



# Resilience in the SDGs

## Developing an indicator for Target 1.5 that is fit for purpose

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### Abstract

An appropriate indicator for target 1.5 is needed. This paper provides one proposal as a first step to stimulate further debate. We outline a comprehensive approach for developing a cross-sectoral, multi-dimensional and dynamic understanding of resilience. This underpins the core message of the Sustainable Development Goals (SDGs) that development is multi-faceted and the achievement of many of the individual development goals is dependent on the accomplishment of other goals. It also acknowledges that shocks and stresses can reverse years of development gains and efforts to eradicate poverty by 2030.<sup>1</sup> Crucially, this approach to understanding resilience draws on data that countries will collect for the SDGs anyway and entails only a small additional burden in this regard.

## 1 Strengthening resilience is vital to achieve the SDGs

*‘Global health threats, more frequent and intense natural disasters, spiralling conflict, violent extremism, terrorism and related humanitarian crises and forced displacement of people threaten to reverse much of the development progress made in recent decades.’<sup>2</sup>*

The vision set out in the SDGs – for people, planet, prosperity and peace – will inevitably fail if shocks and stresses are not addressed. The pledge that ‘no one will be left behind’ requires a specific focus on the poorest and most vulnerable people, which is a key challenge: up to 325 million extremely poor people are likely to be living in the 49 most hazard prone countries by 2030<sup>3</sup> and around 62% of those living on less than \$1.25 per day will be living in fragile states by 2030.<sup>4</sup>

A focus on strengthening resilience can protect development gains and ensure people have the resources and capacities to better reduce, prevent, anticipate, absorb and adapt to a range of shocks, stresses, risks and uncertainties. The concept has been applied across a wide variety of disciplines – helping to break down sectoral ‘silos’ – and provides a useful operational framework for reducing the multiplicity of risks faced by people and communities, now and in the future.

Resilience is acknowledged both explicitly and implicitly in a range of the proposed SDG targets. Target 1.5 represents the core resilience target, as follows:

‘By 2030 build the resilience of the poor and those in vulnerable situations, and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters’.

In addition, resilience:

- is a core feature of target 13.1 in its aim to ‘strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries’
- underpins the achievement of several other targets, **including:**
  - 9.1: ‘develop quality, reliable, sustainable and resilient infrastructure...’
  - 2.4: ‘ensure sustainable food production systems and implement resilient agricultural practices...’
  - 11.5: ‘significantly reduce the number of deaths and the number of people affected and decrease by [x] per cent the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations...’
  - 11.b: ‘substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, develop and implement, in line with the Sendai Framework

for Disaster Risk Reduction, holistic disaster risk management at all levels.’

This paper will focus on developing an indicator that is fit for purpose for target 1.5, as the core resilience target. However, there are synergies with these other targets that should be explored. It is possible the indicator for target 1.5 could also be used for target 13.1.

## 2 An indicator for target 1.5 that is fit for purpose

Target 1.5 is an extremely broad target in terms of the scope of shocks and stresses to be addressed and the impact sought:

- Scope of shocks and stresses to be addressed: Target 1.5 applies to ‘climate-related extreme events and other economic, social and environmental shocks and disasters’, which is broader than similar targets that apply only to ‘climate-related hazards and natural disasters’ (target 13.5) or ‘disasters’ (target 11.5 – somewhat ambiguous, but generally interpreted as natural hazards, possibly including technological hazards).
- Scope of impact required: Target 1.5 requires states to ‘build resilience, reduce exposure and reduce vulnerability.’ This is similar to target 13.1, but significantly broader than target 11.5, which requires states only to reduce human and economic losses.

The current proposed priority indicator for target 1.5 is the number of people affected by hazardous events, disaggregated by age and sex. While this is an important indicator to measure the impact of shocks and disasters, it clearly does not address resilience building and vulnerability reduction. A review of the latest thinking on resilience measurement<sup>5</sup> reveals that outcomes from processes to enhance resilience are increasingly being considered in terms of a set of interrelated *capacities* to absorb, anticipate and adapt to different kinds of shocks and stresses.

