **Costs-Benefits**
- **Policies**
- **Resources**
- **Mind-set change**

**Annex 2.**

**Proposed One Resilience Capacity Building in Relation to All-hazards Preparedness**

Strategic Areas	Gaps	Proposed Activities
<p><b>A. Governance, Coordination and Preparedness Planning: National and Sub-national</b></p> <p>This takes into consideration that impacts of disasters on society could escalate beyond the concerns of just one sector</p>	<ul style="list-style-type: none"> <li>• Need to define the command and control structure that is able to mobilize whole-of-society disaster preparedness and response.</li> <li>• Need to define the system of command interoperability and multi-sectoral engagements to best ensure crisis-specific responses and continuity of essential operations.</li> <li>• Uncertainty as to who takes charge in relation to evolving disaster/crisis challenges.</li> <li>• Multi-sector-wide planning needs to be promoted. Countries still lack whole-of-society representation.</li> <li>• Institutionalization of integrated national oversight requires strategic changing of mindset of leaders, civil servants and other actors</li> <li>• The following are general issues/deficiencies in preparedness and response planning.                         <ul style="list-style-type: none"> <li>o Decentralized policy and geographic constraints</li> <li>o Developing, updating and streamlining Preparedness and Response policies, plans and SOPs, with clear designation of roles and responsibilities</li> <li>o Strengthening and broadening designations of multi-disciplinary rapid response teams (RRT) and defining the terms of reference</li> <li>o Interagency communication</li> <li>o Strengthening community participation</li> <li>o Logistics preparedness/readiness</li> <li>o Workforce augmentation and training across key expertise and functions. Training of trainers is key.</li> <li>o Technology development and innovations</li> <li>o Conducting periodic whole-of-society simulation exercises</li> <li>o Monitoring and evaluation capacities</li> <li>o Dedicated and sustained funds and resources for capacity building</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Establish <b>interoperable integrated multi-sectoral (whole-of-society) oversight</b> and coordination within an all-hazards/ comprehensive security framework (e.g. through the National Security Council or other high-level bodies under the office of the President or Prime Minister). This requires close examination of the state of integrated hazards risk and impact management (framework and mechanism).</li> <li>• Establish <b>linkages</b> with non-governmental and civil society organizations (NGOs and CSOs) and private sector groups. Pursue the systematic involvement of services providers, NGOs/CSOs, and the military, based on identified areas of sectoral interdependencies. Therefore, establish Partners Coordination Mechanism.</li> <li>• For the <b>security sector to develop their specific Preparedness and Response Plan</b> that is supportive to the national plan — e.g. elaborating the military's role, such as building surge capacities and supporting services continuity such as logistics and farming. Joint civil-military planning and coordination may be strengthened and properly contextualized</li> <li>• <b>Build support-manpower resources.</b> It is important that there is a systematic mechanism for augmenting manpower with skilled/trained manpower according to sector/skill-specific demands under a severe crisis (all-hazards framework)</li> <li>• In relation, define the sources of trained manpower, as well as the triggers for engagement of these resources.</li> <li>• Develop <b>sector-specific training programs</b> within sectors and systems, but with inter-sectoral and cross system inputs.</li> </ul> <p>The following are key enabling activities:</p> <ul style="list-style-type: none"> <li>• Clearly define the <b>authority, mandate/role and capacitation of the high-level inter-ministerial oversight</b> body for multi-sectoral coordination. This may involve <b>legislative review</b>.</li> <li>• Ensure that <b>comprehensive threats preparedness plans</b> (including sector-wide continuity of sectoral operations) are in place at all levels (vertical and horizontal). These plans must define sectoral platforms, leadership, and roles of whole-of-society and sectoral actors such as private service providers, law enforcement, military, etc. Establish community-based plan implementation</li> <li>• Allocate/mobilize the enabling <b>budget/resources</b></li> <li>• Conduct periodic tests and <b>simulation exercises.</b> Develop exercise tools.</li> </ul>
