UN SECRETARY-GENERAL'S SPECIAL ENVOYS ON EL NIÑO & CLIMATE

Preventing El Niño Southern Oscillation Episodes from Becoming Disasters: A 'Blueprint for Action'

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EXECUTIVE SUMMARY

The 2015/16 El Niño Southern Oscillation (ENSO) episode severely affected more than 60 million people around the world. The six-month period from January to June 2016 was the planet's warmest half-year on record, with an average temperature of 1.3°C warmer than the later 19th century. The impact of drought, flooding and severe storms led 23 countries to appeal for international humanitarian assistance in East and Southern Africa, 'Central America, the Caribbean and the Pacific. The most vulnerable groups bore the brunt of the emergency, including women, children, the elderly, the disabled and people living with HIV/AIDS.

In May 2016, United Nations Secretary-General Ban Ki-moon appointed Mrs. Mary Robinson of Ireland and Ambassador Macharia Kamau of Kenya as his Special Envoys on El Niño and Climate. The Special Envoys recognized the important progress of a number countries in preparing for and responding to the ENSO escalation. They also saw that ENSO's severe weather threatened to overwhelm even the most proactive countries, tipping the scales toward economic loss and humanitarian need. They identified that a purely humanitarian response would not be sufficient to address the underlying vulnerability linked to the recurring and predictable ENSO phenomenon, and proposed an integrated approach which focused on prevention and bridged the humanitarian-development nexus.

Despite the progress made and an abundance of good practice examples, there is no question that a much greater sense of focus and urgency is required to ensure that future ENSO events do not result in the scale of emergency caused by the 2015/2016 El Niño. 'Business as usual' is no longer an option. The governments of at-risk countries must be supported to effectively and comprehensively plan, prepare and rapidly respond to these events, including by making integrated investments in climate resilience.

The objectives of the Blueprint for Action ('the Blueprint') are to provide a tool to support integrated, nationally-led and equity-driven plans to prepare for ENSO and other climate hazards, absorbing risks without jeopardizing development gains, and informing climate-smart development plans to reduce risk; and to encourage the global, regional, national and local partnerships necessary to support the effective and sustainable implementation of these plans. Action is envisioned across the 15-year timeframe of the Agenda 2030, measured by progress against the targets and indicators of all eight international commitments and agreements which were endorsed/reviewed in 2014-2016. [1]

With the underlying premise that ENSO and other weather events can be predicted, prepared for and mitigated, thus avoiding humanitarian crises, the Blueprint identifies eleven 'building blocks' which can be incorporated as appropriate into nationally led multihazard plans and other efforts to focus greater efforts on prevention and resilience:

A. Turning early warning into early action (**A**nticipate)
    1. Collective risk analysis, early information sharing and early requests for support
    2. Harmonised early action planning including agreed thresholds for action
    3. Allocation of domestic resources for preparedness and early action
B. Managing risk to protect people and assets (**A**bsorb)
    1. Adaptive social protection programmes for resilience

[1] The 2030 Agenda for Sustainable Development, the Paris Climate Agreement, the Addis Ababa Action Agenda, the Sendai Framework for Disaster Risk Reduction, the SIDS Accelerated Modalities for Action (SAMOA) Pathway, the Programme of Action for the Least Developed Countries for the Decade 2011-2020, the Agenda for Humanity, and the New Urban Agenda.

2. Expanded use of insurance solutions whenever appropriate
3. Protecting dependent populations in institutions: Healthcare, Justice and Education

C. Climate-proofing development (**R**eshape)
    1. Risk-informed national and local planning for disaster and climate resilience
    2. Climate-proof strategies for resilience in key affected sectors
        a. Food and nutrition security and agriculture/pastoralism
        b. Health and nutrition
        c. Water, sanitation and hygiene
        d. Resilient livelihoods

The Blueprint's success is predicated on strong national leadership of the process and continuing high-level engagement and monitoring of multi-sectoral implementation. Collaboration with a wide range of other partners will also be needed to achieve results. Four critical areas for partnerships were identified by the Special Envoys:

- Partnerships for Financing
- Public-Private Partnerships
- Partnerships for Capacity Development and Learning
- Partnerships With Research Institutions and Academia

The Blueprint implements the Agenda for Humanity`s Core Responsibility Four, which set out a 'New Way of Working' that seeks to move 'from delivering aid to ending need' by anticipating crises through risk management; reinforcing local institutions and actors for prevention, and increasing humanitarian-development collaboration to increase resilience and reduce vulnerability. The Blueprint is based within the Human Security Approach, and will work to put women and girls at the centre of national resilience planning and action.

The Blueprint is offered as tool to be used by any country. It is, however, envisioned that the Blueprint approach will be undertaken by a small number of 'early mover' countries most affected by the 2015/2016 El Niño. Work in these countries would begin in March 2017, when the immediate emergency has subsided.

LIST OF ABBREVIATIONS

A2R	Anticipate, Absorb, Reshape
CEB	Chief Executives Board for Coordination
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CODI	Core Diagnostic Instrument
ENN	Emergency Nutrition Network
ENSO	El Niño Southern Oscillation
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agriculture Organisation
FoodSECuRE	Food Security Climate Resilience Facility
GADRRRES	Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
IASC	Inter-Agency Standing Committee
ICMIF	International Cooperative and Mutual Insurance Federation
ICN2	Second International Conference on Nutrition
IDDRSI	IGAD Drought Disaster Resilience Sustainability Initiative
IFC	International Finance Corporation
IFI	International Financial Institution
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
ILC	International Labour Conference
ILO	International Labour Organisation
ISPA	Interagency Social Protection Assessments
INGO	International non-governmental organisation
IRI	International Research Institute for Climate and Society
ISDR	International Strategy for Disaster Reduction
IWRM	Integrated Water Resources Management

LDC	Least Developed Country
LLDC	Landlocked Developing Country
MIC	Middle Income Country
NASA	National Aeronautics and Space Administration
NBSAP	National Biodiversity Strategy and Action Plan
NOAA	National Oceanic and Atmospheric Administration
RD&D	Research, development and demonstration
SAMOA	SIDS Accelerated modalities of Action
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
SIWI	Stockholm International Water Institute
SME	Small and medium enterprises
SOP	Standard operating procedure
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
USAID	United States Agency for International Development
USD	United States dollars
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organisation
WMO	World Meteorological Organization
WPCCAA	Work Programme on Climate Change Action in Africa

Preventing El Niño Southern Oscillation Episodes from Becoming Disasters: A 'Blueprint for Action'

CONTEXT

Extreme weather related to El Niño and La Niña (El Niño Southern Oscillation or 'ENSO')[2] events—including drought, flooding and severe storms—has brought massive challenges to people and communities already vulnerable to climate change, escalating risks and compounding impacts that in many cases are already severe. While there is not yet scientific consensus on how climate change and ENSO will effect one another in the future, some research suggests that climate change could make future ENSO episodes more frequent and more severe.[3] In referring to the extremely strong 2015/2016 El Niño event, the then Secretary-General of the World Meteorological Association (WMO), Michel Jarraud, sounded an ominous warning:

> *'[T]his event is playing out in uncharted territory. Our planet has altered dramatically because of climate change, the general trend towards a warmer global ocean, the loss of Arctic sea ice and of over a million square km of summer snow cover in the northern hemisphere. So this naturally occurring El Niño event and human induced climate change may interact and modify each other in ways which we have never before experienced. Even before the onset of El Niño, global average surface temperatures had reached new records. El Niño is turning up the heat even further.'*[4]

In developing countries, ENSO episodes can severely inhibit economic development, damage vital infrastructure, erode coping capacities and roll back development gains. Estimated economic losses from the 1997/98 El Niño episode were between USD 32 billion[5] and USD 96 billion.[6] Small-scale food producers, including especially smallholder women farmers, are often particularly affected. Because they typically occur every few years, further ENSO

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2 The El Niño Southern Oscillation (ENSO) is a variation in winds and sea surface temperatures over the central to eastern tropical Pacific Ocean that occurs, on average, every three to seven years. The warming phase is known as El Niño and the cooling phase as La Niña. During an El Niño event, sea surface temperatures across the Pacific can warm by 1°F–3°F or more for between a few months to two years. El Niño impacts weather systems around the globe so that some places receive more rain while others receive none at all, often in a reversal of their usual weather patterns.

3 Wenju Cai et al, 'Increasing frequency of extreme El Niño events due to greenhouse warming,' *Nature Climate Change 4 no. 2 (*2014), http://www.nature.com/nclimate/journal/v4/n2/full/nclimate2100.html.

4 WMO. 'El Niño Expected to Strengthen Further: High Impacts, Unprecedented Preparation,' *WMO*, 16 November 2015. https://public.wmo.int/en/media/press-release/el-ni%C3%B1o-expected-strengthen-further-high-impacts-unprecedented-preparation.

5 K. Sponberg, 'Weathering a storm of global statistics.' *Nature*, 400 (1999): 13.

6 Swiss Re,'El Niño 1997/98: On the phenomenon trail.' *Swiss Reinsurance*, 1999, http://www.swissre.com/.

episodes can be expected during the 15-year lifespan of the Sustainable Development Goals (SDGs).

As noted by the WMO, future ENSO episodes will interact with the changes already occurring in our climate in ways that cannot be fully predicted, and ENSO could compound existing impact of climate change in the most vulnerable parts of the world. Global temperatures have increased, and in ENSO years additional warming further exacerbates climate impacts. Without a shift toward greater emphasis on prevention and resilience, future ENSO episodes and other extreme weather events could endanger countries' progress toward achievement of the SDGs[7].

The 2015/16 El Niño episode severely affected more than 60 million people around the world. The six-month period from January to June 2016 was the planet's warmest half-year on record, with an average temperature of 1.3°C warmer than the later 19th century.[8] The impact of drought, flooding and severe storms led 23 countries[9] to appeal for international humanitarian assistance in East and Southern Africa, Central America, the Caribbean and the Pacific. The most vulnerable groups bore the brunt of the emergency, including women, children, the elderly, the disabled and people living with HIV/AIDS. More than 1 million children suffered from severe acute malnutrition in Africa alone.

In May 2016, United Nations Secretary-General Ban Ki-moon appointed Mrs. Mary Robinson of Ireland and Ambassador Macharia Kamau of Kenya as his Special Envoys on El Niño and Climate for a period of six months.[10] They were tasked with calling attention to the people around the world affected by severe El Niño-linked drought, floods and climate impacts, and with mobilising an integrated response that takes preparedness for future weather events into account. The terms of reference also highlighted that climate change is aggravating all weather patterns and that this linkage implicates responsibilities for the consequences.[11]

During their tenure, the Special Envoys worked to raise awareness of the current humanitarian crisis, and assisted affected governments and their international partners to mount an appropriate response, including by supporting the mobilization of resources to address immediate needs. The Special Envoys recognized the important progress of a number of affected countries in preparing for and responding to the ENSO escalation. They also saw

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7 A new report released by the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR), warns that natural disasters are a greater impediment to ending global poverty than previously understood, responsible for annual consumption losses of USD 520 billion and pushing 26 million people into poverty every year. The report underscores the urgency for climate-smart policies that better protect the world's most vulnerable. Targeted resilience-building interventions protect poor people from adverse weather events and can help countries and communities save USD 100 billion a year. Stephane Hallegate, et al. 2017. 'Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters.' *Climate Change and Development Series*. World Bank, Washington, DC.

8 Lynch, Patrick. "2016 Climate Trends Continue to Break Records." *NASA*. 19 July 2016. http://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records

9 Angola, Botswana, Democratic Republic of the Congo, El Salvador, Ethiopia, Guatemala, Haiti, Honduras, Lesotho, Madagascar, Malawi, Marshall Islands, Mozambique, Namibia, Palau, Papua New Guinea, Somalia, Sudan, Swaziland, Timor-Leste, Vietnam, Zambia and Zimbabwe

10 In October 2016, the mandate of the Special Envoys was extended to 31 December 2016.

11 'Terms of Reference: Special Envoys for El Niño and Climate,' United Nations, 10 May 2016.

that severe weather events[12] threaten to overwhelm even the most proactive countries, tipping the scales toward economic loss and humanitarian need. Recognising that a purely humanitarian response is not sufficient to address the underlying vulnerability linked to a recurring and predictable problem, the Special Envoys also widely consulted with stakeholders to identify the elements of a more preventive approach that builds long-term resilience, the results of which are presented in this Blueprint for Action.

The Blueprint for Action ('the Blueprint') is a tool to support those countries most vulnerable to ENSO events to stay the path towards achievement of the Sustainable Development Goals (SDGs) and the seven other international commitments and agreements which have been endorsed or reviewed since 2014 (see Annex 1) in an integrated and coherent way. Its underlying premise is that ENSO events can be predicted, prepared for and mitigated; and humanitarian crises can thus be avoided.

The Blueprint is predicated on strong national leadership of the process and continuing high-level engagement and monitoring of multi-sectoral implementation. It is based within the Human Security approach[13], which emphasizes people-centred, comprehensive, context-specific and prevention-oriented humanitarian and development efforts.

The Blueprint proposes a set of 'building blocks' to assist Member States in the development (and/or strengthening) and implementation of national plans to improve preparedness and resilience for multiple hazards. The Blueprint can support and guide the efforts of Member States to improve the human security of climate-vulnerable communities, to translate early warning into early action, and to climate-proof development from ENSO shocks. It also provides guidance on the diverse partnerships necessary to support these efforts. Action is envisioned across the 15-year timeframe of the SDGs.

