



Background Note

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Options for including disaster resilience in post-2015 development goals

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This paper considers options for including disaster resilience in a post-2015 development framework. It sets out potential indicators and targets for a specific goal on disaster resilience, as well as considering the opportunities for building disaster resilience into indicators for other sector goals, and what these might be. It looks at how to measure these, what baselines exist and whether data are available. It also examines options for including humanitarian assistance within a new framework.

The Millennium Development Goals (MDGs) have been successful at raising popular and political support for poverty reduction. For over a decade, they have represented a tool for measuring development progress towards set targets. As the 2015 deadline for the MDGs draws near, attention is now being paid to what should happen after this date. To prepare, the UN Secretary-General has established a High-Level Panel (HLP) on the post-MDG framework, to be co-chaired by President Yudhoyono of Indonesia, President Ellen Johnson Sirleaf of Liberia and Prime Minister David Cameron of the UK. The work of the HLP starts in the second half of 2012. A UN system-wide Task Team on the post-2015 UN Development Agenda has also begun a broad-based process of consultation and reporting.

Since the outcome of the Rio+20 conference (June 2012), the process for agreeing a set of development goals to succeed the MDGs is now closely related to a process for agreeing a set of sustainable development goals (SDGs). The Rio text, *The Future We Want* (UN, 2010), states that SDGs 'should address and incorporate in a bal-

anced way all three dimensions of sustainable development and their inter-linkages'. At different points in the Rio+20 outcome text, it says that SDGs 'should be coherent with and integrated in the UN Development Agenda beyond 2015'. Over the same time period, discussions are taking place to consider the renewal of the Hyogo Framework for Action (HFA) 2005-2015, the global agreement to build resilience to disasters.¹ Coinciding timetables for the agreement of development goals, the HFA and a 2015 climate change deal provide strategic opportunities for coherence and synergy to encourage increased political and economic investment in reducing risks and strengthening resilience (see Mitchell and Wilkinson, 2012).

The Future We Want also says that 'SDGs should be action-oriented, concise and easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities'. The exact relationship between SDGs and the MDGs will take time to work out, but the text on the characteristics of SDGs may provide a useful guide to answering the questions to be addressed by the HLP: Will the post-2015 MDGs be globally applicable or focused on countries with high levels of poverty? Will there be many goals or just a few? How will the goals relate to each other? Will the existing MDGs be retained, will they be changed or will they be replaced entirely?

Disasters in international policy

Since the first Rio summit in 1992, disasters associated with natural hazards have affected 4.4 billion people, caused \$2 trillion of damage

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and killed 1.3 million people (UNISDR, 2012). The magnitude of these losses, particularly the impact of disasters on economic growth at times of recession, has propelled the issue of disaster risk management up the international political agenda. Disaster risk management was one of eight topics featured on the Rio+20 agenda, was discussed at the 2012 G-20 meeting in Mexico and is increasingly being mentioned as an aspect to be addressed within the post-2015 MDG framework.

Over the next 20 years, disaster risk and disaster losses are expected to increase as more people and assets are located in areas exposed to hazards and as the impact of climate change on the severity and frequency of hazards is felt. These trends are likely to pose a significant challenge for achieving the next generation of development goals, although evidence for this line of argument needs to be improved. Disasters hamper economic growth, particularly in low- and middle-income countries, delay or reverse poverty reduction efforts and destroy assets. The magnitude of losses over the past 20 years, the likely impact on poverty reduction efforts and projected rising losses over the next 20 years present a strong case for the inclusion of disaster resilience in a post-2015 development framework. The UN System Task Team report 'Realizing the Future We Want for All' has recognised this case (see Box 1).

Managing disaster risk cuts across traditional development sectors, such as health, education, infrastructure, water and agriculture. Achieving efficient development progress requires each of these sectors to invest in risk management meas-

ures, whether by enforcing strong building codes in the construction of schools or hospitals, integrating disaster risk management into school curricula, providing seasonal forecasts to farmers, or developing multiple water storage facilities to serve each community. Given the projected increase in the occurrence of disasters, development progress will be contingent more than ever before on measures to avoid disaster impacts. Accordingly, there is a case for the inclusion of disaster resilience as an 'enabling factor' in sector-oriented goals. Equally, without a standalone goal on disaster resilience, a 'mainstreaming' approach to incorporating the theme into other goals has the potential to result in invisibility, as attention is paid to the headline goal and not the sub-indicators or recommendations. The UN System Task Team's *Realizing the Future We Want for All* (2012a) includes resilience to natural hazards as part of 'environmental sustainability', which it considers one of four core dimensions of 'the future we want for all'. However, at this stage, the Task Team's report is unclear on how such dimensions might be included in a concise set of goals.

Getting the story right

Developing strategies for including disaster resilience in post-2015 goals depends on the ambition and objectives of the goals themselves. Melamed (2012) presents three possible outcomes. First is a collection of many single issue-based objectives that happen to be politically acceptable at the time but without a strong story binding them together. Second is a jigsaw-based approach that tries to mesh poverty reduction objectives with sustainable development, well-being or security, for example. Third is a single, focused objective, such as ending absolute poverty, supported by a set of social and environment minimums – such as access to health care, clean water or transport.