In recognition of the limited capacity of some National Statistical Offices (NSOs), there is a drive to limit the number of SDG indicators and develop multi-purpose ones. Though this is an admirable objective, based on legitimate concerns, this pressure should not invalidate the whole purpose of indicators, which should be both:

- A management tool to help countries develop implementation and monitoring strategies for achieving the SDGs and to check progress.
- A report card to measure progress towards achieving a target and ensure the accountability of governments and other stakeholders for achieving the SDGs.<sup>6</sup>

The current priority indicator proposed will not act as a management tool or report card for building resilience or reducing vulnerability. Rather than a narrow focus on losses, a focus on positive attributes such as capacity, governance, resources and social safety nets, along with access to and availability of systems and services will be required to measure this target. This will help reduce vulnerability to a multitude of risks and shocks. As such,

a robust indicator for this target will need to be multi-dimensional and should go beyond a narrow focus on the reduction in human and economic losses.

### 2.1 An appropriate indicator for target 1.5 is needed

This paper provides one proposal as a first step to stimulate further debate. We outline a comprehensive approach for developing a cross-sectoral, multi-dimensional and dynamic understanding of resilience. This underpins the core message of the SDGs: development is multi-faceted and the achievement of many of the individual development goals is dependent on the achievement of other goals. It also acknowledges that shocks and stresses can reverse years of development gains and efforts to eradicate poverty by 2030.<sup>7</sup>

Crucially, this approach to understanding resilience draws on data that countries will collect for the SDGs anyway and entails only a small additional burden in this regard.

## 3 The three step approach: understanding capacities, hazards and development outcomes

We propose a set of composite indices that measure resilient development outcomes as well as the capacities that enhance resilience and draw primarily on targets that are used elsewhere in the SDGs framework. This approach links these with existing indicators of hazards and exposure. Research has demonstrated that composite indicators/indices to compare country performance are a useful tool in policy analysis and public communication, as well as an effective means of illustrating complex and sometimes elusive issues in wide-ranging fields.<sup>8</sup> The proposed approach draws on existing targets from across the SDGs to ensure that minimal burden is placed on NSOs, which often face severe resource and capacity constraints. The approach we propose can be used to track resilience over time and compared between countries, in a similar way to the Human Development Index (HDI) and Multidimensional Poverty Index (MPI). Whilst resilience is highly specific to context, meaning any proposed indicator has its limitations, we suggest the composite indices proposed here offer significant advantages over existing proposals for narrowly defined single indicators.

Figure 1 describes the approach. The idea is that a set of resilience capacities (described in Step 1) should deliver resilient development outcomes (described in Step 3) despite increases in hazards and/or exposure to hazards (Step 2). This would provide a clear picture of whether or not a country is becoming more resilient.

This is because:

- Measuring only resilience capacities yields insights on only the ‘latent’ ability of individuals to deal with

shocks and stresses or the ‘likelihood’ that development will continue despite disturbances.

- Measuring only development outcomes tells us nothing about the impact of shocks and stresses on the development processes; they tell us very little about how resilience has been enhanced.
- Measuring only resilience capacities and development outcomes also provides an incomplete picture because development outcomes may dip due to high intensity hazards, even though capacities to deal with these hazards may have increased; therefore measuring hazards and exposure is also vital.

In essence, we will know that a country is resilient when there are increases in resilience capacities and development outcomes in the face of shocks and stresses. In some circumstances, the resilience of a country may also increase, despite a dip in development outcomes, if the frequency or intensity of shocks and stresses has also increased with reference to a baseline (see Step 2).

Therefore, bringing resilience capacities, hazards and exposure, and resilient development outcomes together is vital for an accurate picture of the degree to which a country is resilient.