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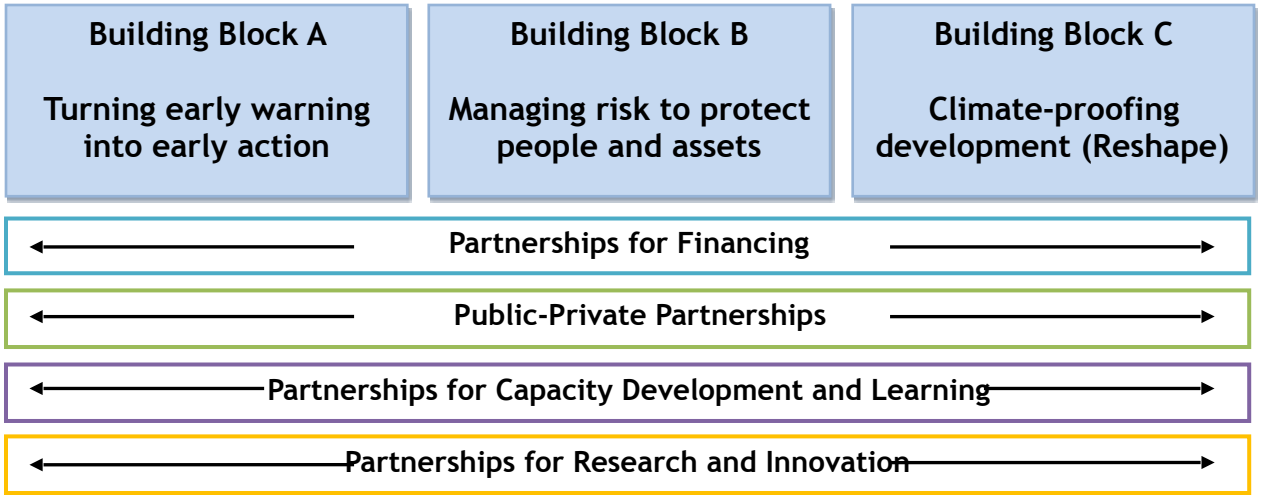
12 'Although improved forecasts and warnings, along with improved disaster planning and emergency response, are reducing the number of events with catastrophic numbers of casualties, there were still events in which a thousand or more lives were lost in the last five years. Three of these mass-casualty events were tropical cyclones that hit the Philippines.… The other weather-related event to cause casualties on such a scale occurred in June 2013, when floods and associated landslides in the Himalayan foothills in northern India left more than 5,800 people dead or missing. A number of events during 2011-2015 also caused large economic losses. One standout example was Hurricane Sandy, which hit east coast of the US and Canada in October 2012, causing an estimated USD 67 billion in damage. Another was the prolonged flooding in Southeast Asia, especially Thailand, between July and October 2011.' WMO Secretariat, 'Highlights from the First Five-yearly Statement on the Status of the Global Climate,' *Bulletin* 65, no. 1 (2016).

13 For more information on the Human Security Approach, see http://www.un.org/humansecurity/human-security-unit/human-security-approach.



The building blocks correspond to the three pillars of the Secretary-General's Climate Resilience Initiative, 'A2R' (Anticipate, Absorb, Reshape). They are strongly reinforced by the Agenda for Humanity`s fourth core responsibility, which posits a 'new way of working' in order to move from delivering aid to ending need.[14]

The Blueprint is offered as tool to be used by any country. It is, however, envisioned that in the first years the Blueprint approach will be undertaken by a small number of 'early mover' countries which were affected by the 2015/2016 El Niño; early mover countries will begin using the Blueprint approach in 2017, when the immediate emergency has subsided.

WHY A 'BLUEPRINT FOR ACTION'

The 1992 Rio de Janeiro Earth Summit[15] prompted many countries to better integrate environment and climate factors into their development planning in order to increase sustainability. Seven individual ENSO episodes since then—with the 1997-98[16] and 2015-16 events among the strongest on record[17]—focused attention on the linkages between climate change, disaster risk reduction, and development strategies. In the 25 years since the Rio summit, governments in many affected countries took actions to improve resilience to ENSO and other weather hazards.

As noted by the Special Envoys, many Member States' response to the 2015/2016 El Niño event was in earlier and stronger than in the past. However, in many other countries, the

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[14] The 'new way of working' would produce different outcomes by: anticipating crises through risk management; reinforcing local institutions and actors for prevention; and increasing humanitarian-development collaboration to increase resilience and reduce vulnerability.

[15] For more information on the Earth Summit, see www.un.org/geninfo/bp/enviro.html.

[16] The strong El Niño event of 1997-1998 was followed by a prolonged La Niña phase that extended from mid-1998 to early 2001. WMO, 'El Niño/La Niña Background,' *World Climate Services Programme*. www.wmo.int/pages/prog/wcp/wcasp/enso_background.html.

[17] Alan Buis and Jana Goldman,'NASA/NOAA Study Finds El Niños Are Growing Stronger,' *NASA*, 25 August 2010, www.nasa.gov/topics/earth/features/elnino20100825.html.

response reflected an established pattern of a slow onset weather event progressively overwhelming coping capacities and undermining commitments to prevention and early action. In some countries, policy and prioritisation choices further compromised efforts. This was true, for example, where governments did not heed longstanding calls to diversify agriculture, adopt drought-resistant practices, and/or establish fiscal buffers or contingency finance mechanisms. It was also true where governments were slow to act on early warnings received, or were hesitant to recognize at an early stage the scale and severity of the crisis, or where insufficient resources—both domestic and international—were earmarked for risk reduction or for action in the early phases of the crisis.

Despite the progress made and the abundance of good practice examples, there is no question that a much greater sense of focus and urgency is required to ensure that future ENSO events do not result in the scale of emergency caused by the 2015/2016 El Niño. 'Business as usual' is no longer an option. The governments of affected and vulnerable countries must be supported to effectively plan, prepare and rapidly respond to these events, including making bold new investments in climate resilience.

In addition to the compelling human case for action in this area, there is also a compelling financial case. The cost effectiveness of investments in resilience and early action has been repeatedly demonstrated. And future funding at scale for humanitarian needs driven by ENSO cannot be taken for granted: an unprecedented global level of need is already constraining the international community's ability to meet needs at scale; it is likely that future investments in humanitarian relief will continue to be stretched.[18]

THE GLOBAL POLICY FRAMEWORK

The Blueprint for Action does not aim to 'reinvent the wheel' by creating a new international commitment or agreement, but rather to provide a tool to help in integrated implementation of those already in place. In recent years, a number of landmark international commitments and agreements have been concluded that provide a robust global policy framework for improving preparedness for, and response to ENSO events.[19] These include:

- Paris Climate Agreement (FCCC/CP/2015/10/Add.1, Decision 1/CP.21)
- 2030 Agenda for Sustainable Development (A/RES/70/1), particularly Goal 13
- Addis Ababa Action Agenda (A/RES/69/313)
- Sendai Framework for Disaster Risk Reduction 2015-2030 (A/RES/69/283)
- SIDS Accelerated Modalities of Action (SAMOA) Pathway (A/RES/69/15)
- Programme of Action for the Least Developed Countries for the Decade 2011-2020 (A/CONF.219/3/Rev.1) and the Midterm Review (A/RES/70/294)
- Secretary-General's 'Agenda for Humanity' and 'Outcome of the World Humanitarian Summit: Report of the Secretary-General' (A/71/353)
- New Urban Agenda (A/CONF.226/4)

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[18] There was global recognition at the World Humanitarian Summit that humanitarian appeals are steadily growing year-on-year, at a pace that exceeds what donors are able to support. While additional funds are required to respond to immediate needs, the Summit outcomes called for a 'New Way of Working' that would systematically reduce need.

[19] More information on the specific linkages between the Blueprint and these commitments and agreements is included in Annexes 1 and 2.

Each of these commitments and agreements contains elements critical to preventing future ENSO events from becoming disasters. In many regions, international commitments and agreements are further complemented by regional arrangements aimed at improving information exchange, collective analysis, cross-border approaches and joined-up response.[20]

While this array of global commitments and agreements is a huge asset, it can also lead to diffusion of effort and 'siloed' planning, reporting and action across different initiatives and sectors. While most of the commitments and agreements are intended to be mutually reinforcing, how this would work in practice is not spelled out. Consequently, many countries and development partners are struggling to maintain focus while working to internalize and comply with these new commitments, heightening the risk that budgets will be stretched and efforts will be fragmented.

The Blueprint can help affected governments and their partners to integrate and operationalise efforts simultaneously to advance progress across the multiple international commitments in an integrated and coherent way. What is required is for ENSO-vulnerable countries to have a comprehensive and integrated multi-hazard plan—in accordance with SDG 13 and the Sendai Framework`s global goal and priorities—that could begin as soon as the 2015/2016 emergency has subsided, and could 'fast-track' the implementation of these most critical elements. Where plans are already in place, the Blueprint can support governments to review them for completeness and focus.

OBJECTIVES

The Blueprint for Action works to prevent future ENSO and other recurring weather events from becoming humanitarian crises which reverse development gains. These efforts are guided by two objectives:

A. Providing a tool to support integrated, nationally-led and equity-driven plans to prepare for ENSO and other climate hazards (**A**nticipate); absorb risks without jeopardizing development gains (**A**bsorb); and inform climate-smart development plans to reduce risk (**R**eshape).

B. Encouraging the global, regional, national and local partnerships necessary to support the effective and sustainable implementation of these plans.

GUIDING PRINCIPLES

I. **National Leadership for Change.** Transformational change must be nationally-led in order to be effective and sustainable**.** While a broad range of national and international stakeholders must all play a part, the single most important ingredient for success is the leadership that can only be provided by the highest levels of national government. Government leadership brings a more holistic approach that transcends

[20] For instance, the decision on the High Level Work Programme on Climate Change Action in Africa (WPCCAA) and Preparations for the Global Climate Change Events in 2014 [Doc.Assembly/AU/11(XXIII)].

institutional barriers to partners' collaboration.[21] A recent World Bank report[22] pointed to the importance of an integrated 'resilience package' developed at the country level, as there are powerful complementarities among interventions.[23]

II. **Sharing Costs Equitably.** ENSO episodes heighten and compound the impact on millions of people whose lives and livelihoods are already faltering from the dramatic changes taking place in the world's climate. The communities most vulnerable to extreme weather events are among those least responsible for the emissions that cause climate change. There must be a special sense of urgency and responsibility among those most responsible to share equitably in the burden of adapting to the changes and mitigating the risks, including those related to improving preparedness for more frequent and severe ENSO events.

III. **Investments in preparedness and early action.** There is growing evidence[24] that early response and resilience-building interventions protect development gains, and are significantly more cost-effective than emergency actions. Early action is particularly necessary to avoid malnutrition in its most acute forms, especially for children under five years old. It is not necessary to wait for certainty on the scope of an event or its consequences before taking action; agreed triggers for collective action, informed by good data on hazards and vulnerabilities, can set out critical steps to be taken before impacts are certain. While in some cases this entails real opportunity costs that need to be acknowledged, many early actions can be described as 'no' or 'low' regrets: they have a net positive effect regardless of whether the threat materializes.

IV. **Commitment to human rights and equality.** Those most vulnerable to extreme weather events are amongst the poorest, most marginalised and most exposed in any community. They have limited access to resources, credit, assets and support. A relatively small shock can overthrow their livelihoods, health, safety and wellbeing. Women and children, the elderly, people living with disabilities, and people living with HIV and AIDS have particular needs and vulnerabilities that must be addressed. Protection from all forms of gender-based violence, which can escalate during times of shock and stress, must be fully integrated into all relevant strategies. Efforts to

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21 World Food Programme, 'Policy on Building Resilience for Food Security and Nutrition.' WFP/EB.A/2015/5-C, 8.

22 Stephane Hallegate, et al. 2017. 'Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters.' *Climate Change and Development Series*. World Bank, Washington, DC.

23 'For example, policies that facilitate access to financial resources after disasters and interventions that make safety nets more responsive generate much larger benefits combined than the sum of the two performed independently.' *Ibid.*, p. 13.

24 Rob Bailey, 'Famine Early Warning and Early Action: The Cost of Delay.' *Chatham House*, July 2012, https://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Energy%2C%20Environment%20and%20Development/0712pr_bailey.pdf

Rob Bailey, 'Managing Famine Risk: Linking Early Warning to Early Action,' *Chatham House*, April 2013, https://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Energy%2C%20Environment%20and%20Development/0413r_earlywarnings.pdf

Mareile Drechsler and Wolter Soer, 'Early Warning, Early Action: The Use of Predictive Tools in Drought Response through Ethiopia's Productive Safety Net Programme,' *Policy Research Working Paper 7716, World Bank Group*, June 2016, https://openknowledge.worldbank.org/bitstream/handle/10986/24633/Early0warning00social 0net0programme.pdf?sequence=1&isAllowed=y

IFRC, 'Early Warning>Early Action," *IFRC*, 2008, http://www.ifrc.org/Global/Publications/disasters/ew-ea-2008.pdf

Courtenay Cabot-Venon, 'The Economic Case for Early Humanitarian Response to the Ethiopia 2015-2016 Drought,'*DfID*, October 2016, https://static1.squarespace.com/static/5567b109e4b0101076d7f0bd/t/581b75e0cd0f68b05009b283/1478194658325/Ethiopia+Contingency+Analysis.pd

strengthen preparedness for and response to future ENSO episodes need to be people-centred, context-specific and prevention-oriented, in line with the human security approach.

V. **Women and girls at the centre.** A concrete commitment to gender equality and equity must always underpin resilience, preparedness and response efforts, recognising not only women and girls' needs but also their capacities.[25] The most effective responses are those that recognize the leadership of women and give them the support and resources needed to address the sociocultural and economic gender barriers within their communities, and to be fully engaged in decision-making at all levels. Women and young people have a crucial role to play as front-line responders in countries affected by the extreme weather events associated with ENSO.