While disaster resilience could be a component of each of these approaches, the narrative and nature of its inclusion would need to be tailored accordingly. For example, if the focus is on ending absolute poverty (whether income based or multidimensional in its measure), then strong evidence, advocacy and consensus would need to magnify the message that disasters are a significant barrier to achieving this objective and that access to services and support to disaster risk reduction are crucial to poverty reduction. If the focus is on growth or sustainability (given Rio+20/SDGs), the orientation of the disaster

Box 1: Realizing the Future We Want for All

'Given the outstanding deficits, the post-2015 UN development agenda should maintain the focus on human development and the eradication of poverty as ultimate objectives of any development agenda. Yet, the agenda should also respond to a number of challenges [...] that have become more pressing since the adoption of the Millennium Declaration and did not figure explicitly or were not adequately reflected in the MDG framework: reducing inequalities within and among countries; tackling climate change and achieving sustainable development; increasing resilience to natural disasters; addressing demographic and epidemiological dynamics; dealing with urban growth; ensuring peace and security; improving governance and State capabilities; and respecting human rights and cultural diversity'.

Source: UN System Task Team on the post-2015 UN Development Agenda (2012a).

resilience target may be more towards aggregate economic losses as a proportion of gross domestic product (GDP) or the role of disaster risk management in protecting jobs, livelihoods and environmental assets. While considering the political mood globally for the focus of such goals, it is also important to consider which goals are most suitable, relevant and motivating when translated to country level.

Beyond the number and nature of the goals themselves, the question of whether the goals should be universal or not remains. A number of people have written about a ‘one world’ approach, which is a global agreement between North and South, with poverty targets for the South and sustainable consumption targets for the North (e.g. Scott and Shepherd, 2011). The focus here would be on global public goods and global issues where extreme poverty and climate-resilient development are key (Karver et al., 2012). Such an approach faces enormous political challenges, given the difficulty of securing any kind of commitment to consumption goals in the US or Canada, for example (Melamed et al., 2012), and deciding when a country graduates between poverty reduction targets and consumption targets. However, with the SDG and post-MDG processes moving closer together, such ideas are being aired again. Disaster resilience is attractive in this context, given that no country is immune from disaster impacts.

Many other issues require agreement. What is the baseline year for the post-2015 MDGs given that data from 2015 will not be available in the same year. 2005? 2010? 2012? Are the goals set globally, with an average taken to measure progress, or is every goal directly applicable at national level, where they become a minimum standard? Will targets be set based on rates of historical progress or projections of future rates? With such uncertainty about the future form of the post-2015 agenda, it is important to retain a high degree of flexibility in considering options for the inclusion of disaster resilience aspects. Consequently, this paper presents a number of options for a standalone goal on disaster resilience and assesses how disaster resilience could be integrated within other goals.

A standalone disaster resilience goal

Table 1 includes five options, with the goals, targets and indicators constructed in a similar way to the existing MDGs². The options presented are based on the assumption that post-2015

development goals will retain an overall focus on poverty reduction as one core objective. The right hand column includes views on the potential pros and cons of each target and indicator set. The first goal, ‘to reduce risk and build resilience to disasters for all’, is taken from a UN Systems Task Team ‘think piece’ (2012b) and includes its suggested targets and indicators. The second is a modified version of the first suggestion. The third focuses on inputs/outputs and the characteristics involved in achieving disaster resilience at the national level. The fourth relates to disaster-resilient communities and the fifth is a more generic goal on resilience that has disaster risk management as a target along with conflict or food security, for example.

Box 2: Good targets and indicators should ...

- match the interest of the target audience;
- be attractive to the eye and accessible;
- be easy to interpret;
- invite action and incentivise the right kind of action;
- be representative of the key issue or area being considered;
- show developments over a relevant time interval (a period in which changes can be shown);
- be grounded with a reference value/baseline for comparing changes over time;
- be accompanied by a simple explanation of causes behind the trends;
- be comparable with other indicators that describe similar areas, sectors or activities;
- be scientifically well founded; and
- be based on sound statistics.

Source: Adapted from Bosch and Gabrielson (2003).

Each individual goal, target and indicator set is not intended to be an exclusive set; options could be mixed and matched by picking types of targets and indicators from other parts of the table. Given uncertainty in the overall structure of the post-2015 framework, it is vital to retain flexibility in thinking about such options, so Table 1 is a prompt to further discussion at this stage, rather than discrete propositions. In considering options, it is important to keep some rules of good targets and indicators in mind (see Box 2).

Given the intense focus on the utility of targets and indicators in the existing MDG framework, any proposed options for disaster resilience should be explored with great care to ensure they maximise added value and are appropriately

targeted (see Box 3). For disasters in particular, it will be important for targets and indicators to capture both intensive and extensive risk – with intensive risk manifesting as the headline-grabbing disasters and extensive risk being the low-level disasters that are often not recorded but potentially have a much more widespread and significant impact in terms of household poverty (see UNISDR, 2009).