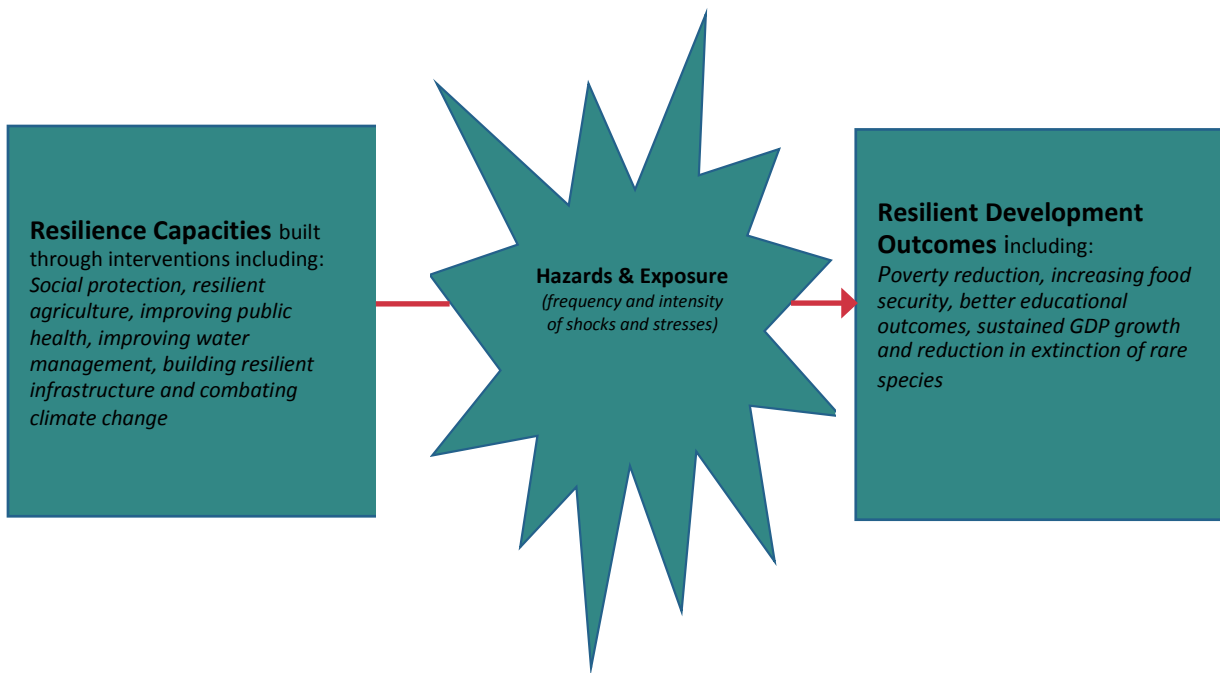
### Step 1: measuring resilience capacities by drawing on existing targets

Measurement of resilience is complex and there is currently no international standard. Part of the challenge is that resilience needs to be thought about in the context of ‘resilience of what, for whom’ and take account of both the *capacities* that enable people to be resilient, as well as the *outcomes* of resilience, in terms of development gains and improvements in well-being despite multiple shocks and stresses.

People’s resilience can be considered in terms of a set of interrelated capacities to absorb, anticipate and adapt to different kinds of shocks and stresses<sup>9</sup>, as follows:

- **Adaptive capacity:** The ability of social systems (for example households, communities or nations) to adapt to multiple, long term and future risks, and also learn and adjust after a disaster. It describes the capability to take deliberate and planned decisions even when conditions have changed or are about to change to achieve a desired state.
- **Anticipatory capacity:** The ability of social systems to anticipate and reduce the impact of shocks through preparedness and planning. This is seen in the proactive actions taken before an event to avoid upheaval, either by avoiding or reducing exposure, or minimising vulnerability to specific disturbances.
- **Absorptive capacity:** The ability of social systems to absorb and cope with the impacts of shocks and stresses. This is similar to coping capacity and refers to the ability of social systems manage and recover from adverse conditions using available skills and resources.