BUILDING BLOCKS FOR NATIONAL PLANS

The Blueprint for Action identifies key 'building blocks' that should be included in comprehensive, integrated, multi-hazard national plans to build resilience to the effects of ENSO events. These actions contribute to progress under three themes of the Secretary-General's new Climate Resilience Initiative: 'A2R' (Anticipate, Absorb, Reshape).

D. Turning early warning into early action (**A**nticipate)
   1. Collective risk analysis, early information sharing and early requests for support
   2. Harmonised early action planning including agreed thresholds for action
   3. Allocation of domestic resources for preparedness and early action

E. Managing risk to protect people and assets (**A**bsorb)
   1. Adaptive social protection programmes for resilience
   2. Expanded use of insurance solutions whenever appropriate
   3. Protecting dependent populations in institutions: Healthcare, Justice and Education

F. Climate-proofing development (**R**eshape)
   1. Risk-informed national and local planning for disaster and climate resilience
   2. Climate-proof strategies for resilience in key affected sectors
      e. Food and nutrition security and agriculture/pastoralism
      f. Health and nutrition
      g. Water, sanitation and hygiene
      h. Resilient livelihoods

[25] The CEDAW Committee Draft Recommendation states: 'The participation and development of leadership capacities amongst diverse groups of women at different levels of government and within local communities is essential to ensure that planning for and responses to disasters are effective and incorporate perspectives from all sections of society. In order to ensure that women are provided with equal opportunities to participate in disaster risk reduction and climate resilience activities at all levels, the Committee recommends States parties, e) Allocate adequate resources to building women's leadership capacities and create an enabling environment to strengthen their active and substantive role in disaster risk reduction at all levels and across all relevant sectors.'

TURNING EARLY WARNING INTO EARLY ACTION

A1. Collective risk analysis, early information sharing and early requests for support

- **Establish a mechanism for collective risk analysis—encompassing the scientific and research communities and policymakers—that can effectively support decision-making.** Currently, risk assessments of extreme weather events predominantly provide information on financial exposure and casualty risk (probability of loss of life). In only a few cases do the assessments sufficiently review vulnerable groups and the underlying factors causing their vulnerability. Moreover, information is frequently not shared across relevant public sector institutions that would enable coherent early action. In many cases, even simple two-way linkages (e.g. between agriculture and meteorology) do not exist or are infrequent or inadequate.

  In order for ENSO risk information and early warning to effectively translate into early action, consolidated analysis needs to be shared early enough with all relevant stakeholders to enable decision making. This means providing the information to the highest levels of government to enable an adequate government response. It also means communicating the information to those most directly affected in order to facilitate their early action and preparedness. Effective ENSO early warning therefore requires three components: information on the at-risk population; monitoring of the climate conditions and their effects; and communication of the information.

  Risk information that could support prevention, mitigation and preparedness is increasingly available from different sources (for example, see Box 1[26]), and a number of positive steps have been taken to better manage risk information. However, in many cases risk information remains inadequate in terms of quality and availability - it can be fragmented, infrequently updated, or sector-specific. When information is available, it can be poorly targeted to support decisions by government,

Box 1. Risk analysis and nutrition

The nutrition sector can provide insights into capturing the ability of individuals, households and communities to respond to shocks and stresses and how this response impacts their wellbeing.

In the short term, key nutrition indicators such as clinical signs of micronutrient status; wasting in infants, children or adults; exclusive breastfeeding; and household dietary diversity can indicate the capacity of vulnerable groups to absorb shocks.

In the medium term, adaptive capacities can be indicated by changes that show improvement in nutritional indices (such as shorter 'hunger gap', or improved mean weight-for-height) or negative consequences (such as stunting, which in the long term can increase risk of non-communicable diseases).

In the long term, indicators that show improvements in the factors causing undernutrition could be used as evidence of how well capacities have been reshaped. These indicators include education, gender equality, provision of quality health services, and reduced poverty.

[26] Lola Gostelow, Gwénola Desplats, Jeremy Shoham, Carmel Dolan and Peter Hailey. 'Nutrition and Resilience: A Scoping Study,' *Emergency Nutrition Network*, version 1.0 (2015), 16. http://files.ennonline.net/attachments/2450/Resilience-report-final.pdf.

development, humanitarian and other actors, and thus is often not applied in planning and investment decisions.

For risk assessments to be useful for development planning, they need to engage local producers and users of risk information in the design and implementation of assessments. Local community-led diagnoses complement large-scale assessments to provide a more accurate understanding of the spatial dimensions of risk. Intergovernmental and multi-scale partnerships can help create high quality assessment tools at the local level, where capacities are lower or non-existent.

Translating forecast ENSO events into potential effects at a specific time and place is a complex process that requires dedicated investment and analysis. It is especially important to improve the operational links between the global, regional and national entities responsible for the production of forecasts and warnings. The diversity of sources of ENSO and climate forecasts being produced by international, regional and national institutions often leads to contradictory information being disseminated. More cooperation and coordination is needed here. Global e-platforms bring together experts from the scientific, practitioner and public policy communities to discuss and provide technical support to efforts at regional and national levels.[27] If necessary, synergies could also be improved among these global platforms, and national hydro-meteorological services and disaster risk management agencies so that comprehensive forecasting scenarios can be produced.

Combining these forecasting scenarios with vulnerability and exposure information better identifies areas of risk. Appropriate early action—and the lead time available to implement it—will depend on the type of hazard (e.g. drought versus flooding), as well as the scope. A more coordinated linking of macro-to-micro-scale analyses is required, drawing on the comparative strengths offered at each level.[28] Risks also need to be monitored and regularly updated.

In order to better anticipate and act early on ENSO-related issues, national governments and their partners can take steps to ensure that a clear process is in place to facilitate collective analysis of the projected effects of climate and weather-related events, bringing forecasting information together with information on vulnerability from multiple sectors. Such a process can bring together multiple actors, including relevant parts of the government, operational centres, academic institutions, international humanitarian and development partners, relevant civil society organizations and private sector actors.

- **Commit to early recognition of the scale of ENSO events and the need for assistance.** While many countries in the 2015/2016 El Niño event and in previous events did demonstrate an encouraging willingness to acknowledge the forecast scale and mobilize an early response, others have at times shown reluctance to declare emergencies or submit appeals for support. This may stem from a fear that acknowledging an impending emergency may damage trade, tourism or a government's standing at home or abroad. Without early action, both national and international responses are severely hampered.

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[27] For instance, the NBSAP Forum (http://nbsapforum.net/), the Biodiversity and Ecosystems Network (http://www.besnet.world/), and the Food Security Information Network (http://www.fsincop.net/).

[28] The World Humanitarian Summit generated commitments to establish a Risk and Vulnerability Data Platform to map and unite the existing risk, vulnerability and threat analysis initiatives into one global community of practice.

Where an ENSO event is forecast to have significant humanitarian impact, proactive leadership must come from the highest level of government to mobilize a robust, early, whole-of-government response designed to protect its citizens. Early acknowledgement of and planning for an ENSO event are critical to enable early action for mitigation. It is important that affected governments and their partners acknowledge the anticipated effects of a projected or ongoing ENSO event as early and as transparently as possible, and, if necessary, declare a state of emergency or appeal for support.[29]

A2. Harmonised early action planning including agreed thresholds for action

- **Agree on thresholds as a catalyst for collective and early action when ENSO events are forecast.** Translating early warning into early action, particularly in the face of slow onset disasters like ENSO-induced drought, is often challenged by the lack of agreed thresholds for action and related roles and responsibilities. Drought- and flood-prone countries could have a clear and phased framework for responding to droughts and floods—and related food insecurity and malnutrition—as part of regular development planning, with a range of actions identified as the situation deteriorates and forecasts strengthen ('thresholds').

  Thresholds maximize the window for early action before the onset of emergency situations, with clearly described actions, roles and responsibilities linked to each phase.[30] Thresholds can be developed either at the local, national or regional levels, depending on the context, and should be based on comprehensive risk assessments that include vulnerability and forecasting information. Threshold design and review must include affected people so that their resilience knowledge and expertise is incorporated, and so that they are fully aware of how thresholds are set, when they are triggered, what they are expected to do and what external support to expect at each level. The thresholds chosen will vary from context to context but in all cases they can draw upon historical analysis of the impact of previous ENSO events, and can be reviewed and refined after each event.

- **Lead early action planning with a broad stakeholder base, including humanitarian and development actors and the private sector.** Thresholds should be part of a national or regional multi-hazard preparedness plan. The preparedness plan should be developed with multi-sectoral participation, led by government and including community representatives, development and humanitarian actors, international financial institutions, private sector actors, civil society and academia. If such a multi-hazard plan does not already exist, it should be developed. There is no need for a separate plan for ENSO events.

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[29] At-risk countries could also consider instituting a type of lower-level declaration of alert for ENSO and other weather events—generally issued at the earliest stages—which could be used to trigger the release of early action funding.

[30] These can be informed by the global Standard Operating Procedures (SOPs) currently under development by the Inter Agency Standing Committee (IASC). The IASC members and relevant development partners are developing a set of voluntary SOPs to catalyse and guide an early and robust programmatic response to recurring and predictable ENSO-related weather events by the international humanitarian and development systems. The SOPs are an operational guide that sets out a graduated set of actions that humanitarian and development actors will take, within agreed timelines, once early warning systems indicate an elevated probability of an ENSO episode occurring.

Through this process, selected early actions can be identified to mitigate the most likely risks. Actions at each threshold level can often be 'low regrets': commensurate with the risk being mitigated and specific to the most vulnerable areas, populations, nutritional status[31] and livelihoods. Early actions at each threshold level should be in line with the development trajectory of the region (for example, reducing distribution of seeds and increasing provision of livestock inputs, if a region is transitioning into cooperative dairy farming). When there is early warning of an ENSO event with significant humanitarian impact, at-risk countries should review—and update, as necessary—their preparedness plans, and review the actions that will be taken to mitigate the effects of the event.

A3. Allocation of domestic resources for preparedness and early action

- **Increase domestic financing for preparedness and early action.** Governments have the primarily responsibility to meet the needs of their citizens when an emergency occurs. Preparedness and early action measures have proven to be both effective and cost-effective yet often receive little attention. There is a valuable window of time that exists after the issuance of science-based early warnings and before a potential disaster materializes. A variety of short-term activities can be implemented at such window and provide a large return on investment. An early disbursal of funds may allow, among other benefits, cash transfers to preserve assets, water source rehabilitation, food storage, strengthening community-based management of acute malnutrition, communication and community mobilization.

  As stated in the Addis Ababa Action Agenda, the mobilization and effective use of domestic resources, underscored by the principle of national ownership, is central to the pursuit of sustainable development.[32] Building a sustainable domestic capacity to respond requires a commitment to sustained investment, backed by a clear set of shared objectives and delineation of responsibilities. Hence, ENSO and climate-vulnerable countries can formulate integrated national financing frameworks to better prepare for and respond to future ENSO events. This can be done through the establishment of national emergency reserve funds and dedicated budgets lines for disaster risk reduction[33], which can facilitate more rapid transfer of funds from humanitarian and development partners when disasters exceed national capacity.[34] ENSO-vulnerable countries should also consider refocusing resources, including into climate change adaptation.

  While in many cases major crises do require external assistance, it must also be recognized that governments have choices about where to channel their expenditure.

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[31] Populations with a low mean weight for height are more prone to seasonal episodes of acute wasting and therefore have lower biological resilience to shocks. The baseline nutrition status of populations is therefore a critical marker for resilience.

[32] 'Addis Ababa Action Agenda of the Third International Conference on Financing for Development,' A/RES/69/313 (2015). http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf

[33] Governments can work towards adequate fiscal space: retention of sufficient fiscal and foreign exchange reserves requires saving in good times to counter-cyclically smooth public spending when extraordinary need arises. Sound fiscal management is also related to the capacity to borrow externally without compromising debt sustainability.

[34] To address any gap in policy and investment, a clear shared understanding of existing capacities and gaps is required, alongside shared objectives, clear theories of change and strategies to build domestic financing and response capacity. 'Looking Beyond the Crisis.' *Future Humanitarian Financing, May* 2015. https://futurehumanitarianfinancing.files.wordpress.com/2015/05/fhf_main_report-2.pdf

When an ENSO event with significant humanitarian impact is forecast, governments could re-allocate or re-prioritize existing funds to support resilience-building and risk mitigation efforts, thus increasing liquidity for early action. These are critical areas of a government's work and should not be purely discretionary or subject to contingency funding being available.

MANAGING RISK TO PROTECT PEOPLE AND ASSETS

B1. Adaptive social protection programmes for resilience

- **Establish or scale up adaptive social protection to provide support for the most vulnerable**. Social protection serves as a key pillar in reducing poverty and smoothing consumption during stable periods. When appropriately designed, adaptive social protection systems can build household resilience and protect households against the negative effects of shocks. Adaptive social protection theory recognizes that climate and weather shocks and stresses (such as ENSO) are increasingly intertwined with poverty and vulnerability, and that addressing their effects requires not only timely and effective short-term response but also long-term disaster risk reduction and climate change adaptation.

  Existing social protection systems can be adapted to meet these emerging challenges by carefully assessing and designing features that allow integration with the climate and disaster risk management systems in a country. In times of ENSO or climate shocks, existing adaptive social protection programmes can provide a channel for rapid activation of early action measures, such as transfer of adequate and timely amounts of cash, nutritious food[35] or other resources to poor and vulnerable households. They can also be expanded to reach more people and then reduced when the stresses are relieved. Rather than developing parallel humanitarian support mechanisms, it is usually more efficient, effective and transparent to expand existing Government-owned programmes and/or use local organizations to meet these rising needs. Risk financing instruments can be used to fund this 'scalable' social protection response, and humanitarian resources can be channelled through the system where possible.

