

**Towards the Post-2015 Framework for Disaster Risk Reduction**  
***Tackling Future Risks, Economic Losses and Exposure***  
14 November 2013

*Developing the Elements of the Post-2015 Framework for Disaster Risk Reduction*

**1. The Context**

1. This paper builds on the hypothesis that a successful post-2015 disaster risk reduction framework needs to better address underlying risk factors over a longer timeframe and engage directly more pertinent actors such as local government leaders and the private sector.
2. The paper explores the possible priority issues (the “substance”) that should be highlighted in post-2015 framework for disaster risk reduction, setting the parameters for who (the “actors”) and how (the “form”) the substance should be included and the actors engaged. While the post-2015 framework for disaster risk reduction “form” and the “actors” need particular consideration, the definition of the “substantive” priorities will decide how the “form” can be developed and which “actors” should be engaged and how.
3. On the post-2015 framework for disaster risk reduction “form,” a review of the existing instruments on disaster risk reduction (1989 International Framework for Action for the International Decade for Natural Disaster Reduction, 1994 Yokohama Strategy and Plan of Action for a Safer World, 2000 International Strategy for Disaster Reduction and 2005 Hyogo Framework for Action 2005-2015: Building the resilience of Countries and Communities to Disasters) reveals that most of the issues being raised presently are already articulated in these instruments. If these are being raised again now, it is therefore necessary to consider if the revisiting of these issues is a reaffirmation of their importance, or a hint of gaps in how previous disaster risk reduction instruments tackled these issues.
4. It is also useful to review if the way issues, such as gender, are included in existing disaster risk reduction frameworks contribute to their effective implementation, and, if not, to reconsider how best to make them more effective. While the calls to build on HFA1 are common, there are also calls for post-2015 framework for disaster risk reduction to build on certain “principles” followed by priority issues to be done. The question of course is, “principles” on what issues? Finally, HFA1 have not been particularly explicit on the implementation mechanism and follow-up to the

Framework. This may therefore merit more focused attention in post-2015 framework for disaster risk reduction.

5. On the issue of “substance,” the initial phase of consultations on post-2015 framework for disaster risk reduction have reiterated the continued usefulness and relevance of the existing contents of HFA and highlighted the need to use these as basis for developing post-2015 framework for disaster risk reduction. These consultations also highlighted the need to go deeper into priority for action four of HFA – “Reduce the underlying risk factors,” where the three cycles of national HFA self-assessment reports by countries have consistently revealed weak progress in implementation. The key activities identified in this priority for action includes environmental and natural resource management (including climate change adaptation), social and economic development practices, and land-use planning and other technical measures (including building codes).
6. On the “actors,” HFA outlined tasks that involved multiple stakeholders, and in fact it noted that the expected outcomes of the framework will be realized only with “the full commitment and involvement of all actors concerned, including governments, regional and international organizations, civil society including volunteers, the private sector and the scientific community.” HFA explicitly tasked mainly States for a limited number of activities under its implementation and follow-up. The question remains whether a more explicit declaration of the roles and responsibilities of various stakeholders should be specified, mindful of the primacy of States in the responsibility for their national activities to reduce disaster risks.

## **2. Substantive Priorities for post-2015 framework for disaster risk reduction**

7. How should the substantive priorities for post-2015 framework for disaster risk reduction be identified? One approach would be to look into its possible expected outcomes.
8. HFA had the following overall expected outcome:

*“The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries.”*

9. While the discussions on possible post-2015 framework for disaster risk reduction targets and indicators are still ongoing, it is highly possible that post-2015 framework for disaster risk reduction will adopt the same, if not more specific expected outcomes as HFA. If it does, then it is useful to consider how far have we progressed in achieving HFA’s stated objectives in the ten years since it was adopted.

### Reality check No. 1

10. On one hand, HFA can take credit for reducing mortality linked to hydro-meteorological disasters, yet it is clear that we are making little headway in dealing with economic losses caused by the same disasters, which we will see later on, are driven by the backlog of risk built up by the political, economic and environmental forces which have been driving human progress at present - development and climate change.
11. The trend of reduced mortality is proof that development investments in activities such as early warning, preparedness and contingency planning yield positive gains if invested in reducing vulnerability of people and communities. However, there are also hints that the same development model, when not focused in building resilience, also drives the creation of new risks, by exacerbating hazards, creating vulnerabilities and widening exposure. The result of this development model that both reduces and creates risks is a net increase in risks, because in many parts of the world the pace that we are reducing vulnerability cannot cope with the accelerated increase in exposure. It is obvious therefore that a long-term positive net increase in risk will result in risk accumulation over time.
12. For example, we are now facing an increasing and unmitigated trend of economic losses due to disasters on the public and private sector. For the first time globally, annual economic losses from disasters exceeded \$100 billion for three consecutive years (\$138 billion in 2010, \$371 billion in 2011, \$138 billion in 2012). During these last 13 years of record-breaking temperatures and rainfall, we have seen economic losses reach \$1.7 trillion.