**Figure 1: The 3 step approach: resilience capacities are integral to delivering a set of development outcomes, despite shocks and stresses**



We have analysed the targets being discussed for the current set of SDGs and believe tracking progress made on many of these existing targets that countries will track anyway as part of the SDGs process will permit an understanding of the manner in which the three capacities are being enhanced through a Composite Resilience Capacity Index (CRCI). For example, target 16.6 focusses on the development of effective, accountable and transparent institutions at all levels. Progress made against this target will be an effective component of understanding changes in adaptive capacity because polycentric, responsive and democratic governance processes are often linked to enhanced resilience, as they enable societies to successfully engage with multiple, dynamic shocks and stresses. A range of other targets (e.g. 15.4) can all combine to provide a clear picture of changes in adaptive capacity.

Target 3d is focussed on strengthening the capacity for early warning, risk reduction, and management of national and global health risks. Similarly, this will clearly tell us something about changes in anticipatory capacity. This is because early warning is vital to a country's capacity to prepare, plan and therefore anticipate shocks and stresses. A range of other targets (e.g. 2.5 and 13.2) can all combine to provide a clear picture of changes in anticipatory capacity.

Finally, when it comes to absorptive capacity, target 1.3 is focussed on implementing nationally appropriate social protection systems and measures for all. This would be an important component of any composite index. This is because safety nets provided through social protection initiatives enhance the ability of communities to buffer

against shocks and stresses. A range of other targets (e.g. 1.4) can all combine to provide a clear picture of changes in absorptive capacity.

In this way, information being used to track other existing targets can provide a good view of changes in adaptive, anticipatory and absorptive capacities, which can be combined into a Composite Resilience Capacity Index. Needless to mention, all other resilience targets such as 13.1, 9.1, 2.4, 11.5 and 11b may also be accommodated in this index.

### Step 2: collating existing data on hazards and exposure

People often face multiple hazards or threats in their daily lives, of both natural and human origin. They are considered to be exposed to these hazards and, while action can be taken to reduce this exposure, for example through re-locating geographically, resilience will often have to be built in-situ. Efforts to build people's resilience will need to be measured at country level in terms of their performance (both in terms of improving resilience capacities and development outcomes) and with respect to hazard intensity, frequency and exposure. In particular, any improvements in development outcomes will have to be 'controlled' for hazard risk faced during a set period of time (ideally over 10 years). This could mean, for example, that resilience in a country increases from 2015-2030, despite a dip in development outcomes, because the frequency of flood events has increased over that period with respect to the previous 15 years.

The INFORM Index, set up by the Inter-Agency Standing Committee Task Team for Preparedness and

Resilience and the European Commission, provides a useful basis for developing a national-level resilience index. It includes Vulnerability, Coping Capacity, and Hazards and Exposure dimensions. The Hazards and Exposure dimension is based on carefully designed components: earthquake, tsunami, flood, tropical cyclone, drought, current conflict intensity and projected conflict risk.<sup>10</sup> Physical exposure for natural hazards is probabilistic (based on different scenarios) and is seen as a function of the ‘average frequency of a given hazard event per year’ and the ‘total population living in the hazard zone’.

To calculate the hazard risk for a country, a number combining different hazards is needed. This is done by measuring intensity using different metrics for each hazard (for example, the Saffir-Simpson scale) and selecting a level of intensity for each that causes an equivalent level of impact.

For human-induced hazards, the INFORM Index includes two components: conflict intensity (using the Conflict Barometer, HIIK) and projected risk of conflict (using the Global Conflict Risk Index, JRC). For the purposes of measuring changes in resilience outcomes under SDG target 1.5, existing conflict intensity may be sufficient.

The natural and human hazards indices used in INFORM could be supplemented with an additional component on financial and economic shocks (which could draw on existing indices created by the major country risk rating agencies) and food price shocks (for example, the FAO food-price index).