  To help in analyzing the strengths and weaknesses of social protection systems which are already in place, and to identify policy options for further action, countries can start with the Interagency Social Protection Assessments (ISPA), developed by a group of social protection specialists from more than 20 international development partners.[36] The International Labour Organisation(ILO) Social Protection Floors

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[35] The ICN2 Framework for Action recommends (R23): Use cash and food transfers, including school feeding programmes and other forms of social protection for vulnerable populations to improve diets through better access to food which conforms with the beliefs, culture, traditions, dietary habits and preferences of individuals in accordance with national and international laws and obligations, and which is nutritionally adequate for healthy diets.

[36] For more information and a list of contributing partners, see www.ispatools.org. Four tools are currently available:
- the Core Diagnostic Instrument (CODI)
- a Tool on Social Protection Public Works Programmes
- a Tool on Beneficiary Identification
- a Tool on Social Protection Payments

Recommendation[37] provides guidance to countries on the establishment and implementation of social protection floors, with a global flagship strategy[38] which supports the implementation of tailor-made and functional social protection floors—the recurrent costs of which can be largely funded through domestic resources.

- **Social protection programmes can be designed to build resilience to climate shocks.** The strategic use of public works programmes can be used to improve sustainable land management and restore the natural resource base—thereby building the resilience of those relying on agricultural livelihoods and facilitating local adaptation to changes in the climate. Protecting and restoring natural coastal infrastructure, such as healthy coral reefs, mangroves and seagrass beds, reduces wave energy and the damage done to human settlements and productive assets by coastal storms. There is a direct link between ecosystems, natural and manmade disasters, and the communities who depend upon them. Healthy ecosystems help to buffer the adverse effects of climate change and weather events on agricultural and coastal livelihoods, while furthering targets under SDGs 1, 2, 5 and 15. In building climate resilience, adaptive social protection programmes are sometimes complemented by other programmes such as rainfall or crop insurance schemes, agricultural productivity programmes, the Global Environment Facility (GEF) small grants programme, or village savings and loans schemes with emergency accounts.

  The faster support reaches people affected by an extreme event, the less likely they are to resort to negative coping strategies. A growing number of social protection programmes use weather-based indices to identify when and where a response is needed (and when it can be scaled back). Likewise, the measurement of wasting and stunting prevalence among children under five years of age and women of reproductive age can be used to reorient social protection programmes when ENSO events affect food security. Moreover, forecast-based financing mechanisms can be linked to public works or cash transfer programmes to provide timely support to communities or households based on a weather forecast *before* the shock materializes.

B2. Expanded use of insurance solutions wherever appropriate

- **Invest in risk financing to reduce vulnerability.** Natural hazards—even predictable hazards like ENSO—generate significant fiscal risk and create major budget volatility. Even countries with robust disaster risk management programmes can be highly exposed to the economic and fiscal shocks caused by major disasters. Research has shown that a 1 per cent increase in insurance penetration can reduce the disaster recovery burden by 22 per cent.[39] While insurance should not be considered to be a 'silver bullet', studies have shown that combined with good governance, social

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[37] R202 - Social Protection Floors Recommendation, 2012 (No. 202), adopted at Geneva, 101st International Labour Conference session (14 Jun 2012).

[38] For more information, see http://www.social-protection.org/gimi/gess/ShowProject.action?id=3000. Steps in the programme include:

1. Adopting national social protection strategies
2. Designing and reforming schemes
3. Improving operations

- Cross-cutting: impact assessments

[39] ICMIF, 'Formation of the Insurance Development Forum by the United Nations, the World Bank Group and the insurance industry,' *ICMIF,* 18 April 2016, http://www.icmif.org/news/formation-insurance-development-forum-united-nations-world-bank-group-and-insurance-industry

protection systems and a comprehensive financial protection strategy, insurance can help countries to better manage risk[40] and protect the most vulnerable communities.

Countries vulnerable to ENSO events could invest in the strategic use of risk financing mechanisms. The global insurance and reinsurance industries already offer products tailored to low-income clients, which may be relevant to leverage financing in response to a crisis. Moreover, well-designed insurance policies can work as a market-based incentive to promote risk awareness, prevention and mitigation.

- **Provide microinsurance products to the most vulnerable households.** Microinsurance products help households reduce their own vulnerability to unexpected shocks, including extreme weather caused by ENSO. Yet reviews commissioned by the World Bank[41] found most low-income markets in the developing world remain undiscovered by insurers and that less than 5 per cent of people with low incomes have access to insurance. As an integrated part of a comprehensive approach to resilience building, access to insurance products can reduce efficiency losses and protect assets of at-risk low income people, protecting them from negative external shocks and poverty traps, as well as addressing specific vulnerabilities. It is particularly critical to facilitate women's access to insurance both in rural and urban areas. There are still major difficulties in making microinsurance affordable or accessible to the most vulnerable, and in such cases, cooperative insurance models as well as subsidies from governments and other partners could be prioritised. It should be noted, however, that more robust evidence is needed on the effectiveness of climate insurance as a pro-poor resilience-building measure.

- **Invest in Sovereign Risk Pool mechanisms.** Pooling risk across a continent or region diversifies the overall profile of risks insured and provides more cost-effective insurance solutions than coverage negotiated individually—spreading risk allows the negotiation of preferential insurance and reinsurance rates. Regional risk pools,[42] particularly the African Union's African Risk Capacity,[43] have enabled countries to meet the needs of people harmed by natural hazards while decreasing reliance on external aid. The payouts are linked to pre-agreed disaster indicators rather than actual assessed losses, ensuring early and predictable financing. Groups of governments could explore ways to scale up the use of risk pooling mechanisms in their risk management strategies as a means to support their ability to manage ENSO events.

B3. Protecting dependent populations: Healthcare, Justice and Education

The effects of ENSO and other weather events can cause disruptions to the functioning, continuity and quality of important protection services provided to at-risk populations

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[40] Goetz von Peter, Sebastian von Dahlen and Sweta Saxena, 'Unmitigated disasters? New evidence on the macroeconomic cost of natural catastrophes' *BIS Working Papers* No. 394, http://www.bis.org/publ/work394.pdf

[41] Stephane Hallegate, et al. 2017. 'Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters.' *Climate Change and Development Series*. World Bank, Washington, DC.

[42] Regional Risk Pools include the African Risk Capacity, the Caribbean Catastrophe Risk Insurance Facility and the Pacific Catastrophe Risk Insurance Pilot.

[43] For more information, see http://www.africanriskcapacity.org/

(broader strategies for these sectors can be found in section C2 below). Certain populations[44] rely on the health, education and justice system for basic needs—which may be harder to meet during an ENSO or other extreme weather event. These populations in care of state-run and other institutions are vulnerable due to their dependence on the protection institution, as well as any other underlying vulnerabilities.

Health systems should be made climate-resilient to protect public health and services from climate risks, including protection of those in the care of health institutions such as in-patients.[45] Similarly, persons in custody and prisoners are by definition at risk during weather events and other disasters[46], as they cannot take independent actions to protect themselves. Moreover, these populations are generally underrepresented, poor, or marginalized.[47] In times of disaster educational institutions function not only as providers of education, but also as centres for community organization and response. Where schools provide boarding facilities for children, special efforts to ensure that children and staff are not put at risk are required, as these populations also cannot take or face constraints in taking independent actions to protect themselves. This dual role requires preparations to protect both the population served by the education facility (students, teachers), and to provide protection to a larger community.[48] In all three sectors, there are special considerations and services required to ensure protection of women and girls.

To protect the vulnerable populations in their care, all three sectors require improved sustainability in three core physical areas—electricity; water; and construction/siting—as well as specialized emergency planning for populations in care:

- **Electricity**. Modern electricity enables health facilities to refrigerate vaccines, operate medical equipment, provide treatment after sunset, and pump new water.[49] In educational institutions, modern electricity ensures institutions are able to maintain essential services such as heat, ventilation, safety and hygiene; and students are able to study past sunset. For justice sector institutions, prisons, jails and detention centres use electricity to maintain health, safety and hygiene. In many developing countries, access to energy is provided by centralized power, with connection to extensive grids for transmission and delivery. However, decentralized, renewable energy-based distributed power generation is becoming an increasingly viable option for rural and remote areas, with potential direct benefits for the health, education

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[44] E.g., those in care at health facilities; those in boarding or other schools; those in protective custody; incarcerated individuals.

[45] WHO Regional Office for the Western Pacific, 'Hospitals Should Be Safe From Disasters: Reduce Risk, Protect Health Facilities, Save Lives,' *WHO*, 2008, http://www.preventionweb.net/publications/view/25616.

[46] Keith Veronese, 'If a major disaster hits, will people in prison be screwed?' *i09*, 14 March 2014,http://io9.gizmodo.com/5892534/if-a-major-disaster-hits-will-people-in-prison-be-screwed.

[47] Melissa A. Savilonis, 'Prisons and Disasters'. PhD thesis, *Northeastern University*, December 2013, https://repository.library.northeastern.edu/files/neu:1039/fulltext.pdf.

[48] IFC, 'Disaster and Emergency Preparedness for Schools,' *International Finance Corporation,* 2010, https://www.ifc.org/wps/wcm/connect/8b796b004970c0199a7ada336b93d75f/DisERHandbook.pdf?MOD=AJPERES.

[49] UNDP,'Delivering Sustainable Energy in a Changing Climate: Strategy Note on Sustainable Energy,' *UNDP*, 2016, 14.

and justice sectors.[50] Development programmes on Sustainable Energy Access[51] may be expanded to include specific activities to address the specific needs of health, justice and education institutions, in order to better protect the populations they serve in times of ENSO and other weather-related and other disasters.

- **Water**. Continuous clean water supply—estimated need is 7-10 litres per person per day—is essential for health[52], justice[53] and education[54] [55] institutions, for hydration and hygiene and to reduce the incidence of waterborne diseases. However, during ENSO events, there are often serious problems with water quantity and quality. Moreover, health facilities in particular have specific water needs which can, nevertheless, be reduced through greater efficiencies.[56] [57] Water supply programmes for these facilities could be supplemented with both efficiency and contingency measures to ensure or prolong clean water supply during ENSO events.
- **Construction/siting**. The importance of building code and seismic retrofit is a recurrent theme following disasters, which should feed into protection planning for ENSO events. Health[58] and justice[59] system facilities require safe siting and construction—and, when necessary, retrofitting—to withstand and mitigate the most pressing weather-related risks which can endanger human life, including the severe storms that come with ENSO episodes. For prisons, jails and detention centres, structural mitigation should also address security considerations, particularly for high-

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50 *Ibid.*, 30. See also:
UNDP, 'EnergyPlus Guidelines: Planning for Improved Energy Access and Productive Uses of Energy,' *UNDP*, 18 May 2015, http://www.eurasia.undp.org/content/rbec/en/home/library/environment_energy/energyplus-guidelines.html.
UNDP, 'De-risking Renewable Energy Investment' (Original Report), *UNDP*, 24 March 2015,http://www.undp.org/DREI.
UNDP and OECD/IEA, 'Modernizing Building Energy Codes to Security our Global Energy Future,' *UNDP and OECD*, 2013, http://tr.undp.org/content/dam/turkey/docs/povreddoc/PP7_Building_Codes_2013_WEB.pdf.

51 OECD, 'OECD Policy Guidance for Investment in Clean Energy,' *OECD*, 13 October 2013, http://www.undp.org/content/undp/en/home/librarypage/environment-energy/sustainable_energy/investment-in-clean-energy-infrastructure.html.

52 Centers for Disease Control and Prevention and American Water Works Association. 'Emergency water supply planning guide for hospitals and health care facilities,' *U.S. Department of Health and Human Services*; 2012, https://www.cdc.gov/healthywater/pdf/emergency/emergency-water-supply-planning-guide.pdf.

53 Pier Georgio Nembrini, 'Water, Sanitation, Hygiene and Habitat in Prisons,' *ICRC*, 28 March 2013, 42-43, https://www.icrc.org/en/publication/4083-water-sanitation-hygiene-and-habitat-prisons-supplementary-guidance.

54 Jaap Zomerplaag and Annemarieke Mooijman, 'Child Friendly Hygiene and Sanitation Facilitation in Schools'. *IRC International Water and Sanitation Centre*,2005, https://www.wsp.org/Hygiene-Sanitation-Water-Toolkit/Resources/Readings/child%2002-03.pdf.

55 UNICEF, 'UNICEF's Strategy for Water, Sanitation and Hygiene 2016-2030,' *UNICEF*, August 2016, 32, https://www.unicef.org/wash/3942_91538.html.

56 Healthcare Environmental Resource Center. 'Facilities Management—Water Conservation,' *Healthcare Environmental Resource* Center, Last modified 2015, http://www.hercenter.org/facilitiesandgrounds/waterconserve.cfm.

57 UNICEF, 'UNICEF's Strategy for Water, Sanitation and Hygiene 2016-2030,' *UNICEF*, August 2016, 32-33, https://www.unicef.org/wash/3942_91538.html.

58 WHO Regional Office for the Western Pacific, 'Safe hospitals in emergencies and disasters: structural, non-structural and functional indicators,' *WHO*, 2010, http://www.wpro.who.int/emergencies_disasters/documents/SafeHospitalsinEmergenciesandDisasterswebоptimized.pdf.

59 JC Gaillard, Etienne Marie Casing-Baring, Dewy Sacayan, Marjorie Balay-As, and Michelle Santos, 'Reducing and Managing the Risk of Disaster in Philippine Jails and Prisons,' *Disaster Prevention and Management*, Policy Brief Series #1, 2016, http://www.preventionweb.net/publications/view/49960.

risk populations. Structural mitigation measures are recommended for all school facilities[60] [61], and can be done through participatory retrofitting with the participation of local communities.[62]

- **Emergency plans**. All three types of institutions require emergency preparedness planning and capacity building, to ensure protection of the persons in their care and continuation of critical functions throughout times of crisis. Localized emergency preparedness for business continuity in the education[63], health and justice[64] systems can build on an impressive global body of work. However, emergency preparedness in the penal system has not received the same level of attention. At a minimum, efforts should focus on improving knowledge supply chain management and logistics to ensure consistent supplies of food and required non-food items[65], including alternative market access for minimum basic packages of food meeting quantity and quality (nutrients and food safety) requirements.