#### Reality check No. 2

13. While climate change intensifies and makes climate related hazards more erratic and uncertain, economic progress, the rapid pace of urbanization and population growth has combined to concentrate people, jobs and property in areas exposed to the very hazards that climate change has now intensified. For example, out of a US population of 313 million people (based on the 2010 census) coastal shoreline counties comprise 39% or 123 million people. An average of 1,355 building permits is issued daily in coastal shoreline counties where there are already 49 million housing units. Similar scenarios are played out right around the world every day. The proportion of the world's GDP annually exposed to tropical cyclones increased from 3.6% in the 1970s to 4.3% in the first decade of the 2000s.
14. Although recent major disasters such as Hurricane Sandy in the Caribbean and North America in 2012 and the 2011 floods in Thailand focused our attention on the growing impact of disasters on the private sector, the required shifts to anticipate risks remain a challenge for both public and private sector.

#### Reality check No. 3

15. It is also obvious that as human exposure increases, and as nations and communities get better at reducing vulnerability, reaching the last quintile of losses with such programmes as “zero-casualty” will lead to efforts of increasing costs. Increased intensity and unpredictability of hazards also contribute to this trend of increasing costs of reducing vulnerability due to the need for new technologies and equipment.

#### Reality check No. 4

16. The long-term engagement with the climate community in HFA has resulted in the formal endorsement of disaster risk reduction as a necessary tool for climate change adaptation. However, this has not proved enough, since while it is generally recognized that disaster risk reduction is a useful first line of defense in climate change adaptation and mitigation, disaster risk reduction and its community of practice are not systematically recognized within practical mechanisms used by the climate change community to initiate actions, including funding mechanisms, tools and methods and available capacities.
17. In light of these reality checks, we face three challenges: a) tackling exposure, economic losses and future risks, b) scaling up vulnerability reduction and building of resilience, and c) Integrate climate change into disaster risk reduction.
18. From experience over the last decade it is increasingly clear that a strategy mainly focused on reducing vulnerability to natural hazards will not be sufficient to arrest the creation of future risks. The models and approaches promoted through the HFA and the follow-up by the disaster risk reduction community of practice has been rather effective in dealing with vulnerability reduction, and thus with further concerted efforts, resources and time, it might possibly deal with most of the existing stock of risks. The present evidence and models however suggest that reduction vulnerability to natural hazards may not be capable or even suitable to deal with exposure reduction and the subsequent economic losses it creates. We therefore need to review the existing strategy in order to arrest the creation of future risks.
19. We have now an opportunity to develop new strategies for disaster risk reduction focusing more on reducing the exposure of people and assets to hazards, and the subsequent economic losses it creates, in order to pre-empt further increase in economic losses.
20. In the face of the additional challenge of the increasing frequency and intensity of some risks induced by climate change, our shared challenges therefore are two-fold. The first is to expand the existing model of the HFA and its community of practice to deal with the existing stock of risks mainly through accelerated efforts to reduce vulnerability, at acceptable costs. The second is to explore new models that would

arrest the creation of new and future risks, mainly through reduction of socio-economic exposure.

## **A. Tackling Exposure, Economic Losses and Future Risks**

21. Many of the achievements in reducing the vulnerability to natural hazards were derived from benefits of development such as improvements in housing, transportation, engineering, technologies used in early warning systems such as improved telecommunications and better education systems. This helped many aspects of development for reducing human vulnerability to disasters. But much more needs to be done to arrest the growing exposure of people and assets to hazards, which may also be caused by development.
22. There are many contributing factors to this trend of increasing exposure, but a few primary conditions have been considered because of significant opportunities to manage them for multiple benefits. They address particularly the issues of direct proximity to hazards (through spatial and land-use planning, financial investment in disaster risk management and post-disaster recovery), reliance on assets that are close to hazards (global supply chain management), the creation of new hazards in previously safe locations (due to climate change and weak ecosystems management), or generic to all issues above (removing barriers and engaging new stakeholders, building social demand for exposure reduction, and improving accountability). All these issues also point to a need for a new governance approach, as tackling exposure will likely engage more the development sector, both public and private.

### **A.1. Land use, urban and spatial planning**

23. Fast-growing cities and urban areas of the world are engines of growth and wealth accumulation. This growth has positive results in social improvements, cultural, educational and other positive impacts. On the other hand fast economic growth combined with fast population expansion in urban areas, also increases disaster vulnerability as natural defenses are removed. Exposure is therefore increased as more people and more and higher valued assets are located in hazard prone locations.
24. For example, HSBC in March 2012 noted in a report that Asia will continue demonstrating extremely strong growth rates and those with large populations will become economic powerhouses. The HSBC 2050 list of 30 top economies (change in rank from 2010) has 9 out of 30 countries from Asia, with the greatest projected growths in the Philippines (+27), Malaysia (+17) and Pakistan (+14). The report concludes that there are two ways economies can grow; either add more people to the production line via growth in the working population, or make each individual more productive. In the case of Asian economies, more people gets added to the production line, for example the population in the Philippines expected to increase by 70% on the next 40 years. Considering that the Philippines and Pakistan are also two

countries that are highly vulnerable and exposed to hazards that trigger disasters, locating more people and more economic activities in the same hazardous locations is a clear recipe for increased disaster losses in the future.