A target related to **disaster mortality** has a number of problems. Disaster mortality rates have already been dropping globally, owing to better early warning, and inclusion in a post-2015 MDG framework is unlikely to add value (for a discussion on appropriate target levels, see Box 4). While fewer people are dying in disasters, however, the number of people affected is increasing, as are morbidity and livelihood losses. Data are fragmented or missing, but it is believed that reductions in disaster mortality have not been matched by a reduced impact of disasters on poverty levels. A target that combines mortality, numbers of people affected and some of kind of assessment of local economic impact may be more attractive in capturing local trends.

Such an approach has been developed in Latin America, where the Local Disaster Index covers a combination of local deaths, local numbers affected and economic losses for the municipality affected (IADB, 2010). Such an index is contingent on granular and regularly updated data from all municipalities, which was possible in Latin America thanks to the establishment of the Desinventar system in the 1990s (<http://www.desinventar.net/>). This system has now spread to other countries but would need to be adopted globally to support a set of indicators on local disaster losses (for further discussion of disaster data, see Box 7). The major benefit would be that small-scale disasters can

be recorded and their impact on development can be identified more easily. This currently does not happen through the Emergency Events Database (EM-DAT), one of the most prominent disaster databases, managed by the Centre for Research on the Epidemiology of Disasters (CRED). CRED records events where 10 or more people are killed and/or 100 or more people are affected and/or there is a call for international assistance/declaration of a state of emergency. Overall, the difficulty with an indicator on mortality is that it tends to draw the focus into *ex-post* activities – avoiding more people dying when a disaster strikes – rather than concentrating on indicators to measure progress on disaster risk reduction and resilience.

An aggregate, nationally oriented target related to **economic losses** is similarly challenging, with such losses being a poor measure of the total impact of disasters. Direct and indirect losses are difficult to measure accurately. They can extend across borders, through regional and global supply chains, as well as to intangible losses such as the cultural value of historic buildings and artefacts or the detrimental health impacts associated with stress and anxiety (Mitchell et al., 2012). Currently, global data on economic losses are dependent primarily on data collected by the insurance industry, focused predominantly on insured losses and on developed and middle-income countries (although progress is being made with regard to standardisation of the Post-Disaster Needs Assessment method). Economic losses expressed as a proportion of GDP is a useful way to assess the relative impact of disasters on the national economy but masks distributional impacts. It also fails to capture the impact of disasters on natural or social capital, for example. As detailed above, focusing on economic losses at the local scale may overcome some of these problems, but will require a

Box 3: Targets and Indicators in the existing MDG framework

There is a series of well-rehearsed arguments on the conceptual or methodological shortcomings in existing MDG targets and indicators and a deluge of publications highlighting the problems or missing elements in each individual indicator. For example, education proxies such as school enrolment do not capture the quality of education or learning outcomes around literacy and numeracy (see MDG Target 2A). Health indicators around life expectancy do not cover the quality of life, and single-dimension views of poverty (focused around an income level and GDP per capita) do not take into account exposure to risks, inequalities and exclusion, for example (MDG Target 1A) (Koehler, 2010).

Taking MDG 3 on gender equity as an example, Target 3A is to ‘eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015’. The indicators are 3.1 ratio of girls to boys in education; 3.2 share of women in wage employment in the non-agriculture sector; and 3.3. proportion of seats held by women in the national parliament. The target has been criticised for its early deadline, an overemphasis on educational gender parity to the exclusion of other issues and a lack of national ownership. The indicators have been criticised for not incorporating attainment or personal choice, the large number of women employed in the informal sector, their wage levels or their access to decision making. Data quality problems also persist (Waage, 2010).

Box 4: Calibrating targets – balancing prudence and ambition

Table 1 includes targets of halving disaster mortality and economic losses. How realistic is this and what approach should be taken to calibrating targets?

It is generally agreed that disaster mortality rates have been reducing over the past century. The rate of decline depends on what particular measure you take and what you count. One particular assessment by Goklany (2009), of global deaths and death rates as a result of extreme weather events between 1900 and 2010, shows that the death rate was 14 deaths per million people/yr between 1970 and 1990 and approximately 5.5 between 1990 and 2010. This rapid rate of decline would support a target of halving mortality by 2030 (with a baseline for 2000-2010 of 5, for example). The inter-annual variability remains a problem, and the extent to which the world is ‘on target’ would be extremely difficult to judge until the later years of the 2020s.

The target of halving economic losses by 2030 is unrealistic. The period until 2030 will see more people and assets exposed to natural hazards, particularly in middle-income and fast-growing low-income countries. Avoiding rising losses in this context will require a substantial global change in behaviour to focus on protecting development advances and resilience. This is particularly difficult, as much of the infrastructure that will be significantly exposed in 2030 has already been built, is being built or is in the final stages of commissioning. Compared with 2000, 50% more people in Asia will be exposed to flooding, for example (IPCC, 2011), and rates of economic losses from extreme weather events are believed to be doubling every 12 years at the moment (Mitchell et al., 2012). The problem here is that a 50% *increase* in economic losses from disasters by 2030 may actually be an ambitious target, given that careful analysis might predict much greater losses compared to a baseline. Presenting a target within a post-2015 development framework that effectively says, ‘things will get a lot worse, we just need to make sure that it isn’t as bad as it could be’, is not likely to be an attractive sales pitch.