CLIMATE-PROOFING DEVELOPMENT

C1. Risk-informed national and local planning for disaster and climate resilience

Many countries have recognized the importance of mainstreaming climate and disaster risk management into key investments and broader development planning, however this work is often pursued in silos despite the fact that the issues and solutions are connected. Mainstreaming can influence broader development paths and potentially much larger multi-sectoral financing, and ensure that weather- and climate-resilience initiatives are not undermined by contrary policies. An increasing number of countries have integrated disaster risk management and climate change resilience into multiple levels of government planning, and evidence shows this has helped limit climate-related impacts.

Effective risk informed development requires a functioning risk governance system, and multi-stakeholder engagement—including multiple government offices (some within the same ministry/agency). Stakeholders could be convened on a regular basis, and given sufficient authority to influence climate and disaster resilient planning and implementation decisions

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60 Hari Darshan Shrestha, Krishna S. Pribadi, Dyah Kusumastuti and Edwin Lim, 'Manual on 'Retrofitting of Existing Vulnerable School Buildings - Assessment to Retrofitting,' *Save the Children International* and *Center for Disaster Mitigation Institute of Technology Bandung*, 2009, http://www.preventionweb.net/publications/view/17195.

61 The work of the Safe Learning Facilities Working Group of the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES) refers. For more information, seehttp://www.gadrrres.net/.

62 Rajib Shaw and Masami Kobayashi, 'Role of Schools in Creating Earthquake-Safer Environment,' *United Nations Centre for Regional Development*, Disaster Management Planning Hyogo Office, presented at Disaster Management and Educational Facilities, Greece, 7-9 November 2001.

63 For instance, GADRRRES's Working Group on School Disaster Management. For more information, seehttp://gadrrres.net/what-we-do/working-group-2-school-disaster-management.

64 For example: http://www.ncsc.org/Topics/Courthouse-Facilities/Emergency-Preparedness-Disaster-Recovery/Resource-Guide.aspx; http://www.americanbar.org/groups/committees/disaster/resources/resources_for_courts.html

65 WFP's expertise in supply chain management, logistics and emergency communications can support these institutions—as well as national governments—to prepare and implement their protection responsibilities.

across line ministries. The lead convenor—preferably at the highest level of government—should be able to draw decision-makers from government, private sector and civil society, as well as to mobilize development partners. Information sharing and knowledge management are important to the success and continuity of multi-stakeholder efforts, as is resource allocation and consensus on implementation.

Interconnected entry points or pathways can be used to mainstream climate and disaster risk management at national, subnational and regional levels:

- Policy: Developing legal and policy frameworks to provide an enabling environment for risk-informed development can be a means for high-level leadership and commitment to be institutionalized for continuity and sustainability. Gender-sensitive policies, laws and regulations provide the foundation upon which strategies for integrating risk into development practice can be built,[66] and insofar as these span climate change and disaster risk reduction, they can set incentives for risk reduction and accountability.
- Organization: In addition to creating legal and policy environments, strengthening the mainstreaming and implementation of risk management in key institutions is important. Mainstreaming disaster risk reduction and climate change adaptation could be approach in several interconnected ways: defining roles, responsibilities and incentives for risk management; developing capacity to effectively carry out risk-related roles and responsibilities; making internal procedures and tools more risk-informed; and making programmes and projects risk-informed, inclusive and gender-responsive.
- Knowledge and communication: Increasing the knowledge base and raising awareness on the links between disasters and climate risks—including how these affect women and girls—is vital for advocacy on mainstreaming. Advocacy and information-sharing can be one way for risk identification to be effectively linked to decision-making. There is significant value in analyzing the worst potential climate impacts (loss and

Box 2. Putting women and girls at the centre of national climate resilience planning

- National gender equality mechanisms, gender advocates, women and their organizations should be actively included in disaster risk management and disaster risk assessments, including capacity development for these purposes.
- Data for disaster risk management should be disaggregated by sex and income to provide information on the inequality of risk among the poor specifically.
- Information about gender-differentiated risks should be made available to policymakers and decision-makers on planning and budgeting.
- Policies for disaster risk management should explicitly address differentiated risks for women and girls.
- Inter-sectoral and multi-level coordination mechanisms should be established to address gender issues.
- The results for women and girls of disaster risk management policies and practices should be monitored and evaluated and fed into future policy design.
- Adequate financial allocations for gender-differentiated risk should be put in place, and finance instruments such as insurance made accessible to women.
- Access of women and girls to information and active participation in disaster risk management design, implementation and monitoring—and equal access to support after disasters—should be ensured.

66 T. Mitchell, et al. 2010. 'Assessing Progress on Integrating Disaster Risk Reduction and Climate Change Adaptation in Development Processes.' *University of Sussex Institute of Development Studies Strengthening Climate Resilience Discussion Paper* 2 (2010).

damage) to understand the full spectrum of a country's exposure to climate risk, and to use this information to inform corresponding management strategies.

- Finance: Adequate resource allocations are vital for the success and sustainability of disaster and climate change risk investments. Countries may consider establishing dedicated budgets lines and/or funding mechanisms for risk reduction, in addition to integrating/mainstreaming climate and disaster resilience within the development budget. Initiatives which analyze and track expenditures for disaster risk reduction and climate adaptation—including gender-disaggregated data—to better understand how resources are spent and how additional resources can be mobilized are useful for some countries. Integrated diagnostic tools to inform policy choices and make the case for investment, such as the United Nations Development Programme's (UNDP) Biodiversity Finance Initiative[67] and Climate Public Expenditures and Institutional Review programme[68] can be used for this purpose.

The current level of investment in climate and disaster risk management is not keeping pace with the fast-growing levels of exposure in countries that are most vulnerable to the effects of ENSO and broader climate variability and change. For example, many of the actions needed to prepare people for, and cushion them from, the impact of severe drought require long-term development interventions, including critical investments in addressing poverty and inequality. In formulating risk-informed national plans, more attention could be placed on integrating or designing development programmes that reduce risk and vulnerability to shocks.

There are many approaches to reducing risk. Mitigation actions such as support for climate-smart agriculture practices and agroforestry (as covered in section C2 below) can reduce ENSO risks for smallholder farmers. Scalable, nutrition-sensitive social protection programmes can provide cost-effective protection for groups with health issues that are exacerbated by ENSO. Enhancing water quality and security through improved management of water resources and waste can reduce negative health and poverty effects of ENSO. Improving resilient livelihood activities to make them more productive and less vulnerable can expand community coping mechanisms in the face of extreme weather and climate changes.

C2. Climate-proof strategies for resilience in key sectors

- **Food and nutrition security and agriculture/pastoralism.** Smallholder farmers represent 90 per cent of the rural poor and make up the majority of the world's hungry population. Globally, the world is losing up to 5 per cent of agricultural gross domestic product due to land degradation, costing some USD 490 billion per year.[69] About 74 per cent of the more than 1.5 billion people worldwide who are dependent on degrading land are women[70] and men living in poverty.[71] During ENSO episodes

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67 For more information, see http://www.biodiversityfinance.net/.

68 For more information, see https://www.climatefinance-developmenteffectiveness.org/about/what-cpeir.

69 Ed King, 'UN targets global land degradation deal in 2015,' *Climate Change News,* 15 September 2013, http://www.climatechangenews.com/2013/09/15/un-targets-global-land-degradation-deal-in-2015

70 Women comprise an average of 43 per cent of the agricultural labour force, rising to above 50 per cent on sub-Saharan Africa and Eastern and Southeastern Asia.

71 UNCCD, 'Desertification: The Invisible Frontline,' *Secretariat of the United Nations Convention to Combat Desertification*, 2014, http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/Desertification_The%20invisible_frontline.pdf.

droughts, landslides and floods compound situations of land degradation as a result of weak management processes. Improving this situation is at the heart of SDG 2.

There are many obstacles to smallholder resilience, including an overreliance on rain fed and conventional agriculture; the lack of availability of drought-tolerant seeds and livestock; and women's lack of access to rights services[72]. Greater investment is required to put small-scale farmer and herder priorities and participation at the heart of the agricultural research and extension agenda, especially with regard to crop development, soil and water management and increased access to climate services. Development of crop varieties and livestock breeds with increased heat and flood tolerance will be critical to these efforts, as will expanding access to climate services for vulnerable communities through locally appropriate mixes of communication methods, early warning, agricultural planning and forecasting.[73]

A broader research and policy agenda will also be required to address the specific needs of different groups and contexts. Support to agro-ecologically sustainable agriculture and natural resource management is necessary in order to reverse widespread land and water degradation (a variety of these approaches have already demonstrated greater resilience, higher productivity and profitability over conventional agriculture). Strengthening land rights, particularly for women, can facilitate longer-term resilience building and fairer access to markets, and address gender imbalances in agriculture.[74] Promoting agricultural practices that ensure good nutrition, and ensuring uptake of new varieties will require science, extension services, advocacy and behaviour change approaches. Integrating agricultural risk insurance with other resilience building measures for smallholders and low-income farmers can increase resilience to ENSO and other weather events.

As a first step, food security and nutrition programmes must be based on integrated context analysis. This should be followed with a sub-national and community participatory planning exercises on seasonal livelihoods and local needs.[75] The highest level of vulnerabilities and poor nutritional status are seen in smallholder families, so research- and risk-informed investment in nutrition must be at the core of all actions—in particular those on prevention programmes and complementary fortification.[76]

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72 Should women farmers have the same access to productive resources as men, they could increase yields on their farms by 20 per cent to 30 per cent, thereby lifting 100 million to 150 million people out of hunger. FAO, 'Smallholders and Family Farmers,' *FAO*, 2012, http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Factsheet_SMALLHOLDERS.pdf.

73 An example of this kind of integrated approach is the Food Security Climate Resilience Facility (FoodSECuRE) of FAO, WFP and Zimbabwe's Ministry of Agriculture. The programme is bolstering the resilience of smallholder farmer households affected by El Niño through the cultivation of drought-tolerant small grains.

74 Women often own 30 per cent to 40 per cent of the land or more, make up 43 per cent of the agricultural workforce and manage up to 90 per cent of staple food crop production, yet only 5 per cent of women farmers receive agricultural advice. In particular, it is recognized that gender equality and women's empowerment is an important aspect of food and nutrition security and agriculture. Food assistance and agriculture and extension programmes should be adapted to different needs. Women and men should participate equally in their design, implementation and monitoring and evaluation. Women and girls should have increased power in decision-making regarding food and nutrition security and agriculture in households, communities and societies. SOFA Team and Cheryl Doss, 'The role of women in agriculture,' *FAO ESA Working Paper No. 11-02*, March 2011, http://www.fao.org/docrep/013/am307e/am307e00.pdf.

75 WFP, 'Policy on Building Resilience for Food Security and Nutrition.' WFP/EB.A/2015/5-C.

76 WFP, 'Update on the Nutrition Policy', WFP/EB.1/2016/4-D.

These programmes must also incorporate gender analysis and, as evidence becomes available target the specific nutritional needs of women of reproductive age and adolescent girls as part of a holistic approach which includes education, health, nutrition and livelihoods.

- **Health and nutrition**: People's health is vulnerable to ENSO and climate risks with regard to malnutrition, vector and waterborne diseases, respiratory diseases, heat stress, psychosocial effects, direct injuries and fatalities from extreme weather events, and disruption to health services to communities. Extreme weather caused by ENSO events disproportionately affects vulnerable groups, including the poor, children, the elderly and those with pre-existing medical conditions.

  The capacity of health systems to protect and improve population health in an unstable and changing climate must be strengthened and combined with action by health-determining sectors, including water, energy, food and agriculture, and urban planning. Well-planned climate risk management measures in the health sector to prevent and reduce the health effects include: investments in Universal Health Coverage; human resource skill building, training and education on climate risk and health topics; integrated disease surveillance and early warning systems for relevant extreme weather events and climate-sensitive diseases (e.g. heat-stress, zoonotic diseases, undernutrition); controlling the transmission of diseases and the vectors that spread diseases; mobilizing communities to practise good hygiene to prevent the spread of disease; improving water and sanitation services; strengthening logistics and medical supply chains; strengthening the structural safety of health facilities to withstand hazards; continuity of systems (e.g. water and energy) and preparedness of health facilities; routine and emergency vaccinations; emergency health care and maintaining access to health services (including for people with HIV/AIDS and chronic diseases); and effective coordination of preparedness and response measures, such as health sector contingency plans for extreme weather events.

  Improved nutritional status, both directly and as part of an integrated set of interventions across sectors, can strengthen the resilience of individuals and systems. By approaching resilience through a nutrition lens, the interconnections between people and systems become evident, explicit and necessary: undernutrition reveals system failure.[77] Efforts which yield important resilience gains include: improving the nutritional status of pregnant and lactating women, women of reproductive age, adolescent girls, infants, children under five years, the elderly and people with disabilities; supporting nutrition-specific policies and actions (in particular exclusive breastfeeding up to six months, optimal infant and young child feeding, provision of safe food and drinking water, and community-based management of acute malnutrition); and implementing nutrition- and gender-sensitive policies and actions across sectors, including those related to food systems, agriculture, food safety, health, hygiene and sanitation, social protection and education.

  Looking to the future, climate-proofing the health sector will also involve support to the development of 'green health services' that minimize environmental impact through environmentally sensitive health procurement, the effective management of medical waste, and the incorporation of renewable energy sources. Improved water management in the health sector—including increased efficiencies—is an important area for expansion, building on current good practices.