25. Similar patterns exist in other regions. For example Africa has the highest rate of urbanization in the world. An estimated 40 percent of Africans live in urban areas up from 4 percent in 1950. By 2050 urban areas will accommodate 60% of the continent's population and by the same year countries like South Africa and Angola will be more than 80% urbanized. Population and strong economic growth will drive more economic activities in urban areas, which will eventually drive the increase in risks.
26. Catastrophe modeling firm AIR Worldwide estimates the insured replacement value of coastal properties is expected to increase by 7% per year, which means that the value at risk would approximately double every decade. This does not include yet the increase in the number of properties exposed to hazards over this same period.
27. For example, the Insurance Information Institute projected future losses from past events that reflect rising exposures in areas proven to be at high risk to climate hazards. In this analysis they calculated the possible losses of past hurricane disasters if they happened 2005 instead – basically normalizing losses purely on the basis of inflation (higher value of and the cost of wealth in the structures), and increased number and exposure of structures. It was found for example that Hurricane Frederic caused \$2.3 billion in total damage when it made landfall in 1979 would have caused an estimated \$11.5 billion in total damage if this same storm were to have occurred in 2005. This means a doubling of economic losses every decade purely due to increased exposure of assets, with the hazards and vulnerabilities taken as constants.
28. HFA already addressed land use planning, however it was not enough, as it focused mainly on human settlements and did not explicitly cover the reduction of exposure of economic assets and economic activities to hazards.
29. A potential solution in the post-2015 framework for disaster risk reduction could be to commit to systematically improving spatial, urban and land use planning to reduce future economic exposure in addition to human exposure to hazards and thus reduce future risks. For example, following the Canterbury earthquakes of 2010 and 2011 New Zealand developed a strategic plan to manage future growth called the Greater Christchurch Urban Development Strategy (UDS), which looks into where development should occur in the city and the districts. The strategy was driven by projections that indicated that the population in the greater Christchurch area would grow from 350,000 people to 470,000 over the next 35 years. Threats posed by natural hazards, such as earthquakes, floods and rock falls, were factored in to ensure the most appropriate land was identified for development. The implementation of the strategy focuses on improving the settlement pattern, transport network, urban design and housing, central city revitalization and water management.

30. Another example is Scotland, where national planning policy has reduced construction on flood plains to almost zero since 1995. The approach is founded on public-private partnerships with strong involvement of real estate developer and insurers. Local governments are legally obliged to set up Flood Liaison Advice Groups (FLAG) as non-statutory bodies of public and private sector representatives. Only one local authority, Moray, did not engage and continued construction in floodplains. Consequently, it now has serious problems with flooding, and access to flood insurance.
31. In addition, another solution in the post-2015 framework for disaster risk reduction could be the promotion of the quality of how land is used through improved land ownership, which will yield additional benefits in reducing risks. For example, the World Bank in its 2010 report “Natural Hazards, Un-natural Disasters” found that giving more urban dwellers title to their property would encourage investment in their safety, and lifting rent controls would encourage landlords to comply with building codes, since they could then recoup the cost. This means that improving land use will not only reduce exposure, it may also encourage the reduction of vulnerability of assets.

#### A.2. Post-disaster recovery and reconstruction

32. Another feature that can reduce exposure to the risks of future disasters are various post-disaster recovery measures. It is now widely recognized that pre-disaster recovery planning can reduce exposure to future hazards. In one recent example, following the Great East Japan Earthquake, the national Government issued the Basic Act for Reconstruction and Basic Guidelines for Reconstruction. Part of these guidelines at the municipal level involves land-use planning to relocate communities, and communities rebuilt residential housing in safer areas to protect residents from future tsunamis.
33. Also in Central America, after the passage of Tropical depression 12E that caused severe impact in the region in 2011, the need to prioritize pre-disaster recovery planning was agreed at a Presidential Summit held soon thereafter. This decision led to the development of national recovery frameworks as part of national DRR policies, with a more holistic view, considering recovery as a mean for reducing risk, enhance livelihoods and reduce poverty,
34. HFA already noted the need to “incorporate disaster risk reduction into post-disaster recovery and rehabilitation processes and use opportunities during the recovery phase to develop capacities that reduce disaster risk in the long term, including through the sharing of expertise, knowledge and lessons learned.” However, it was not enough because experience shows that most post-disaster needs assessments have difficulty translating risk reduction intentions into firm decisions and expedient action by individuals, businesses and various levels of government. Turning proposed agendas

into practice requires that Governments and development partners maintain the commitments and sense of urgency, more typically reserved for emergency response, and apply them to recovery strategies that internalize risk reduction principles.

35. One possible approach in post-2015 framework for disaster risk reduction could be to promote systematic pre-disaster recovery planning. For recovery to reduce risk from future hazard events, good prior participatory planning and constant communication among concerned groups is essential. Some initiatives have been tried and documented and more efforts are required for the future. Unfortunately very few countries, local governments or development sectors invest in prior planning for resilient recovery. The one positive example is Tokyo, which is developing preliminary plans for anticipated resilient recovery requirements. In addition to pre-disaster recovery planning, it is necessary that the necessary culture, legal instruments, institutions for disaster risk management are in place before the disaster occurs.
36. Another possible approach in post-2015 framework for disaster risk reduction could be to encourage disaster recovery to stimulate efforts to revisit laws and policies, which can improve resilience. There are already an increasing number of recovery frameworks and strategies focus on re-evaluating and strengthening existing laws and procedural arrangements. This allows recovery efforts to address weaknesses in development processes to reduce risk for future disasters. It also encourages recovery planning to draw on changed attitudes in local government and the community itself to seize opportunities to make changes a reality. For example, Japan already reviews their building codes after major disasters. Similarly, in New Zealand following a series of destructive earthquakes in the Canterbury region, the Canterbury Earthquake Recovery Authority developed a recovery strategy designed to guide the rebuilding and recovery of the city and the area of greater Christchurch with the explicit intention to reduce the risk consequences of future earthquakes.