As this rudimentary analysis highlights, many of the targets in Table 1 warrant much more detailed assessment of what level of target is ambitious but achievable. Based on the experience of the first MDG framework, it is important for the targets to be reachable and amenable to being applied at national (and even sub-national) levels.

significant global investment in data collection. Inclusion of such targets and indicators in a post-2015 development goals framework will likely lead to much greater investment in data collection globally and nationally, something stimulated by the first MDG framework.

Targets associated with **planning, mainstreaming and spending**, such as those included in the first three goals in Table 1, focus on inputs and outputs rather than outcomes. A similar type of target is included in the existing MDGs: Goal 7 on Environmental Sustainability includes a target to ‘integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources’. However, in this case, the inputs-based target (integration into policies) is combined with an outcome target (reversal of the loss). The danger of focusing just on inputs (policies, plans or the amount spent on disaster risk reduction) is that there are no guarantees that these will improve disaster resilience at the local level. There are countless examples of excellent plans sat on shelves and of countries’ reporting national expenditure with budget lines then being lost or reallocated as money moves from national to sub-national layers of the administration. However, a composite target may be attractive, for example, ‘by 2030, all countries and sub-national jurisdictions possess a disas-

ter risk reduction plan, allocate resources for its implementation and significantly reduce disaster risk and disaster losses’.

Should the post-2015 development goals retain a focus on poverty, then targets and indicators that concentrate on the relationship between **hazards, disasters and poverty levels** may be attractive. Such targets and indicators would benefit from the relative richness of poverty-related datasets, given the focus on poverty over the past decades and prompted in part by the focus of MDG 1. It would also help to present a strong narrative – disasters are increasingly a threat to poverty reduction (whether poverty is measured in absolute, relative or multidimensional terms) and an important factor in development progress lies in reducing the impact of disasters and promoting the capacity of poor people to effectively manage disaster risk. Accordingly, indicators could be focused on no increases in poverty levels (or continued progress in reducing poverty) in the year of exposure to hazards/shocks. While this is an attractive proposition, because of its potential focus on local impacts, its ability to span disaster risk reduction and humanitarian interventions and its attention to the poorest, it refers only implicitly to the importance of sustainable growth and avoids mention of GDP-/growth-related disaster impacts, which serve as a key political driver. As mentioned before, much depends on the overall framing and objectives of the new goals framework.

Table 1: Options for a set of targets/indicators for ‘disaster resilience’ goals

Goal	Targets	Indicators	Comments
1. To reduce risk and build resilience to disasters for all (Version 1, UN System Task Team)	1A. Nations to halve disaster mortality by 2030 1B. Nations to halve disaster-related economic loss by 2030 1C. All nations to develop a national disaster risk reduction and resilience plan by 2020	<ul style="list-style-type: none"> Crude mortality rates (disaster deaths per 1,000 inhabitants) Direct economic losses as % of GDP National disaster risk reduction and resilience plans adopted and budgets earmarked in national development plans 	Pros: Simple indicators and easy to communicate. Cons: Significant challenge of inter-annual variability in disaster losses, making it difficult to judge progress in the short term, and having to rely on model-based outputs that are expensive and have limited coverage in developing countries. Mortality and economic loss are not good measures of impact. Likely reliance on CRED databases for disaster losses and on assessment by reinsurance companies, such as Munich Re. Both sources have problems – they are either unreliable or include only certain disasters and type of losses.
2. To reduce risk and build resilience to disasters for all (Alternative)	2A. Halve the number killed, injured and made jobless and homeless by disasters in the period 2015-2030 (compared with 2000-2015) 2B. Halve disaster-related economic loss in the period 2015-2030 (compared with 2000-2015)	<ul style="list-style-type: none"> Mortality rates, number affected and made jobless and homeless (per 1,000 inhabitants) over 15-year period (compared with the baseline period) Direct economic losses as % of GDP over 15-year period (compared with the baseline period) 	Pros: Attempts to eliminate inter-annual variability concerns, and provide a more comprehensive coverage of the impacts of disasters on well-being. Cons: Eliminates much of the ability to track progress year on year and adds complexity to the data collection challenge. As above, concern about limitations of existing datasets.
3. Disaster-resilient nations	3A. By 2025 to have integrated disaster risk management into country policies, programme or sectors 3B. By 2025 to have comprehensive disaster risk assessments embedded in sector-based development planning and for every community to have a risk register 3C. By 2025 to have 5% of national budgets committed to reducing disaster risk each year	<ul style="list-style-type: none"> Proportion of development, planning and investment decisions including consideration of disaster risk assessment Annual proportion of investment in disaster risk reduction in national budget reports Annual spending on humanitarian relief 	Pros: Reflects language of HFA with focus on nations and political communities. Places emphasis on government action and adds to clarity on accountability. Cons: Assumes governments are always service oriented, well organised and benevolent and that benefits reach the poorest and most vulnerable. Clearly, this is not always true, although this would help identify governments that are failing in this respect. The focus is on inputs/outputs rather than outcomes (i.e. all these targets could be met but individuals’ experience of disasters do not change).
4. Disaster-resilient communities	4A. By 2030 to have halved the vulnerability and exposure of [the poorest quartile] and the infrastructure and services on which they rely. 4B. By 2025 every community has an annually reviewed disaster risk reduction plan and has access to modern early warning systems	<ul style="list-style-type: none"> % change in vulnerability/capacity Proportion of population at risk (below a particular flood line (100 year, 10 year) or with rain-dependent livelihoods at risk of drought) % of schools and hospitals assessed and rehabilitated/retrofitted % of area complying with enforcement of no development or no construction bylaws on lands classified in land-use plans as at high risk as per hazard risk maps % with ability to access disaster risk information to enable informed choices Proportion with access to modern early warning systems 	Pros: Focus on exposure (in Target 4A and in indicators), which is predicted to be biggest driver of disaster risk over 2015-2030. Vulnerability indicator to be developed in a way akin to the Human Development Index. Cons: Indicators are quite complicated, requiring relatively complex scientific assessments with exposure itself being highly dynamic. May be judged by some as stifling growth, given that increasing exposure is often a side-effect of economic development. Ideas developed by CIGI (2012), with indicators drawn from 2005 background documents to the HFA 2005-2015.
5. Resilience to shocks and stresses	5A. By 2030 to have eliminated the negative impact of disasters on [absolute, multidimensional, relative] poverty levels 5B. Target on conflict risk? 5C. Target on financial risk/food security? 5D. Target on climate change-related stresses?	<i>For disaster resilience target ...</i> <ul style="list-style-type: none"> Share of poorest quintile in national consumption does not decline in years of hazard exposure % of population in receipt of and graduating from social protection Numbers in absolute [or relative] poverty do not rise [continue to reduce] in year of hazard exposure Prevalence of underweight children (under five years) does not increase during occurrence of major hazard event 	Pros: Language of resilience, currently politically attractive. Strong rationale for indicators not dependent on inter-annual variability bias. Ability to create a strong link with ‘absolute poverty’ agenda. Single aggregate goals on resilience if focus is on having a small number of goals. Cons: Difficulties in measuring resilience, with indicators not able to capture the ‘improvement’ aspects of resilience. Challenges in collecting timely data, decisions on how to limit the monitoring geographically (e.g. nationally vs. just the region in which there is a disaster). Data availability is likely to be limited in some countries. The indicators are oriented predominantly towards developing countries rather than universal – might favour indicators on ‘inequality’ or ‘relative poverty’ rather than absolute poverty.