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[77] Lola Gostelow, Gwénola Desplats, Jeremy Shoham, Carmel Dolan and Peter Hailey. 'Nutrition and Resilience: A Scoping Study,' *Emergency Nutrition Network*, version 1.0 (2015), 15-16. http://files.ennonline.net/attachments/2450/Resilience-report-final.pdf.

- **Water, sanitation and hygiene:** Communities need water, sanitation and hygiene (WASH) to survive and thrive. Water supply is extremely vulnerable to ENSO-linked environmental impacts such as drought and flooding, and ENSO contributes to current estimates that 1.8 billion people will live in water-scarce areas by 2025, with two-thirds of the world's population living in water-stressed regions. These global statistics help to clarify what can be masked by national figures—that persistent inequalities in water can exist in geographical regions and among sub-populations.[78]

  Access to clean water and sanitation is both a SDG in its own right, and a key enabler for many others, including poverty, hunger, health, education, gender equality, livelihoods and peacebuilding. Therefore, a holistic and coordinated approach to water management and WASH programming is essential. Ensuring sustainable access to safe water and sanitation is one of the most efficient ways of improving human health, and one of the most significant drivers of progress as measured by the Human Development Index which shows every USD 1 invested in water and sanitation leads to USD 5 - USD 28 in returns.[79] Key approaches for consideration by ENSO-vulnerable countries include:

  - Achieving universal and equitable access to safe drinking water for all involves ensuring that an improved drinking water source located on the premises is available when needed. The water provided should be compliant with national water quality standards with respect to faecal contamination and chemical contaminants.[80] As an interim step, efforts could be made to ensure that an improved drinking water facility ('basic water') is within 30 minutes roundtrip collection time—a definition which may also be used during times of extreme water scarcity. For countries with high levels of capacity, efforts can focus on ensuring effectiveness and accountability of the water sector: reliable regulation for oversight; performance monitoring, sound pricing and tariffs; models for service management and operations; national water safety frameworks; and community level water safety planning.[81]
  - Achieving access to adequate and equitable sanitation and hygiene for all—including special attention to the needs of women and girls—will involve progressively moving toward an improved sanitation facility which is not shared with other households, where excreta is safely disposed in situ or transported and treated off-site. Handwashing facilities with soap and water should also be present. The elimination of open defecation is an important interim goal,[82] followed by 'unimproved sanitation'[83], 'shared sanitation'[84], and 'basic

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78 UNICEF, 'UNICEF's Strategy for Water, Sanitation and Hygiene 2016-2030,' *UNICEF,* August 2016, 38-40, https://www.unicef.org/wash/3942_91538.html.

79 'Humanity Needs Water,' *UN Water and UNDP*, accessed 29 December 2016, http://www.unwater.org/wwd15/learn/en

80 UNICEF, 'UNICEF's Strategy for Water, Sanitation and Hygiene 2016-2030,' *UNICEF,* August 2016, 21, 23-25, https://www.unicef.org/wash/3942_91538.html.

81 *Ibid.*, 24.

82 UNICEF, 'UNICEF's Strategy for Water, Sanitation and Hygiene 2016-2030,' *UNICEF,* August 2016, 25-30, https://www.unicef.org/wash/3942_91538.html.

83 'Unimproved facility does not protect against contamination,' *Ibid.*, 27.

84 'Improved facility shared with other households,' *Ibid.*, 27.

sanitation'.[85] In addition, working across the sanitation management chain to reduce the unsafe discharge of faecal wastes into the environment—including near drinking water sources—and promoting technologies and systems from containment to reuse and disposal.[86] Improving hygiene can be promoted through behaviour change in four areas: handwashing with soap (or ash); menstrual hygiene management; safe water handling; and the safe disposal of excreta (including infant and child faeces).[87] These are areas which can be weak in national WASH programmes in some countries.

- Improving access to water and sanitation in schools, healthcare and early childhood care facilities (see also B3, above) furthers progress in SDG targets for health, education and gender equality. This can be done through a combined approach of advocacy for proven interventions (such as handwashing), institutionalization of WASH in these sectors, and improved monitoring for WASH in institutions.[88]
- Although the sustainable management of forest, montane, grassland and wetland ecosystems is the best strategy for maintaining sustainable supplies of clean water, governments and water managers face difficult decisions on allocations across competing demands from agriculture, hydropower, industry and urban areas—which are exacerbated during times of ENSO events where supplies can be limited or dangerously plentiful. Promoting integrated water resources management (IWRM)[89] improves coordination and management of water, land and related resources to promote equitable economic, social and health benefits for people while minimizing impact on ecosystems. Countries can also use this approach to improve management of international water basins.

- **Resilient livelihoods.** Having the right (resilient) livelihoods and jobs strengthens individual and community-level abilities to endure or adapt to climate risk, especially when policies and practices are in place to ensure gender balance and increase equitable access to natural resources. However, changing rainfall patterns, disasters and a changing climate threaten to undermine livelihoods and income from traditional sectors and also increase demands on meagre incomes. For this reason, SDG 8 focuses on full and productive employment for all. During and following an ENSO event, the resilience of the affected populations relies heavily on the stabilization and restoration of affected livelihoods.

  When identifying and promoting climate-resilient livelihoods strategies, it is important to consider the interaction of hazards, accumulated impacts over time (for instance, several years of repeated droughts) along with socio-economic and gender factors. Resilient recovery programming should include: integrating hazard mapping; undertaking rigorous vetting of existing and past livelihoods recovery initiatives; identifying hazard and business impact analysis; incorporating a disaster preparedness/mitigation plan as part of any development plan and implementation;

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85 'Private improved facility which separates excreta from human contact,' *Ibid.*, 27.

86 *Ibid.*, 27.

87 *Ibid.*, 30.

88 *Ibid.*, 32-33.

89 The Stockholm International Water Institute (SIWI), UNDP and the GEF—among other actors—provide support to individual or groups of countries on IWRM approaches.

and advocacy for insurance cover for small and medium enterprises (SMEs)[90], where there is evidence that this is the most cost-effective way of increasing SME resilience.

A key element of future adaptive capacity is for people—women and men, and including adolescents—to have a range of options available to them to sustain their livelihoods under different ENSO conditions. This starts by countries having integrated policy frameworks and planning that can anticipate market shifts and mitigate risks driven by development dynamics such as disasters, natural resource scarcity, migration and urbanization. At the same time, efforts could also focus on building on affected people's coping and adaptive strategies, supporting entrepreneurship and income generation in ways which are gender-sensitive, introducing or supporting new ways of diversification of livelihoods for women and men, and supporting policy and institutions that create an environment for the development of resilient livelihoods. Diversification of livelihoods, both within agriculture and in non-agricultural activities is a key risk management strategy, as are social protection programmes that offer cash-for-work. These efforts have been shown to expand jobs, boost incomes, include those often left out of employment opportunities, and create employment benefits at the same time. Indicative interventions include (agricultural livelihoods are addressed above):

- Support to public works programmes and cash/voucher for work in construction or rehabilitation of community infrastructure (dams/water storage systems, water canals, boreholes, feeder roads, pasture/range areas, market facilities and grain storage, environmental/ecosystem management);
- Provision of start-up kits and support packages for small enterprises that will increase income and help address food and nutrition insecurity;
- Introduction of appropriate technologies and techniques to enhance communities' adaptive capacity to recurrent ENSO and climate changes (e.g. solar energy; processing technologies; preservation/conservation techniques; digital technologies; adapted seeds);
- Development and/or rehabilitation of water storage, conservation or catchment areas;
- Development of market infrastructure, communication and information systems in order to optimize potential value chains and strengthen regional trade.

In areas affected by ENSO-related floods and other rapid-onset disasters, additional measures for livelihoods recovery and development may be required. Livelihoods stabilization through emergency employment schemes for women and men can be used to generate income and re-monetize the local economy. Local economic recovery can be fostered through grants, in-kind support and capacity building to help local businesses and entrepreneurs to resume economic activities.[91] Promotion of debris and solid waste management can be undertaken as part of livelihoods and

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[90] An unpublished survey of 2,420 businesses in 2006 by the Building Valuation Service for AXA Insurance found that 90 per cent are underinsured, in many cases by very substantial amounts; 27 per cent had no risk assessments; and 16 per cent were not documenting accidents or incidents. 'Coping with Climate Change - Risk and Opportunities for Insurers, Climate change research report,' *Chartered Insurance Institute*, 2009, www.cii.co.uk.

[91] These activities can include: creating savings groups; promoting access to finance; supporting skills training and apprenticeships; rebuilding destroyed or damaged community infrastructure; and advocating for area-based approaches to recovery.

economic recovery programmes for both women and men.[92] Restoration of basic services through rehabilitation of community infrastructure, such as water supply and sewerage lines, and key facilities such as hospitals, clinics, schools and early childhood centres, can also assist economic recovery.

FOUR CRITICAL COALITIONS FOR CHANGE

The effort to improve the response to ENSO and other recurring weather events must be firmly led by affected states; however, collaboration with a wide range of other partners will be needed to achieve results. In each affected country, a broad 'coalition for change'—with stakeholders at the local, national, regional and global levels—would enhance national capacities, technical and financial resources. These include community-based organizations, private sector partners, gender equality mechanisms, academic and research institutions, international humanitarian and development actors, donors and international financial institutions. Four critical areas for partnerships were identified by the Special Envoys:

- Partnerships for Financing
- Public-Private Partnerships
- Partnerships for Capacity Development and Learning
- Partnerships With Research Institutions and Academia

PARTNERSHIPS FOR FINANCING

Improved access to adequate, on-time, flexible and appropriate financing for preparedness, resilience and early response is indispensable to countries' efforts to prevent ENSO events from becoming disasters. The primary responsibility to financially prepare for and respond to shocks lies with vulnerable countries (see section A3 above). Weather and climate threats of longer duration or greater intensity are, however, placing significant burdens on countries. Under these circumstances, humanitarian and development needs can eventually exceed available domestic resources.

Adaptation is still massively underfunded. A major upscale in financial investment in resilience is fundamental to the change envisaged in this Blueprint, as disaster preparedness and prevention currently receive only 0.7 per cent of official ODA. A recent report published by UNPE placed the cost of adaptation in developing countries at $140 billion to $300 billion by 2030[93].

As is reflected in the WHS High-Level Panel on Humanitarian Financing Report on financing for humanitarian assistance, for resilience programmes there is also an over-reliance upon a small group of ODA donors. While they remain very important and are also encouraged to do more, there is a need to reach beyond governments. For example companies need to be encouraged—from insurance and digital cash to logistics and telecommunications—to get

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[92] These activities can include: debris assessments; clearance; recycling to benefit small and micro-enterprise recovery; institutional capacity building for key government departments on debris management (operations, and legal frameworks).

[93]

involved in providing their relevant skills and capacity for delivering all forms of development assistance[94].

Greater efforts can and should be made by key stakeholders (UN, NGO etc) partnering with national government in support of resilience programmes, to identify potential funding opportunities existing beyond the traditional sources. Partners can set as a priority, in their support to national governments, to facilitate access to all available funding mechanisms and help create new tools, as appropriate, to meet resilience objectives.

Large ENSO events can be a tipping point for broader regional or global economic crises.[95] The international community has undertaken to support countries' efforts by filling critical gaps when domestic funds are overstretched and insufficient to respond to a significant weather event such as those caused by ENSO. Development and humanitarian financing solutions must reflect the fluidity and complexity of ENSO events, prioritising the needs of the most vulnerable communities and supporting national leadership on sustainable solutions.

All parties should accelerate their efforts to deliver on the following existing international commitments, which would support all ENSO-vulnerable countries:

- Renew efforts by parties to the Paris Agreements to ensure more than USD 100 billion of climate finance per year by 2020, for climate action in developing countries.[96]
- Accelerate progress by developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance, delivering on the agreements made at the Addis Ababa Conference and reinforced at the World Humanitarian Summit.
- Decentralize climate finance, through the establishment of sub-national climate funds, supporting efforts to reach most vulnerable communities and prioritizing efforts to deliver solutions on the ground.
- Expand risk-based investment in line with the 2030 Agenda, the Sendai Framework, the Paris Agreement and World Humanitarian Summit commitments.
- Expand the use of different instruments (i.e. crisis modifiers[97]) to increase flexibility, longer-term financing and faster access to funding. Increase the use of untied aid, multi-year funding and long-term humanitarian partnership agreements.
- Invest in national and local capacities, increasing funding for equity-focused resilience building that supports the most vulnerable (particularly women and young children), and strengthens their voice in governance structures at local levels. Allocate funding

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[94] High-Level Panel on Humanitarian Financing Report to the United Nations Secretary-General Too important to fail—addressing the humanitarian financing gap. January 2016: http://reliefweb.int/sites/reliefweb.int/files/resources/%5BHLP%20Report%5D%20Too%20important%20to%20fail%E2%80%94addressing%20the%20humanitarian%20financing%20gap.pdf

[95] International Research Institute for Climate and Society, 'El Niño 2015 Conference Report,' *International Research Institute for Climate and Society, the Earth Institute Columbia University*, 2015, http://iri.columbia.edu/wp-content/uploads/2016/04/El-Nino-2015-Conference-Report.pdf.

[96] There are a number of channels through which climate finance flows, including multilateral climate funds that are dedicated to addressing climate change. Several countries have also established climate finance initiatives or are channelling climate financing through their bilateral development assistance institutions.

[97] The use of crisis modifiers allows development programmes to adjust in response to certain triggers, supporting early responses to drought. Crisis modifiers are an important mechanism for supporting rapid, early response to slow-onset crises, while also enabling coordination and coherence between longer-term programmes and humanitarian activities.

to support community-centred resilience and capacity strengthening for governance at local and regional levels.