### A.3. Global supply chain management

37. The reality is that the increasing exposure of supply chain disruptions caused by disasters is another driver of disaster risks. Driven by trade and investment liberalization and continued cost reduction pressures from customers, businesses have been extending their activities worldwide. In the process they are also expanding their exposure to disaster risks. Disasters caused by hazards are one cause of disruptions to supply chains, even when the disaster may occur in another part of the world from where its impact is eventually felt. This is now understood as having the potential for serious economic impacts on another country's economy.
38. HFA already encouraged "the establishment of public-private partnerships to better engage the private sector in disaster risk reduction activities; encourage private sector to foster a culture of disaster prevention, putting greater emphasis on, and allocating to, pre-disaster activities such as risk assessments and early warning systems,"



however, it was not enough because GAR2013 found that not only that there were very few small and medium sized enterprises that have business continuity plans, most corporations and do not consider shared risks with governments and there are only a few global corporations who actively collaborate with national and local governments across the countries they operate.

39. A solution in the post-2015 framework for disaster risk reduction could be to encourage private sector to integrate building resilience into their profit making strategies. For example it would be useful to adapt some of the widely used supply chain management strategies that also compound disaster risks such as “just-in-time” practice and “lean supply” chain management. These require more frequent and precisely timed deliveries of supplies, increasing efficiency models in business increase the level of interdependence between firms but correspondingly raise the chances of a supply chain disruption.
40. Another possible solution in the post-2015 framework for disaster risk reduction would be to improve business continuity and resiliency planning for both large multi-national companies and small and medium-sized enterprises (SMEs). For example Japan, mindful of a possible large-scale earthquake striking the Tokai region in the future, calculated the estimated losses based on the governments efforts to address the disaster. Noting a still unacceptable level of possible losses, the Government then proceeded to adopt a policy to strongly encourage the adoption of business continuity planning for the private sector – setting a target adoption of 100 percent for large-scale corporations within five years and 50% adoption for SMEs for the same period. The Government then proceeded to develop guidelines and promoted incentives for widespread adoption. Similar approaches on providing incentives for business continuity planning adoption by the private sector has been encouraged by other States. A similar approach can be considered within the post-2015 framework for disaster risk reduction to reduce future losses within the private sector.
41. Finally another possible solution in the post-2015 framework for disaster risk reduction would be to get disaster risk considerations factored into overall corporate planning and investment, business analysis and forecasts, executive education such as risk management MBAs for example, and into principles for responsible investment. This will not only benefit the operations of the company itself but also will yield benefits to the communities that the company works in and serves.

#### A.4. Ecosystems management

42. Ecosystem services support human life and provide the basic materials for economies, such as food, fuel and clean water. Demand for ecosystem services from rapidly growing economies and populations, and the perceived low economic value attributed to these services, have led to the increased use of natural resources and the creation of new hazards. The Global Assessment Report on Disaster Risk Reduction in 2009

pointed the example of Peru, where the opening of new roads down the eastern slopes of the Andes and into the central jungle in order to extend the agricultural frontier, has led to a notable increase in the number of reported landslide disasters in that region since the 1980s.

43. Risk reduction can also be more effective when it uses ecosystem approaches such as green infrastructure. Protecting and restoring ecosystems can often be a cost effective risk management strategy compared to conventional engineering approaches.
44. The HFA was not enough because although it encouraged “sustainable use and management of ecosystems” and “integrated environmental and natural resource management approaches that incorporate disaster risk reduction,” it did not promote the proper valuation of ecosystem services, which could then allow the clarify the costs and benefits of ecosystems management in reducing risks and thus create market incentives. In addition, many developing regions of the world had not recognized the role of natural resource management as a means of reducing disaster risks. And even if they were recognized, the governance structures in place often did not allow integration of environmental management into risk reduction planning.
45. In addition, although HFA promoted the “integration of risk reduction associated with existing climate variability and future climate change into strategies for the reduction of disaster risk and adaptation to climate change,” it neither encouraged the same level of integration within the climate change agenda nor did it encourage integration of DRR into the climate mitigation agenda.
46. A solution in the post-2015 framework for disaster risk reduction could be a new approach to outline explicit efforts to promote the value of disaster regulation ecosystem services, either through developing new incentives, including market incentives, or improving the clarification of the costs and benefits of action in this area. For example, instead of spending US\$6.8 billion in drainage improvements, New York invested US\$5.3 billion in green infrastructure – permeable pavements, more green areas, and other measures to address drainage capacity. Green infrastructure acts like a sponge – absorbing and regulating peak water flows. These and similar measures have many other co-benefits, including improving water quality, reducing urban heat islands and making cities more livable.
47. Another possible solution in the post-2015 framework for disaster risk reduction linking DRR and climate change would be the promotion of innovative design in building, and infrastructure that promotes low-carbon, energy efficient, socially inclusive and risk reducing measures.
48. Finally, another possible solution in the post-2015 framework for disaster risk reduction in this area would be to promote less resource intensive development patterns. Construction materials, fossil fuels, metal ores and other industrial materials,

compose natural materials provided by provisioning ecosystem services. There is no doubt that promoting the restoration of regulating ecosystem services in general, and particularly in natural hazards regulation, water regulation, and carbon regulation will have a direct effect on improving countries' DRR strategies. However, some regions like Asia uses three times the resources to create one unit of GDP when compared to the rest of the world. What is therefore needed is to promote a decrease the current intense levels of resource use both for climate mitigation and for disaster risk reduction purposes.