Targets and indicators related to **exposure and vulnerability** cut to the core drivers of disaster risk. Reducing both will lead to reduced risk and losses. Globally, exposure is increasing as more people and assets are located in hazard-prone locations (Mitchell et al., 2012). Vulnerability trends are more complicated, and vary between regions and within countries. Mapping changes in exposure (e.g. how many people/assets in the 1-100-year flood plain) is dependent on high-quality physical science data and national population and asset inventory data. It is also complicated by the dynamism of the hazard itself. For example, owing to climate change and other pressures, the 1-100-year flood plain may change on a regular basis, with knock-on effects for exposure. The fine-grained tracking of exposure is complicated, but is likely to improve significantly as does the availability of satellite-based monitoring (see SERVIR for example).³ Creating an exposure baseline on a country-by-country basis would be a considerable undertaking, but could involve building on many existing, though fragmented, multi-hazard mapping projects. Vulnerability is commonly described by a variety of proxy indicators (age, wealth, proportion of malnourished children, level of education, access to services and decision making etc.), with poverty-related measures often considered the most important. Such an approach would lead to an improved global understanding of vulnerability and exposure, but it may prove a difficult one to sell given the potential complexity involved in data collection and conveying clear meanings.

Specific targets and indicators will need to be tailored to the different framing of the post-2015 goals, and flexibility should be retained at this stage. On balance, outcome-oriented targets are likely to be more effective than those focused just on inputs and outputs. Additionally, a focus at community level is important in order to capture extensive risk rather than just the large-scale disasters. It is likely that the small-scale disasters have a more pervasive impact on poverty than the mega-disasters, and the post-MDG framework should reveal this. However, community-focused, outcome-oriented targets and indicators will require a considerable upgrade in existing data collection and reporting mechanisms.

Building disaster resilience into other goals

As discussed previously, disaster resilience cuts across multiple development sectors. A preferred outcome for the inclusion of disaster resilience in the post-2015 development framework would see

Box 5: A disaster-resilient education goal?

The existing MDG education goal is criticised for its focus on enrolment rather than quality of education. Assuming that a goal on education is retained, it is likely to focus more on educational outcomes. The case would then need to be made for why an indicator on disaster resilience is important for progress in reading and writing. For example, progress is dependent on a safe and secure school environment and the right enabling conditions for children to attend school. Disasters can affect both of these factors. They can damage school buildings and cause children to be kept out of school in order to help with recovery, provide care for sick or injured family members or help with income generation if assets are lost. Indicators then could be as follows:

- Percentage of primary schools certified to be in conformity with locally appropriate hazard-resistant building standards;
- Percentage of school systems with disaster risk management included in the curriculum;
- Number of days children are absent from school owing to the impact of disasters.

it represented as a single goal (vertical integration) *as well* as treated as an indicator in a range of other goals (horizontal integration). There are a number of options for how this could happen, with Box 5 providing an example of how disaster resilience might be included in indicators associated with an education goal.