- Expand the use of forecast-based financing for small-scale pilot projects, with the buy-in of major partners. This allows funding to be disbursed based on credible forecasts to allow timely implementation of actions, while guaranteeing transparency and accountability with donors and communities.

Middle-income countries have raised the issue of the conditions used by multilateral financial institutions and other development partners for the award of grants and concessional resources.[98] In line with the commitment of the SDGs to 'leave no one behind', access to funding should not be based on a country's income classification, which might limit contributions to middle-income countries, but rather on vulnerability and risk.

PUBLIC-PRIVATE PARTNERSHIPS

The UN General Assembly acknowledges that the implementation of sustainable development will depend on the active engagement of both the public and private sectors.[99] It is recognized in the SDGs that the private sector has a crucial role in eradicating poverty and inequality, and in promoting resilience and sustainable development. Many business leaders realize that climate change and environmental degradation pose important new risks and opportunities for their companies' growth, and competitiveness. At the same time, there is a need for new synergies, impact investment and other inclusive business initiatives to engage the private sector to achieve the 2030 Agenda.[100]

The private sector has roles to play in the preparation for and response to ENSO events. The corporate sector's traditional contributions to communities—including employment and providing affordable goods and services—can be combined with technical assistance and innovation to help accelerate achieving climate resilience. Through innovation and long-term investments in energy and water efficiency and in low-carbon technologies, the private sector can turn solutions into market opportunities. Likewise, the global insurance and reinsurance industries have a strong interest in expanding into new markets to diversify their portfolio of risk. Businesses operating in high-risk contexts are natural partners in preparing for and preventing crises, and in delivering assistance when disaster strikes.[101] Business networks facilitating private sector engagement in resilience-building, response and recovery at national and regional levels—such as the Global Humanitarian Lab,[102] the Global Alliance for

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98 'New Approach Needed to Address Vulnerabilities of Middle-Income Countries, Delegates Say in Debate on Globalization, Interdependence,' *United Nations* meetings coverage (not an official record), GA/EF/3375, 23 October 2013, http://www.un.org/press/en/2013/gaef3375.doc.htm.

99 'Towards global partnerships: a principle-based approach to enhanced cooperation between the United Nations and all relevant partners', 23 February 2016, A/RES/70/224.

100 UNDP, 'Private Sector and Foundations Strategy for the Sustainable Development Goals 2016-2030,' *UNDP Strategy Note*, July 2016, http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/iicpsd/strategy-note---undp-s-private-sector-and-foundations-strategy-f.html.

101 For instance, the private sector can contribute to identifying technologies and systems in seven key sectors: water management, agriculture, energy supply, disaster preparedness, coastal and natural resource management, insurance, and climate change information and consulting services.

102 For more information, see http://www.globalhumanitarianlab.org/

Humanitarian Innovation,[103] Grand Challenges and the Global Development Lab at USAID[104]— are generating additional resources and stimulating strategic partnerships to promote climate resilience.

Government policies will be crucial for stimulating private sector investments. Policy and institutional support for national investment plans and for facilitating private sector initiatives will be critical to achieving impact at scale. The UN system and multilateral institutions can play an important role in facilitating and catalysing corporate partnerships with government and other national actors, including by using their convening power to host mechanisms for public-private dialogue, and to broker joint actions to strengthen capacities to address climate risk. The World Bank Group's 2016 Climate Change Action Plan[105] helps governments to shape national investment plans and policies that leverage the private sector. In the humanitarian sphere, public-private partnerships and business-to-business engagement are already producing significant positive humanitarian impact.[106]

PARTNERSHIPS FOR CAPACITY DEVELOPMENT AND LEARNING

South-South cooperation and triangular cooperation are important for implementation of many of the building blocks of the Blueprint. South-South cooperation is a key component of methodologies for coordinated multi-stakeholder initiatives tailored to address the particular challenges faced by ENSO-vulnerable countries in the Global South. In recognition of this, traditional donors are increasing their support for South-South cooperation and triangular arrangements.

Fortunately, there are considerable assets already in place to support these efforts, not least of which is the expertise and lessons learned by other ENSO-affected countries. While the 2015/16 El Niño episode affected dozens of countries worldwide, many were able to cope without tipping into humanitarian emergency. Even among countries that did experience humanitarian needs, many had made important investments in resilience that mitigated the impact of the crisis, disbursed significant funding from their own treasuries, and showed willingness to recognize the scale of the challenge and act early.

Encouraging steps are being taken to foster South-South networks that can help countries vulnerable to ENSO episodes, and these should be further built upon. For example, the Southern Climate Partnership Incubator[107] fosters South-South partnerships in the areas of renewable energy, climate resilience, smart cities and big data application. The Community of Practice for Climate-Smart Agriculture in Eastern and Southern Africa engages more than

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[103] For more information, see http://www.thegahi.org/

[104] For more information, see https://www.usaid.gov/grandchallenges.

[105] The Climate Change Action Plan aims for the International Finance Corporation (IFC) to mobilize by 2020 at least USD 13 billion per year in external private sector investments through its operations. In addition, the World Bank Group will work with regulators, create green banking champions, provide climate credit lines, and promote continued growth and development of the green bond market.

[106] 'Caring for Climate' initiative launched in 2007 By the UN Global Compact, UNFCC, and UNEP.

[107] Launched in April 2016.

500 people in more than 20 countries to exchange knowledge and best practices for resilient and sustainable agriculture-based livelihoods.[108]

Regional organizations also have a critical role to play in exchanging information and lessons, coordinating efforts to prepare for and respond to ENSO events, providing direct support and leveraging external support. Working with the UN and complementing the work of other actors, regional bodies can identify priorities and create opportunities to bring governments and partners together to develop joint analysis and plans, to undertake advocacy, and to identify opportunities for joint work across borders. For example, IGAD's Drought Disaster Resilience Sustainability Initiative (IDDRSI)[109] was successful in mobilizing USD 621 million for work set out in seven country papers.

PARTNERSHIPS WITH RESEARCH INSTITUTIONS AND ACADEMIA

Governments, academia and the private sector will need to continue to increase investment in transformational research development and demonstration (RD&D) for weather events, and climate resilience, adaptation, mitigation and loss and damage. Efforts to improve forecasts and make these more actionable are critical. Academia and other partners can cooperate to identify large-scale variations in the earth system (ENSO and other oscillations) which are linked to long-term changes in climate and weather in order to provide enhanced early warning to changing conditions on the ground.[110] Countries should look to increase their clean energy RD&D spending by five times by 2020. In addition, developed countries should designate a share—at least 10 per cent to 20 per cent—of increased RD&D spending to cooperative activity with developing countries to accelerate the development and diffusion of mitigation and adaptation technologies. Higher levels of cooperative investment in low-carbon energy technologies and solutions would hedge against the risks of under-delivery in key mitigation areas such as energy efficiency and preventing deforestation. At the same time, community participation in citizen science could be expanded, to harness and enhance local knowledge and monitoring of weather and climate.

IMPLEMENTING THE BLUEPRINT

Achievement of SDG 13.2 requires countries to establish or operationalize an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate

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[108] Established by the RIO+ Centre and FANRPAN.

[109] The IDDRSI is a 15-year strategy initiated in 2011 following the Horn of Africa drought. It has seven priority intervention areas: ensuring equitable access and sustainable use of natural resources; access and trade; livelihood support; improving disaster risk management capabilities; research and knowledge; conflict prevention and peacebuilding; coordination mechanisms and institutional arrangements.

[110] For example, the partnership between Tufts University's Feinstein International Center and Concern Worldwide to improve community resilience in the Sila region of Chad by using remote sensing data to make accurate early warning predictions using rainfall, crop production, and food security data. Anastasia Marshak, Helen Young and Anne Radday, 'Water, Livestock and Malnutrition: Findings from an Impact Assessment, *Feinstein International Center Tufts University,*December 2016, http://fic.tufts.edu/publication-item/water-livestock-and-malnutrition-findings-from-an-impact-assessment-of-community-resilience-to-acute-malnutrition-programming-in-the-dar-sila-region-of-eastern-chad-2012/.

change, and foster(s) climate resilience. The Blueprint for Action outlines the elements which could be included in integrated, coherent and comprehensive national multihazard plans which will build national resilience to ENSO—among other hazards. To this end, any plan should:

- Be owned and actively led by relevant governments at the highest levels.
- Bring together the key national and international stakeholders: civil society, international non-governmental organizations (INGOs), the UN system, donors, International Financial Institutions (IFIs), research and academic bodies and the private sector, organizing coalitions for change.
- Be supported by significant, predictable, timely and anticipatory resources from both domestic and international sources.
- Build on good practice and lessons learned from other ENSO-vulnerable contexts.
- Be adaptive and flexible enough to be revised as the situation evolves.
- Be implemented as soon as possible with a sense of urgency and focus.

Building on local knowledge and experience, governments of affected countries and their partners can combine and apply the building blocks in ways that will best catalyse needed change in their contexts. The building blocks can either be integrated into new national multihazard development plans or used to refine and/or reprioritise existing plans.

As a first step toward implementing the Blueprint for Action, a small number of 'early mover' countries could commit to the Blueprint approach, beginning when the humanitarian needs associated with the 2015/2016 El Niño (and 2016/2017 La Niña) have subsided. Early mover countries could use the Blueprint for Action as a framework to adapt existing plans or adopt new multi-hazard plans that address risks associated with ENSO and other recurring weather events. These plans could set out what different actors will do in what timeframe, and will provide a vehicle for dialogue and mutual accountability. Early mover countries could also use the Blueprint for Action to bring together coalitions for change, which could be formalized by a joint commitment or pledge document.

ANNEXES

- Matrix of linkages with international commitments and agreements
- Synopsis of international commitments and agreements

ANNEX 1: Matrix of linkages with international commitments and agreements

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
A. TURNING EARLY WARNING INTO EARLY ACTION								
A.1 Collective risk analysis, early sharing of information and early requests for support								
A.1.1 Establish a mechanism for collective risk analysis—encompassing the scientific and research communities and policymakers—that can effectively support decision-making	Targets 13.3, 3.d, 9.5, 12.8 and 17.6 (3.d.1, 9.5.1, 9.5.2, 16.10.2, 17.6.1)	Priority 1: 24.a, 24.b, 24.c, 24.e, 24.f, 24.h, 24.n, 25.a, 25.b, 25.c, 25.g Priority 2: 28.a	Climate change: 44(a), 44(b) Disaster Risk Reduction: 52(a) Means of Implementation: 114	Action Area A: 34	Loss and Damage: 49 Articles 7.7(b), 7.7(c)	Climate Change: 2(h) Disaster Risk: 2(b)	Responsibilities 4B, 4C, 5B	Paragraphs 150, 157, 158, 159, 160
A.1.2 Commit to early recognition of the scale of ENSO events and the need for assistance		Priority 1: 24.e, 24.f, 24.n, 25.a Priority 4: 33.b, 34.a, 34.c	Disaster Risk Reduction: 52(a), 52(c),		Article 8.4(a)	Disaster Risk: 1(d)	Responsibilities 4A, 4B, 5B	Paragraph 64
A.2 Harmonized early action planning including agreed thresholds for action								

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
A.2.1 Agree on thresholds as a catalyst for collective and early action when ENSO events are forecast	(1.1.1, 1.2.1, 1.2.2, 1.3.1, 1.4.1, 1.5.1, 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.3.2, 2.4.1, 3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.3.1, 3.4.2, 3.7.1, 3.7.2, 3.8.1, 3.8.2, 3.9.2, 4.1.1, 4.2.1, 4.3.1, 5.2.1, 5.2.2, 5.3.1, 6.1.1, 6.3.1, 6.4.2, 6.6.1, 8.3.1, 8.5.2, 8.6.1, 8.7.1, 10.1.1, 10.2.1, 11.1.1, 11.5.2, 15.3.1)	Priority 1: 24.j, 24.n, 25.a Priority 4: 33.b, 34.a, 34.c		Action Area A: 34	Articles 8.4(a), 8.4(b), 8.4(e)	Disaster Risk: 1(a), 1(d)	Responsibilities 4A, 4B, 5B	Paragraphs 150, 157, 159

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
A.2.2 Lead early action planning with a broad stakeholder base, including humanitarian and development actors and the private sector	Target 3.d (3.d.1, 13.3.2, 11.b.1)	Priority 2: 27.g, 28.a, Priority 4: 33.a, 33.b, 33.h, 33.i, 34.f, 34.g	Climate change: 44(c) Disaster Risk Reduction: 52(a), 52(c)	Action Area A: 34 Action Area C: 58	Article 7.5	Disaster Risk: 1(a), 1(c), 1(d)	Responsibilities 4A, 4B, 5A, 5B	Paragraphs 157, 159, 160
A.3 Allocation of domestic resources for preparedness and early action								
A.3.1 Increase domestic financing for preparedness and early action	Targets 1.5, 1.a, 3.d, 11.5, 13.1, 13.a, 17.1 (1.5.3, 1.a.1, 1.b.1, 3.d.1, 11.5.2, 13.a.1, 17.1.2)	Priority 3: 30.a, 30.m	Disaster Risk Reduction: 52(a), 52(b), 52(c) Financing: 106 (a)	Action Area A: 20, 22	Article 4.2, Article 7.9	Objectives: 28(d) Priority area for action G: 110 (Financing for Development: 27 Resilience-building: 102, 108)	Responsibilities 4B, 4C	Paragraphs 132, 134
B. MANAGING RISK TO PROTECT PEOPLE AND ASSETS								
B.1 Adaptive social protection schemes for resilience								
B.1.1 Establish or scale up adaptive social protection to provide support for the most vulnerable	Targets 1.5 and 10.4 (1.3.1, 8.b.1, 10.4.1)	Priority 3: 30.j, 31.g,	Climate change: 44(a) Disaster Risk Reduction: 52(c)			Social protection: 2(b) Disaster Risk: 1(d)	Responsibility 4A	Paragraph 59