#### A.5. Build social demand for disaster risk reduction

49. The reduction of mortality as a result of natural hazards has been well appreciated and still remains the main preoccupation of many communities and nations alike because of the socio-political history of disaster risk management. The governance structure of HFA also supported this focus, with focal points mainly coming from humanitarian, civil defense and military backgrounds. However, while HFA was successful in creating the social demand for reducing vulnerability to disasters, it was not as successful in creating similar social demand for reducing exposure to hazards.
50. One solution in the post-2015 framework for disaster risk reduction could be to build social demand for addressing vulnerability and also for reducing exposure to hazards. Populations remain hesitant to expect or even demand accountability towards the reduction of disaster exposure. There is evidence that there has been more attention directed at reducing vulnerability rather than reducing exposure. It is a notable accomplishment that now more people and communities voice their expectations to governments to provide timely warning and enable evacuation when hazards threaten local communities. It is now timely for a similar commitment to be generated to mobilize efforts that can reduce people's exposure to hazards that could potentially lead to disasters in the future.
51. Another solution in the post-2015 framework for disaster risk reduction could also be how to build both the social demand for improving vulnerability, but more importantly, for reducing exposure to hazards. Some strategies for the future may include promoting participation from communities and local governments for encouraging multi-stakeholder participation in disaster risk reduction decision-making. The meteoric rise of social media across the world offers tremendous opportunities for future accountability in DRR. The availability of the latest "Web 2.0" technologies and the nearly universal access for some variety of modern communications throughout societies will enable citizens to become more involved and conversant with developing circumstances. More importantly easy access to this technology allows people to express collective views and able to work with new capabilities to introduce changed possibilities.

#### A.6. Improve accountability by improving responsibility and ownership for reducing risks

52. There are different approaches that can be pursued in the many cultural contexts of the world. In some places, Governments assume full ownership and guiding responsibility for disaster risk reduction as a part of an inclusive and sustainable development strategy.
53. Although HFA was partly successful in increasing country ownership and actions on vulnerability reduction resulting in measurable decrease in mortality due to disasters, it was unable to instill the same level of ownership and the related actions in reducing socio-economic exposure to hazards.
54. One possible solution in the post-2015 framework for disaster risk reduction could be to encourage the same level of ownership and responsibility for both reducing disaster vulnerability and exposure. This is exemplified by one of the champions of building disaster resilience at the local level. Take one example in the Philippines where Governor Joey Sarte Salceda of Albay Province has adopted a priority policy on reducing exposure first, and then proceeds to reduce vulnerabilities, both on a continuous basis. Explaining his policy, Governor Salceda notes that “people have the basic right to the capacity to adapt; relief, recovery and rehabilitation are essentially compensation [penalty] of the State for failing to reduce exposure and to increase capacity. No [need for] evacuation if [the] vulnerable is relocated. No rescue, if evacuated. No rehabilitation, if homes are built safely. The more disasters, the higher the rights of the vulnerable, [and] the higher the duties of the State.”
55. Another champion, Emilio Graterón, mayor of the district of Chacao, Caracas, Venezuela highlights the importance of building resilience as the solution to socio-economic exposure noting that "Local governments are called to be leaders of resilience and be advocates for social change for sustainability. Through participatory planning of our cities, with the knowledge of our realities, achieve collective resilience and overcome the challenges of a complex and changing environment. Only then cease to be prophets of disasters and become leaders of resilience ... "
56. There is a visible trend indicating that the responsibilities for disaster risk reduction are becoming more decentralized as provinces and municipalities become key stakeholders engaging in risk governance. While accountability in reducing vulnerabilities is improving, there is still a need to improve the breadth of ownership required for reducing exposure of people and assets to hazards.

## **B. Scaling up vulnerability reduction and resilience building**

57. There will be many instances where reducing exposure would not be possible, due to the pressures of short term economic or social gains in locating people and assets in hazardous areas provided by easy access to ports, transport supplies and labor, convenience and social and political realities. In such cases, there is a need to promote

a fast track approach to reducing vulnerabilities to reduce risks. This is because, putting people and assets in harms way increases the cost of vulnerability reduction. Therefore the needed disaster risk reduction “acceleration” not only should scale up vulnerability reduction, but also do this at an acceptable cost.