While indicators on disaster risk can be included in sector-based goals, it is also important to recognise the links between skewed development processes and changes to exposure and vulnerability. Development processes can elevate disaster risk, and this should be recognised in the future development goals framework. For example, in some cases, increasing access to water supplies may lead to more people being located in flood plains. Access to decent work opportunities may draw people towards exposed urban centres or coastal locations. This kind of dependency and interrelationship between the goals has been recognised as a missing component of the existing MDG framework, which has little cross-referencing or co-dependency between the targets and indicators. Table 2 presents options for cross-referencing between indicators that would help to underline how development processes can increase risk and in turn how disasters can hamper the achievement of goals.⁴

Again, those advocating for the inclusion of disaster resilience should retain a degree of flexibility. Both horizontal and vertical integration of disaster resilience may be possible, but pressure to keep the

Table 2: Options for including disaster resilience in other sector goals

Goal	Targets	Indicators
1. Eliminate absolute poverty	1A. By 2030 to have no one living on less than \$2 a day	<ul style="list-style-type: none"> • Number of poverty reduction programmes with explicit reference to reducing disaster risk • Efforts to reduce poverty do not jeopardise the achievement of Target 2A by placing vulnerable people in more exposed locations
2. Resilience to shocks and stresses	2A. By 2030 to have eliminated the negative impact of disasters on poverty levels	<i>See Table 1 under Goal 5</i>
3. Universal numeracy and literacy	3A. By 2030 every child leaves primary school able to read and write	<ul style="list-style-type: none"> • % of primary schools certified to be in conformity with locally appropriate hazard-resistant building standards • % of school systems with disaster risk management included in the curriculum • Number of days children are absent from school owing to the impact of disasters

number of indicators to a minimum will likely present barriers to the type of indicators presented for Goal 3 in Table 2. Vertical integration with an overall sense that progress towards goals should not hamper the achievement of other goals is probably a more likely scenario. In the context of the wider debate on the post-2015 goals framework, at a time of uncertainty and interconnected shocks and stresses, ‘resilience’ itself may be considered an enabling factor in the wider achievement of (sustainable) outcomes. This may help create a conducive environment in which to discuss disaster resilience goals.

Including the humanitarian dimension

A number of the options in Table 1 do include explicit or implicit humanitarian dimensions that would help draw humanitarian actors into the development goals framework (see Box 6). The success of the post-2015 goals framework should in theory lead to a reduced humanitarian caseload as vulnerability is reduced (e.g. see indicator on reduced humanitarian spending). Much is dependent on reframing the relationship between development and humanitarian action around managing disaster risk, though. It is vital not to treat development and humanitarian assistance as separate spheres in which actors argue over whose responsibility it is to build disaster resilience. Managing disaster risk involves risk reduction, risk transfer, preparedness, response and reconstruction – all are necessary and important. There are opportunities to build resilience to disasters and development at all stages, and humanitarian action should be treated as part of the same risk management continuum, with shared responsibilities and with the focus on improved cooperation. In this regard, humanitarian action is included in every aspect of the goals framework, as it imperative that development progress and the right to protection be priorities in the relief and recovery stages of a disaster.

Box 6: Humanitarian action in the post-MDG framework

Targets on mortality, numbers of people affected and local losses in terms of jobs, homes or other factors are dependent on effective humanitarian action as well as reduced vulnerability and exposure. Local economic impacts may be partially avoided by the use of cash or other social safety nets in emergencies and longer-term livelihood recovery, dependent on access to functioning markets, training and other measures to reduce future disaster risk.

Output-related targets, such as disaster risk management plans, would need to focus also on the quality of the plans. Accordingly, they would need to include risk reduction, preparedness, early action, early warning, relief and recovery. An additional target and indicator could be on the amount/quality of local disaster response capacity that helps support long-term resilience building, something that needs to improve along with the rising number of disasters and the limited capacity of the international humanitarian system. Currently, though, humanitarian action and disaster risk management strategies are often poorly linked, and it remains to be seen whether inclusion in a development goals framework would reshape this relationship.

Targets and indicators relating to exposure would place greater pressure on humanitarian actors to consider the location of relief sites and temporary shelters, as well as reconstruction efforts that take into account scientific projections of hazard distribution.

Poverty-related indicators, such as those proposed in Goal 5 (Table 1), would also jointly involve development and humanitarian communities. The emphasis would need to be on both *ex-ante* and *ex-post* measures to protect poverty reduction efforts, coupled with a better system for recording the impact of interventions on levels of poverty (and vulnerability in the case of Goal 3).