<p><b>B. Protection and Continuity of Essential Services Planning</b></p> <p>In the event of possible wide-scale disruptions of essential services</p>	<ul style="list-style-type: none"> <li>• Whole-of-society continuity of essential services planning has not been fully taken up in most countries and at regional level. Countries generally do not have operations continuity plans, or need to finalize and implementing their operations continuity plans.</li> <li>• Community resilience initiatives need to be promoted</li> <li>• Need to address the fundamental vulnerability that uniformly applies to all sectors- i.e. the anticipated high absenteeism in the face of direct impact of illness/death, preoccupation with caring for others, and growing fear vis-à-vis increasing infection, deaths and social unrest.</li> <li>• There is need to ensure efficient and coordinated movement of goods and persons across borders during severe disasters such as pandemics and other crises. Among others, this would include trade in essential goods and services; food; spare parts</li> </ul>	<ul style="list-style-type: none"> <li>• Initiate or pursue <b>continuity of essential services/ protection of critical infrastructures planning</b> within individual sectors and inter-sectorally, and among systems (i.e. identify essential service sectors and formulate policies and guidelines, information and communication strategies, addressing the specific needs of vulnerable groups etc.). This may require technical working groups to draft plans.</li> <li>• Promote <b>civil-military cooperation</b></li> <li>• Promote internal continuity of operations planning or <b>business continuity planning (BCP)</b> in both public and private sectors.</li> <li>• Conduct <b>social vulnerability assessments</b> to identify most-at-risk populations.</li> <li>• Develop <b>templates and checklists, advocacy materials, BCP capacity building, pilot mechanisms, and explore public-private partnerships</b></li> <li>• Promote <b>cooperation with service providers and supporting organizations</b> (private sector, NGOs, and humanitarian organizations)</li> <li>• Establish <b>resilient/disaster-ready farming communities</b> that are self-sustainable in relation to essential goods and livelihood. This requires piloting/modeling and exploring public-private partnerships. Effective <b>linking with poverty reduction programs.</b></li> <li>• Promote innovations in delivery of essential services and emergency relief</li> </ul> <p>In relation to promoting community resilience:</p> <ul style="list-style-type: none"> <li>• Establish <b>standards and checklist on community-based capacity building</b> for continuity of operations/services.</li> </ul> <ul style="list-style-type: none"> <li>• Develop <b>community-level assessment survey/ tool/ exercises; and undertake (e.g. by local government) preparedness mapping</b> (to include service provider business continuity plans and risk communication plans). Create <b>feedback loop/ mechanism</b> with communities.</li> <li>• Establish an ASEAN regional <b>database on best practices</b>, and institute <b>sharing of information and promotion of best practices.</b></li> <li>• Conduct regional <b>consultation on community resilience</b> involving selected representatives from local government, community-based and civil society organizations, and humanitarian and risk reduction organizations.</li> </ul>
<p><b>Cross cutting elements</b></p>	<ul style="list-style-type: none"> <li>• Participatory community-based approaches</li> <li>• Institutional mindset-change approaches</li> <li>• Enhancing systems' integration leadership, good governance and sectoral stewardship</li> <li>• Systems piloting</li> <li>• Conducting appraisals/assessments of ongoing national nontraditional/human security systems and continuity of essential operations capacity building initiatives, and the challenges within countries.</li> <li>• Inter-regional collaborations</li> </ul>	<ul style="list-style-type: none"> <li>• Establish community-based resilience programs with focus on individual security systems within comprehensive security-design targeted outreach, education, etc. (attention to vulnerable segments of communities)</li> <li>• Key areas include food and agriculture bio-security</li> <li>• Establish targeted higher education/training programs (consider online training)</li> <li>• Conduct piloting in selected communities/settings (promote best practices in the process)</li> <li>• Conduct appraisals of capacities through ASEAN—set benchmarks/ and springboard from previous experiences/tools</li> </ul>

The inputs to Annex 2 are based on past assessments, correspondences and interviews with regional focal points, regional work plans, reports, and discussions and recommendations from regional biopreparedness workshops, consultations and meetings (refer to list of references).

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