All this indicates that data on hazards and exposure can largely be collated from existing and publicly available sources. These would facilitate an analysis of how resilience capacities (discussed in section 3) are contributing to reducing the impact of shocks and stresses to deliver resilient development outcomes (discussed in the next section).

### Step 3: measuring resilient development outcomes by drawing on existing targets

The objective of all resilience building activities is to improve wellbeing and levels of human development despite shocks and stresses. Therefore, the final element of this approach is an index to measure resilient development outcomes.

We have reviewed targets for all of the 17 SDGs and it is clear that many of these pertain to development ‘outcomes’ rather than inputs/outputs, meaning we have focussed on including the end point of the processes. Countries can produce a Composite Resilient Outcomes Index (CROI) by pulling together some of these outcome focussed targets, prioritising those they will track as part of their SDGs commitments (Table 2).

For example, target 1.2 is focussed on halving poverty by 2030 and makes for a good indicator for the CROI. If a nation manages to build resilience capacities so as to reduce poverty despite shocks and stresses then it is clearly becoming more resilient. Similarly, target 4.6, which talks about enhancing the percentage of the population able to read and write, would also be a suitable indicator when considering resilient development outcomes. Again, this is because an increase in the percentage of the literate population, despite shocks and stresses, indicates a country is becoming more resilient. Additionally, target 8.1, which highlights sustained per capita economic growth, should also be part of this index for the same reasons. Other targets, such as 2.1, 3.1, 4.1, and 6.1, are all good examples of targets that can contribute to understanding how resilient a country is.

This is one approach to tracking outcomes. Another would be to use the HDI (which will feasibly also draw on data being generated to track SDGs in the future) as the index for tracking resilient outcomes.

**Table 1: Hazards and exposure index**

Natural hazards					Human hazards	Financial and economic shocks		
Earthquake	tsunami	Flood	Cyclone	Drought	Current conflict intensity	Financial	Economic	Food price shocks

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## 4 Next steps

This paper has highlighted that building resilience and reducing vulnerabilities are core aspects of the SDGs – both explicitly and implicitly across the framework. The SDGs recognise that threats, disasters, shocks and stresses present immense challenges, but also pledge that ‘no one will be left behind.’

The indicator currently proposed for target 1.5 is not fit for purpose; it will not provide a stimulus for the policy change required or act as an accountability mechanism. This paper has provided a practical proposal of what a more effective indicator could look like, even given the capacity constraints of NSOs. **This is provided as a first step to stimulate further debate.** More discussion is needed on the most suitable targets that should make up the Composite Resilience Capacity Index and the Composite Resilient Outcomes Index, the weighting of indicators within these and the establishment of baselines for measuring hazards and exposure.

It is worth noting that some countries already have valuable experience on these issues – for example, the Government of Indonesia, with technical support from UNDP, carried out a pilot study last year to explore indicators for several targets in the SDGs. Those engaged in the pilot exercise developed seven indicators to measure target 1.5, and believed that it would be possible to achieve progress on all of the indicators, feeling that the measurement challenges could be easily overcome.<sup>11</sup>

There is now an urgent need for more detailed discussions on the strengths and weaknesses of the current proposed approach and this proposal, as well as potentially others. This needs to come from a holistic/systemic approach to resilience, rather than a narrow sector-specific one. Just as there is an informal group exploring and developing indicators for Goal 16 on peaceful societies, justice and institutions, a similar group is required to consider resilience across the SDGs framework. This group should particularly focus on target 1.5, as the core resilience target, but also other relevant targets, seeking to ensure that, brought together, the SDGs will strengthen resilience across the whole range of shocks and stresses.

The resilience-related targets in the SDGs provide a huge opportunity for policy change that will improve the lives of millions of people who are vulnerable to being pushed into poverty due to shocks and stresses. **The right indicator could help achieve an ambition, not just for people to cope or bounce back from one shock after another, but for them to adapt and thrive despite those shocks, stresses and uncertainties.**

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