#### B.1 Fast track vulnerability reduction

58. With the increasing patterns of risks, and for the least capable and left behind countries, it will be necessary to promote a fast track approach to disaster risk reduction. Fast tracking does not mean taking short cuts, but instead means being more explicit, expanding existing approaches, and taking advantage of existing successful practices to ensure that activities are not only effective, but also affordable.
59. HFA recommends that improved governance measures, strategies and structures, including legislation, policies, frameworks, decentralization of authorities and capacities, increased accountability, adaptive and inclusive governance, along with changing governance structures where necessary, are vital elements in addressing rising disaster risks. Legislation related to disaster risk reduction and management should therefore address underlying risk factors in order to be effective, and development plans should provide instructive guidance on identifying and mitigating disaster risks.
60. HFA wasn't enough because discrepancies between intended results of policies and actual achievements on the ground are common. For example, although HFA outlined actions to be undertaken in its implementation and follow-up, it was not explicit on what Governments and other actors should do to implement the Framework for Action.
61. One possible solution in the post-2015 framework for disaster risk reduction could be more explicit guidance under its implementation and follow up section to specific actors such as local governments on practical ways to build resilience of their communities. For example, the Rockefeller Foundation recently launched the 100-City Centennial Challenge, which called for nominations from cities to build resilience, including disasters. In addition to promoting the recruitment of resilience officers in cities, specific guides and tools will be provided to participating cities to allow them to develop and implement resilience action plans. post-2015 framework for disaster risk reduction can define a standard for local disaster resilience, which can then be widely used by all stakeholders.
62. Another possible solution in the post-2015 framework for disaster risk reduction could be that an increased involvement of communities through improved social opportunities and democratic processes would empower them to influence decisions. Responsibility, incentives and accountability at all levels of government must therefore be clearly defined and institutionalized. For example, San Francisco, a small coastal

town in Cebu Province in the Philippines prone to typhoons, won the top UN Sasakawa Award for Disaster Reduction in 2011, for their innovative (also known as Purok system) of self-organization within villages where members voluntarily contribute to a money bank used by those in need of emergency funds after a disaster. Also, with limited access to the Internet, cellphones and radios, the Purok system is used to disseminate information and risk assessments, with Purok coordinators acting as couriers of information to residents.

63. Similarly, the Sasakawa award winner in 2013, the City Council of Belo Horizonte, Brazil organizes inspections of all of the city's most vulnerable areas. Area residents, local fire department, water, sewage and energy companies, and representatives of private businesses perform inspections. In places of medium or low risk, residents, with building material and technical guidance from the Council, carry out small public works. In areas of high risk, the Council is working to relocate families to public housing in safer locations. In addition, the 'Nuclei of Rainfall Alert' group, comprising networks of residents, issues alerts and strengthens preventive and mitigation measures. For instance, it marks risky locations on Google maps and indicates the best escape routes. Alerts are issued by telephone calls and SMS to city managers, community leaders and the press, and to the general public by e-mail, Facebook and Twitter.

## B.2 Expand social protection

64. HFA recommends the "strengthening of social safety net mechanisms to assist the poor, the elderly and the disabled, and other populations affected by disasters." In addition, the Global Assessment Report on Disaster Risk Reduction in 2009 noted that expanding social protection initiatives and creating social "safety nets" for times of crisis provide particular value with added political dividends. These strategies should be embraced as catalysts to motivate specific development objectives, and for creating further investment opportunities.
65. However, HFA wasn't enough because it has not been able to influence the design of existing social protection schemes. Most of these schemes still target only structural vulnerability. There have been no known examples where these programmes also address specific vulnerabilities, for example by expanding conditional cash transfer programmes to also promote family preparedness to disasters, in addition to promoting basic education and health programmes.
66. A solution in the post-2015 framework for disaster risk reduction could be scaling up social protection programmes to address both structural and specific disaster vulnerabilities of disadvantaged groups in hazard-prone areas. This will not only be affordable, but could be a basis for proceeding with efforts to provide not only minimum needs in the context of disaster risk and vulnerability. Specific measures can include expanding supplementary incomes or in-kind transfer programmes, food-for-

work programmes, rural employment guarantee schemes and labor-intensive public works programmes for those people most affected.

67. One example is in the Philippines, where some four million of the country's poorest households are receiving conditional cash transfers under the government's flagship anti-poverty program, the "Pantawid Pamilyang Pilipino Program," or 4Ps. The program hopes to invest in the country's human capital by keeping poor children in school and giving them medical assistance, while extending immediate financial support to their families. The cash transfers are dependent upon each household's compliance with these conditions. Recently the Government is developing a "modified" conditional cash transfer programme or MCCT approach to include families who have been displaced by calamities. As many of these families are not necessarily poor prior to the calamities, the original CCT conditions often do not apply. The Government is now studying the option of promoting family preparedness instead for those who will receive this MCCT to address a specific vulnerability – in this case those related to disasters.

### B.3. Improve building practices

68. Disasters highlight the need for safer construction practices. A study on residential wind damage following the 2005 Hurricane Katrina in the US by Louisiana State University Hurricane Center found a possible reduction of losses from \$4.8 billion to \$1.7 billion if the buildings in the affected areas were built better, for example if they had protected building openings, improved roof-deck connections, and improved roof-to-wall connections. Similar studies of disasters from the 1994 Northridge earthquake to Hurricane Katrina demonstrate that effective building-code enforcement reduces loss in catastrophic events. Building codes therefore is not only an issue for the developing world, but for the developed world as well. Japan for example, reviews its building code each time there is a major disaster affecting the country, with the 2011 Great East Japan earthquake and tsunami starting debates on inclusion of larger and more extensive designs of buildings along the coast.

69. This is already included in HFA, which encouraged "the revision of existing or the development of new building codes," and "reinforce the capacity to implement, monitor and enforce existing codes." However, this was not enough because it focused on revision of codes in "marginal and informal settlements," and while this may be important, several editions of the GAR has found that economic losses are greatest in middle income and developed countries where the value of assets that are exposed to hazards are greatest. This means that revisiting codes is equally needed for exposed high value assets in the developed world.