Opportunities and challenges

A variety of factors may help support the inclusion of disaster resilience in the post-2015 MDG framework. For example:

1. The text of the original Millennium Declaration from 2000 can be quoted, as it did include reference to disasters, calling on governments to ‘intensify co-operation to reduce the number and effects of natural and man-made disasters’.
2. The next World Development Report will focus on risk, uncertainty and crisis. Depending on how its content unfolds, the timing of this may be influential.
3. The Japanese have regularly reiterated their interest in seeing disaster resilience as part of the post-2015 development agenda, most recently at the World Ministerial Conference on Disaster Reduction in Sendai on 4-5 July. The chair’s summary⁵ stated that participant governments ‘shared their view that disaster reduction should be incorporated as a major element in a post-2015 international development framework’.
4. The timing of the negotiations scheduled in 2015 may also help support inclusion, as the World Conference on Disaster Reduction is likely to happen in January that year and the post-2015 development goals summit may not be held until September around the UN General Assembly.⁶
5. Disaster resilience cuts across development, humanitarian and environmental processes. It has a legitimate claim for inclusion in both SDGs and the MDGs. While there is confusion at the moment about the relationship between SDGs and the MDGs, including whether SDGs might eventually replace the MDGs or the goals end up being fused, at least disaster resilience is an issue that pertains to both and will unlikely be dropped or sidelined by a merger.

While these factors present considerable opportunities, there is also a set of challenges to negotiate. First, there is little agreement on the definition of ‘resilience’ or ‘disaster resilience’, and measuring this is extremely difficult. Achieving consensus on measurement before 2015 is unlikely, and any proposed language should aim to be as precise as possible. The Centre for International Governance Innovation (CIGI) proposes a goal on ‘resilient communities and nations’, which refers to a resilient community as ‘one that is able to prepare for, adapt to and live through such shocks, while preserving basic assets’ (CIGI, 2012). CIGI acknowledges that what makes people resilient varies from place to place, as does understanding of what the term means. Specific

indicators, applicable universally, are then difficult to define. Further, the relationship between sustainable development and resilience is fairly ill defined, and this may prove problematic if the SDG and post-MDG processes become increasingly fused.

Second, disaster resilience also overlaps a number of other issues under consideration, including food security, social protection, environmental sustainability and conflict prevention. This raises some important questions: Should ‘natural’ and ‘man-made disasters’ be lumped together as in the Millennium Declaration? Should there just be one goal for resilience or should each ‘shock or stress’ have its own goal (see options presented in Table 1, cf. Goal 1 vs. Goal 5)? In a framework with a limited number of goals there may be space for only a single goal on resilience.

Third, many different groups are advocating for particular issues to be prominent in the post-MDG framework. Poverty reduction, health and education have been priorities for the MDGs, and there has been strong support for including social protection, inequality, growth, gender and employment in the post-2015 development goals. Disaster resilience will be battling against many other issues for primacy. While it is encouraging to see many governments at the World Ministerial Conference on Disaster Reduction supporting the inclusion of the topic in the post-MDG framework, progress will be made only when the calls are being made in conferences spanning the development agenda.

Undoubtedly, further efforts will need to be made to convince those championing other issues, or those more centrally involved in the drafting process of the post-2015 goals, that disaster resilience has a legitimate case for inclusion. The case could be strengthened by:

1. **Being clear on why disaster risk management works and why it is a good investment:** This would be a compilation of all materials that make the case for disaster risk management. Why is it good for growth and poverty reduction? Why is it good for jobs? What is the economic case? What is the political case? What incentives and disincentives are there, and how can these be altered?
2. **Projecting the impacts of disasters on poverty levels over the next 10-20 years:** The UN System Task Team (2012b) suggests that there is ‘universal acceptance that disasters can erode and destroy development gains’ and that skewed development processes create or increase vulnerability. However, the potential impact of disasters (and other shocks and stresses) on poverty levels and the geography of poverty and growth over the next decades are poorly researched areas. Making the

case for the inclusion of resilience and disaster risk management in the post-2015 MDG framework will likely rely on a strong case being made that development progress will be increasingly uneven and potentially even reversed in some locations if disaster resilience is not prioritised. This claim needs to be researched and properly quantified based on model outputs.

- 3. Assessing the availability of data and setting realistic targets:** As detailed in Box 4, much more work is required to establish targets for disaster resilience that balance prudence and ambition. Setting realistic targets will require careful assessment of global and regional trends in a variety of the targets included in Table 1, looking both at historical trends back 50 years and forward to 2030 based on model outputs. Data on exposure, vulnerability and hazard frequency and severity will be needed in different measure and at different scale depending on the target being assessed, but without this the risk of setting overly ambitious or overly prudent targets is high. Achieving this balance will be dependent on data availability and accuracy (see Box 7).

Conclusions

As the objectives and form of the post-2015 development agenda is yet to be defined, a flexible approach on targets, indicators and language around disaster resilience needs to be retained. For example, options need to be considered that relate to a poverty, growth, inequality, well-being or environmental agendas. Additionally, a goal focused on resilience more broadly should be considered, where disaster resilience is one of a number of targets oriented around shocks and stresses. This might be a favoured approach if the number of goals is kept to a minimum. Given the need for flexibility, Box 8 sets out criteria that can be used to judge the utility of targets and indicators in whatever framing emerges for the post-2015 goals framework.

There are options for including disaster resilience in other goals, whether by incorporating it explicitly into indicators or by cross-referencing to the goal on resilience. The aim is to safeguard progress towards the goal (e.g. on education, health or poverty) and to ensure that achieving the goal does not inadvertently increase disaster risk. It is important to avoid the potential reversal of development

Box 7: Disasters data – good enough?