70. In addition, although HFA called for the reinforcement of capacities to implement codes, numerous cases exist in the developing world where building codes are either not followed or not implemented. In many countries, the lack of proper

implementation of these codes is common practices, which often leads not only to more people dying in disasters, but also more economic losses.

71. One solution in the post-2015 framework for disaster risk reduction could be the development of stronger building codes for exposed assets in the developed world, which could be an important factor in reducing vulnerability. There is now considerable evidence that strong building codes can significantly reduce losses; for example, data presented to the Florida Legislature during a debate over building codes in 2001 indicated that strong codes could potentially reduce losses by over 40% (IntraRisk 2002). Efforts to improve building practices and encourage retrofit of existing structures in the future could have a large impact on losses. In addition, promoting the adoption of codes that will prevent major damage, instead of just collapse may also reduce economic losses in the developed world. Used as a marketing tool to increase its value, increased costs in construction may easily be recouped. For example in Japan, new apartments and offices market their seismic resistance, which then satisfies demand from buyers willing to pay for safety, which in turn has accelerated the use of the latest technologies in building safety.
72. Norway in another example has emerged as a leader in rigorous building safety standards in terms of floods and storm surges. Over the past four years national legislation has designated a three-level classification system for all new construction. Buildings regarded as critical infrastructure, such as hospitals, must be built to withstand a 1 in 1,000 year flood in their given location. Housing must be able to withstand a 1 in 200 years flood. Finally, third tier buildings, such as storage houses, must be able to withstand a 1 in 20 year flood.
73. Another solution in the post-2015 framework for disaster risk reduction could also be the development of a global programme to encourage more stringent implementation of existing building codes through capacity building and technical support. For example, Pakistan in its post-2015 framework for disaster risk reduction national consultation reported that although there are adequate regulatory frameworks available such as the building code of Pakistan with seismic provisions-2007 and provincial land use zoning regulations, however, “implementation mechanism has certain flaws.” It then reported that participants highlighted the need to “declare the violation of building code and building regulations as criminal offence.” In this case, regulation would be the first step. Implementation and enforcement would need to follow.

#### B.4. Reduce the vulnerability of small economies

74. The vulnerability of small economies to hazards is particularly apparent and can have long-term consequences for national development, especially for LDCs and Small Island Developing States (SIDS). In the case of the Maldives, the estimated damage from the 2004 Indian Ocean earthquake and tsunami was a staggering loss of over 62



per cent of GDP. IN 2004, the World Bank and ADB calculated the overall estimated damage exceeded \$470 million with nearly 10 per cent of the country's total population directly affected.

75. HFA was not enough because very few countries are prepared for the compound effects of external shocks, in particular small economies. This lack of preparedness does not allow them to adjust their macroeconomic policies in a timely manner with prior fiscal considerations after disasters.
76. Possible solutions in the post-2015 framework for disaster risk reduction could be to consider the promotion of more diverse economies, pre-disaster financial recovery planning, preferential trade and tariff agreements, catastrophe insurance pools, and other risk financing mechanisms.

#### B.5. Address frequent but small disasters or extensive risks

77. As people consider the seriousness of various disasters, there is a tendency to focus on powerful earthquakes, 1:100 year return tsunamis, unprecedented floods or historically destructive tropical cyclones. Recent study rather suggests that the accumulated consequences of recurrent small or medium-scale disasters have the greater impact.
78. The analysis of large and small-scale disasters, sometimes referred to as being either "intensive" or "extensive" depending on whether they are high- severity and low-frequency events or low-severity and high-frequency ones respectively, shows the serious extent of their often higher mortality and economic losses. These observations can be demonstrated by analyzing the historical records of national disaster databases. For example small-scale disasters from the Islamic Republic of Iran and Nepal both indicate that these disasters can cause similar numbers of death and property losses over a period of time when compared to individual, larger disasters.
79. In addition, recent analysis of 16 disaster loss databases in Latin America covering the period 1990-2011 shows that over 99% of total disaster event registers are linked to extensive risk accounting for the majority of people affected, most of the damaged houses, half of the lives lost and most of the houses destroyed.
80. HFA was not enough because although it did include focus on sectoral issues such as food security, health, displacement, and labor, it did not make the link to extensive risks, which are equally likely to affect these issues as compared to intensive risks. This means that HFA had too much focus on the large scale but infrequent disasters, or the intensive risks, and with very little understanding of the effects of small-scale disasters and how to address them.

81. One possible solution in the post-2015 framework for disaster risk reduction would be to systematically record disaster impacts and losses through the institutionalization of national disaster inventory systems. The recording of comprehensive disaster losses and consequential impacts will enable governments to measure and quantify the socio-economic costs of recurrent disasters. Only then can a strong case be made to justify significant and sustained investments in DRR from fiscal budgets and long-term public investment plans.
82. Efforts to build the socio-economic evidence base either will disclose inadequacies or preferably stimulate additional commitments to improve risk communications. This is essential for engaging all stakeholders, and particularly those responsible for decision-making, planning and investment. Progress can only be possible when the subject of risk becomes a matter of concern in additional sectors of society and in the priority areas involved with sustainable development, disaster risk reduction and climate change.
83. In addition, better understanding of extensive risks will allow for better understanding of, and better approaches to reduce the effects of these risks to sectoral issues raised by HFA.

### **C. Integrate Climate Change into Disaster Risk Reduction**

84. A possible approach in the post-2015 framework for disaster risk reduction would be a more explicit integration of climate adaptation into the post-2015 framework for disaster risk reduction agenda, from global to national processes. This will entail not only a strengthening of vulnerability reduction within adaptation efforts, but also an additional focus on exposure reduction to address future risks. This will ensure efficacy of approaches at the implementation level, and would also promote improve effectiveness of actions. For example, the Pacific Islands Countries will launch a joint regional strategy in 2015 that will integrate disaster risk management and climate change issues at the regional, national and local levels. They will consider issues such as capacity building, financing, institutions and policies and implementation for integration. Due to their size and limited capacities, integration is not just an option, but also a necessity to promote action on the ground.
85. Similarly, the new Caribbean Strategy on Comprehensive Disaster Management (CDM) 2013-2023 aims at seven elements, which comprise the future, desired state for CDEMA Participating States. One element looks at a clearly established and understood nexus between CCA and DRR with programming and governance harmonized. The intended results of the cross cutting theme is improved coordination and collaboration between community disaster organizations and other research/data partners including climate change entities for undertaking comprehensive disaster risk management, enhanced community awareness and knowledge on disaster management and climate change adaptation procedures and enhanced preparedness

and response capacity (technical and managerial) for sub-regional and local level management and response.

86. Finally, the European Union has adopted in April 2013 a regional Climate Change Adaptation Strategies for EU member countries, which is implemented through eight action areas and fully recognized the need of coherent approach between adaptation and disaster risk management measures.
87. Another possible approach in the post-2015 framework for disaster risk reduction would be to promote carbon-neutral development. Coupled with disaster risk reduction and resilience building measures, climate mitigation yields multiple development benefits. For example, Mexico City's Climate Action Plan is a collaborative effort between many governmental and private institutions that includes a total of 44 specific actions focused on energy and water savings, transportation, waste management and reforestation; it set a target of removing seven million tons of carbon dioxide from the atmosphere. During the H1N1 crisis the metro trains were disinfected after completing each route (25 million people travel on it every day). It won the World Mayor's Award for its management of the crisis.

### **3. Ways Forward for post-2015 framework for disaster risk reduction**

88. In this context, while HFA was able to gain ground in reducing losses in human lives due to disasters, it was unable to address the reduction of economic losses caused by the same disasters.
89. So if the post-2015 framework for disaster risk reduction is to build on HFA and pick up from where HFA left off, then it is clear that a re-balancing of focus towards the reduction of economic losses is needed in the post-2015 framework for disaster risk reduction and beyond.
90. Interestingly, the issues outlined above to address both the need to accelerate vulnerability reduction and deal with expanding exposure are already included within HFA under priority for action four.
91. This then aligns to what we have already known all along – that HFA in terms of intent is more or less complete, but lacked the elaboration under priority for action four to ensure that the other half of the expected outcome of the framework – the part on “substantial reduction of economic losses” is addressed.
92. What would then be necessary, would be an agreement “in principle” within the post-2015 framework for disaster risk reduction to focus on economic losses more directly and to then define more explicitly the elements under priority for action four, on the “how to do” and the implementation arrangements to ensure that outcomes are reached.

93. In addition, if this re-focusing on economic losses in the post-2015 framework for disaster risk reduction occurs, then the questions on the length of the implementation period of the post-2015 framework for disaster risk reduction may be considered. This is because for issues such as land use, urban and spatial planning and widespread industrial changes have long horizons and long uptakes for widespread use (20 to 30 years), and thus, a framework would not be expected to measure progress within a shorter (5 to 10 years) period.
94. Finally, on the issue of “actors” this re-focus on economic losses would need a more explicit identification of which communities of practice need to be engaged and how to balance the accountabilities for ensuring that the objectives are reached.
95. In light of the above, the post-2015 framework for disaster risk reduction might be considered as a complement to (or amendment of) HFA, with a specific focus on elaborating more on priority four of HFA. The post-2015 framework for disaster risk reduction would then constitute HFA plus HFA2. The mentioned approach - while leaving possibly untouched the other priorities in HFA - might require a review of the existing way in which progress on the “key activities” identified under each of the priorities is defined and measured. Finally, the post-2015 framework for disaster risk reduction would also define a new “implementation and follow-up,” thus building on HFA.
96. This would then mean that there would be a need to revise HFA to align it to present realities, both in form and in substance. This could entail improvements in certain aspects of HFA which were originally intended to be updated based on the context of the time of its implementation, such as the key activities under each of the priority for actions, the cross cutting issues, and the implementation and follow up.
97. The rebalancing of priorities would also entail a new governance approach to the implementation of the new DRR Framework that would have to specify responsibilities across sectors of society, both public and private.
98. In summary, based on the evidence, experiences over the last ten years and through the consultations on the post 2015-framework for disaster risk reduction there is a need to:
- build on the Hyogo Framework for Action and introduce the innovations necessary to address the challenges of increasing risk over the next 20 to 30 years;
  - focus specifically on addressing the drivers of risk;
  - focus on implementation through a pragmatic, strategic, dynamic and realistic plan for action and monitoring system;
  - be underpinned by a clear set of principles and commitments;

- provide guidance on integrating disaster risk reduction and climate change adaptation in sustainable development;
- address the need to govern disaster risk reduction and resilience through strong coordination, enabled local action, appropriate financial instruments and a clear roles and responsibilities of stakeholders, including the recognition of the central role of science, community groups, local governments and the private sector.