There has been a considerable focus on upgrading the quantity and quality of data on disaster losses in the last decade (Tschogl, 2006; UNISDR, 2008). This has led to the emergence of a range of national and international databases and indices, with an overall improvement of coverage and quality. The UN International Strategy for Disaster Reduction (UNISDR) Global Assessment Report project has helped in this regard. However, it is important to assess the state of disasters data in the context of the post-MDG process, as it will be necessary to establish historical trends and robust baselines and to be able to track progress annually and globally.

Disasters data can generally be divided into two groups – data on disaster losses (numbers killed, economic losses, people affected) and data on the risks of something happening (mortality risk, hazard frequency, economic loss risk etc.). These often are closely linked, but the latter can be based on models rather than historical data. Some of the better-known databases are EM-DAT and DesInventar on disasters and losses and GRIP, CAPRA and a variety of other platforms to assess trends in mortality risk, hazard frequency and economic loss risk to support risk-based decision making. Tschogl (2006) conducted a detailed review of disaster data, reviewing 32 databases to find that some significant challenges remain in the overall data landscape:

- There are fundamental differences in the definition of disasters and in approaches to classifying disaster types, sub-types and direct and indirect impacts.
- Challenges exist in recording the extent of disasters: How do you accurately record disaster impacts that span borders, regions and even global supply chains?
- Is there a standard practice for recording the date of slow onset events? Is it when international assistance is called for or at the moment individuals start selling protective assets?
- Sources and inclusion criteria are often not published with respect to many databases, and this creates transparency concerns.
- Coverage of many developing countries remains weak, with data, where they do exist, often dependent on one source.

The next step would be to conduct a more detailed assessment of the existing disaster databases to see whether there is enough historical data, coverage and capacity to scale up around targets such as those in Goal 2 in Table 1: ‘Halve the number killed, injured and made jobless and homeless by disasters in 2015-2030 (compared with 2000-2015)’ and ‘halve/reduce/keep static disaster-related economic loss in 2015-2030 (compared with 2000-2015)’. Another dimension would be to look at poverty data at a national and sub-national level and the impact of disasters on poverty levels to see what is available and what kind of impact there has been in the past to help assess options and calibrate the target included in Goal 5 in Table 1.

Box 8: An eight-point checklist for developing targets and indicators on disaster resilience

A target and indicator set on disaster resilience should:

1. Be motivating – ambitious but achievable;
2. Be amenable to aggregation globally but also suitable for translating to national, sub-national and community levels;
3. Include outcome-oriented components;
4. Include risk reduction components;
5. Add value rather than focusing on aspects that are already improving (e.g. mortality rates);
6. Be simple and straightforward to communicate;
7. Be measurable, though not necessarily already measured globally, with the potential for a baseline to be created;
8. Be able to capture trends in intensive and extensive risk.

progress caused by a rapid accumulation of risk. Such an aim may be supported by appropriate cross-referencing and creating an added degree of co-dependency between the goals.

As mentioned in the previous section (see Box 7), almost all options for targets and indicators on disaster resilience assessed in this paper will require a significant investments in and efforts to improve data collection and management down to a local level. Currently, many governments do not have a clear baseline and trends against which to make decisions regarding the level of ambition for a target. This further hampers the ability to make strong arguments for any proposed target.

Data collected need to include the gender, age, livelihoods, location and poverty levels of the people killed or affected by disasters, as well as measures to manage disaster risk. Data about natural hazards should be recorded too, along with the areas and people exposed, even if these do not lead to a disaster. Without this, it will be impossible to tell whether disaster resilience is improving at a local level. Such detail does not exist at the moment, and existing disaster datasets are fragmented at best and heavily biased at worst.

Convincing development actors to include disaster resilience in a post-MDG framework will likely require evidence to be obtained and presented around the narrative that, for some countries, development progress is increasingly non-linear and uncertain, given increased disaster risk and incidence of disasters. In such countries, future progress is further threatened and may even be reversed by increasing exposure and climate-related natural hazards. Fortunately, disaster risk management works, is a good investment and is good for growth and development.

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Endnotes

1. More information on the consultation process for the HFA 2 can be found here: http://www.preventionweb.net/files/25129_towardsapost2015frameworkfordisaste.pdf and <http://www.preventionweb.net/posthfa/?pid:507&pih:2>. The consultation process will provide an opportunity to discuss coherence with post-2015 SDGs.
2. There have been many attempts to develop goals, targets and indicators for 'disaster risk management' and this literature should be used as a reference point for further discussions. Such literature is referenced throughout this paper, but additional discussions can be reviewed in the UNISDR publication: *Visions of Risk: A Review of International Indicators of Disaster Risk and Its Management*. December 2004.
3. http://www.nasa.gov/mission_pages/servir/index.html
4. The relationship between disasters and the existing MDG framework is described here: <http://www.unisdr.org/2005/mdgs-drr/link-mdg-drr.htm>
5. http://www.mofa.go.jp/policy/environment/warm/cop/wmcd_r_2012/chairs_summary.html
6. Mitchell and Wilkinson (2012) include a timeline showing post-MDG, climate change and post-HFA negotiations.



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