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
B.1.2 Design social protection programmes to build resilience to ENSO and climate shocks	Target 1.3, 3.8, 5.4, 8.b, 10.4, 13.b (1.2.1, 1.a.1, 3.8.1, 8.b.1, 10.4.1, 13.b.1	Priority 3: 30.j, 31.g				B. Agriculture: 2(b), 3(e) Social protection:	Responsibility 4A	Paragraph 59
B.2 Expanded use of insurance solutions wherever appropriate								
B.2.1 Invest in risk financing to reduce vulnerability	Target 1.5, 13.a, (1.5.3, 1.a.1, 1.b.1, 2.a.1, 13.2.1, 13.a.1,	Priority 2: 27.h Priority 3: 30.a	Disaster Risk Reduction: 52(a), 52(b)	Action Area C: 66		F. Disaster Risk Reduction: 1(c), 2(a)	Responsibilities 4B, 5E	
B.2.2 Provide microinsurance products to the most vulnerable households		Priority 3: 30.b, 31.b	Disaster Risk Reduction: 52(g)	Action Area B: 44	Article 8.4(f)	B. Agriculture: 3(d) (Agriculture, food security: 17)	Responsibility 5D	Paragraph 144
B.2.3 Invest in Sovereign Risk Pool mechanisms		Priority 3: 31.b, 31.d	Disaster Risk Reduction: 52(g)	Action Area B: 44	Article 8.4(f)	(Trade and investment: 67, 71)	Responsibility 5D	Paragraphs 139, 144
B.3 Protecting dependent populations: Healthcare, Justice and Education								

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
B.3 Ensure sustainability of essential protection services through improvements in electricity, water, construction /siting and emergency plans	Targets 1.5, 3.d, 4.a (1.a.2, 3.d.1, 4.a.1, 5.6.1, 5.6.2, 6.1.1, 6.2.1, 6.4.1, 7.1.1, 11.c.1, 13.3.2)	Priority 2: 27(a), 27(d) Priority 3: 30.c, 30.i, 31.e Priority 4: 33.c, 33.g,			Adaptation: 44		Responsibility 5B	Paragraphs 13(a), 29, 55, 65, 77, 101, 111, 119
C. CLIMATE-PROOFING DEVELOPMENT								
C.1 Risk-informed national and local planning for disaster and climate resilience								

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
C.1.1 Commit to national and local development frameworks, policies and institutions that are 'risk informed', plan for predictable shocks, integrate both climate change adaptation and disaster risk reduction measures, and gender-sensitive and -responsive	Targets 13.1, 13.2, 13.b, 11.b, 14.2, 14.7, 15.1, 15.2, 15.3, 15.9, 17.14 and 17.15 (13.1.1, 13.2.1, 13.b.1, 1.5.2, 1.5.3, 11.5.2, 11.b.1, 11.b.2, 14.2.1, 14.7.1, 15.1.2, 15.2.1, 15.3.1, 15.9.1, 17.14.1, 17.15.1)	Priority 2: 27.a, 27.b, 27.g Priority 3: 30.a Priority 4: 33.a	Climate change: 44(a) Disaster Risk Reduction: 52(b), 52(d), 52(e), 52(g) Means of Implementation: 106(a)	Action Area A: 34 Action Area C: 58 Action Area F: 103 Action Area G: 115, 116	Adaptation: 47 Articles 7.9, 8.4	Agriculture: 2(h), 2(l), 2(n) Social Protection: 2(a) Climate Change: 1(a), 1(c), 1(d), 1(e), 1(f), 1(g), 2(c) Disaster Risk: 1(b), 2(a) MTR/ Resilience: 107	Responsibility 5B	Paragraphs 13(g), 14(c), 15(a), 15(b), 29, 51, 64, 65, 67, 68, 69, 70, 77, 78, 79, 81, 89, 95, 96, 101, 157, 158, 159, 160, 162
C.2 Climate-proofed strategies in key affected sectors								

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
C.2.1 Food and nutrition security and agriculture/ pastoralism	Targets 2.1, 2.3, 2.4, 2.a and 5.a (13.2.1, 2.1.2, 2.3.1, 2.3.2, 2.4.1, 5.a.1, 5.a.2, 9.1.1 15.3.1)	Priority 2: 28(b) Priority 3: 30.j, 30.p, 31.f, 31.h Priority 4: 33.g,	Food Security and Nutrition: 63(a), 63(f)	Paragraph 13 Action Area C: 63, 64 Action Area F: 108 Action Area G: 115, 121	Article 8.4(h)	Agriculture: 1(b), 2(b), 2(h), 2(l), 2(n), 3(d), 3(e) Climate Change: 2(g) MTR/ Agriculture: 54, 55, 56, 57		Paragraphs 13(a), 14(a), 34, 49, 51, 67, 70, 71, 88, 95, 101, 123
C.2.2 Health and nutrition	Targets 2.1, 2.2, 3.3, 3.8 and 3.d (1.4.1, 1.a.2, 2.1.1, 2.2.1, 2.2.2, 3.3.1, 3.3.3, 3.3.5, 3.8.1, 3.8.2, 3.d.1)	Priority 2: 28(b) Priority 3: 30.c, 30.i, 30.j, 30.k, 31.e Priority 4: 33.c, 33.g, 33.o,	Food Security and Nutrition: 63(e), Health and NCDs: 75(a), 75(f) Desertification: 92	Paragraph 13 Action Area F: 108		Climate Change: 2(g) Population and primary health: 77(a)		Paragraphs 13(a), 34, 55, 88, 101, 119

	Sustainable Development Goal Targets (and related indicators) 2015	Sendai Framework for Disaster Risk Reduction 2015	SIDS Accelerated Modalities of Action (SAMOA) Pathway 2014	Addis Ababa Agenda for Action 2015	Paris Agreement and Decision 2015	Istanbul Programme of Action (and Midterm Review) 2016	World Humanitarian Summit Commitments 2016	New Urban Agenda Commitments 2016
C.2.3 Water, sanitation and hygiene	Targets 6.1, 6.2, 6.4, 6.5 and 6.a (3.9.2, 6.1.1, 6.2.1, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.6.1, 6.b.1)	Priority 4: 33.c, 33.g,	Water and Sanitation: 65(a)	Action Area A: 34 Action Area G: 115		MTR/ Agriculture: 55		Paragraphs 13(a), 13(h), 34, 70, 71, 72, 73, 88, 101, 119, 120
C.2.4 Resilient livelihoods	Target 8.2, 8.3, 9.2, 10.1, 10.4, 14.7 and 14.b (1.1.1, 1.2.1, 1.2.2, 2.3.1, 2.3.2, 2.4.1, 8.2.1, 8.3.1, 8.5.1, 8.5.2, 8.6.1, 8.7.1, 9.1.1, 9.2.1, 9.2.2, 9.3.1, 10.1.1, 10.2.1, 10.4.1, 14.7.1, 14.b.1)	Priority 3: 30.e, 30.j, 30.o, 30.p Priority 4: 33.g,		Action Area C: 64 Action Area G: 121	Article 8.4(h)	MTR/ Resilience: 102		Paragraphs 13(a), 13(c), 29, 43, 45, 56, 57, 88, 101, 123

ANNEX 2: Synopsis of 'Blueprint' linkages with international commitments and agreements

- The **Paris Climate Agreement** links the strengthening of the global response to the threat of climate change, with sustainable development and efforts to eradicate poverty, including by 'increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production' [Article 2.1(b)], including through 'integrated, holistic and balanced non-market approaches' which 'enable opportunities for coordination across instruments and relevant institutional arrangements' [Article 6.8(c)]. The decision on 'Adoption of the Paris Agreement' (FCCC/CP/2015/10/Add.1, Decision 1/CP.21) includes the provision to appoint two high-level 'Champions' to facilitate implementation of the agreement. The Champions' 'Road Map for Global Climate Action' (released 20 May 2016) identifies their ambition to bring in more initiatives that focus on adaptation and climate resilience [(a) (i)], including multisectoral solutions which help to advance progress on national commitments [(a) (ii)].

- The '**Addis Ababa Action Agenda**' (A/RES/69/313) commits to helping national actors to manage and finance disaster risk, as part of national sustainable development strategies (paragraph 62), and commits to enhancing support to the most vulnerable in addressing and adapting to extreme climate events (paragraph 65). The need for the coherence of developmental and humanitarian finance to ensure more timely, comprehensive, appropriate and cost-effective approaches to the management and mitigation of natural disasters and complex emergencies (paragraph 66), taking note of the work to be done at the World Humanitarian Summit and recognizing the work being done to help build the response capacity of LDCs, LLDCs and SIDS.

- The '**Sendai Framework for Disaster Risk Reduction 2015-2030**' explicitly recognizes the requirement for strong commitment and involvement of political leadership in every country in the implementation and follow-up of the framework, and in the creation of the necessary conducive and enabling environment. The Framework's goal of 'prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social , health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience' requires efforts to building capacity, particularly in LDCs, SIDS, LLDCs, African countries and MICs facing specific challenges. The Framework specifically requests international organizations to enhance the coordination of their strategies for disaster risk reduction, and to support the priorities of States through clear and focused programmes of support in a balanced and well-coordinated manner [paragraph 48 (a) and (b)].

- In '**Outcome of the World Humanitarian Summit**: Report of the Secretary-General' (A/71/353), the recommendations under 'Disasters caused by natural hazards and climate change' are for additional support to be provided to disaster-prone countries and small island developing states to prepare for disasters and to mitigate disaster risks—including through regional and global partnerships and by transcending the humanitarian-development divide; and for acceleration of the implementation, financing and coherency among the Sendai Framework, the SDFs, the Paris Agreement, and other relevant programmes of action such as the SAMOA Pathway.

- The **'SIDS Accelerated Modalities of Action (SAMOA) Pathway'** Annex (A/RES/69/15) calls for support to the efforts of SIDS 'to build resilience to the impacts of climate change and to improve their adaptive capacity' (paragraph 44) and to build resilience to natural disasters (paragraphs 52 and 92) in line with both the Hyogo and Sendai frameworks. The Pathway calls for increases in partnerships to help address the vulnerabilities and improve resilience of SIDS (paragraphs 97-99), and requests the Secretary-General to present recommendations for a partnership framework to monitor and ensure full implementation of pledges and commitments through partnerships for SIDS (paragraph 101).

- The draft outcome document for Habitat III, **'New Urban Agenda'**, 'will help to end poverty and hunger in all its forms and dimensions, reduce inequalities, promote sustained, inclusive, and sustainable economic growth, achieve gender equality and the empowerment of all women and girls, … improve human health and wellbeing, as well as foster resilience and protect the environment' (paragraph 5). The shared vision of the Agenda includes adopting and implementing disaster risk reduction and management, reducing vulnerability and building resilience and responsiveness to natural and man-made hazards, and fostering mitigation and adaptation to climate change' [paragraph 13(g)]. The document takes full account of the SDGs, Addis Ababa Action Agenda, Paris Agreement, Sendai Framework, SAMOA Pathway, and Istanbul Programme of Action (paragraphs 6, 9, 19, 77, 79, 83, 127, 150).

- In **'Programme of Action for the Least Developed Countries for the Decade 2011-2020'** (A/CONF.219/3/Rev.1), least developed countries and development partners agree to strengthen least developed countries' ability to withstand and overcome the adverse effects of climate change, enhance sustainable growth and protect biodiversity, as well as to build the resilience of least developed countries to withstand natural hazards in order to reduce the risk of disasters [paragraph 95 (b) and (c)]. In addition, development partners commit to improving donor coordination and harmonization to avoid fragmentation and duplication [paragraph 116.2(f)]. The Midterm Review (A/RES/70/294) noted that 'measures at national and international levels need to be enhanced to mitigate and manage risks and address the vulnerability of the least developed countries' (paragraph 36), and further underlined the importance of synergy among the Istanbul Programme of Action and the other recently adopted agendas (paragraph 41).

- The Chiefs of the Executive Boards (CEB) High-Level Committee on Programmes in April 2016 approved the draft revised **United Nations Plan of Action on Disaster Risk Reduction for Resilience: Towards a Risk-Informed and Integrated Approach to Sustainable Development**, for endorsement by the UN Chief Executives Board (CEB) at its first regular session of 2016.[111] The revised Plan provides for a stronger alignment of the UN's work in disaster risk reduction with other UN system-wide approaches on related issues. In particular, it provides actions to align with the forthcoming UN system-wide strategic approach to climate change, such as:
  - System-wide and joined approaches for integrating disaster risk reduction and climate change adaptation in UN development efforts
  - Coherent approaches in the support by the UN for measuring the loss and damage of disasters and climate change
  - Joint monitoring of progress in integrating risk reduction and climate change adaptation in UN operational work.

[111] For the document, see http://www.unsceb.org/content/un-plan-action-disaster-risk-reduction-resilience-towards-risk-informed-and-integrated.

- The Chiefs of the Executive Boards (CEB) High-Level Committee on Programmes in 2016 and 2017 is developing a **UN system wide approach on climate change action** (CEB/2016/HLCP-31/CRP.4). The common core principles call for the UN to 'advance and scale-up ambitious and transformative action on climate change' and 'prioritize interagency collaboration and joint action for greater collective impact'. '[S]ystem-wide policy and high-level programmatic coherence and coordination' should identify and support action areas where Member States and the UN system can benefit from joint UN system approaches, focussing specifically on areas where joint action leads to improved results. A key principle is integrated climate action that maximizes synergies and co-benefits across the Paris Agreement, SDGs, Sendai Framework, SAMOA Pathway, World Humanitarian Summit and Habitat III. The proposed substantive clusters for collaboration include normative guidance on integrating progress among Agenda 2030, the Paris Agreement and other relevant agreements; and collaboration between the CEB UN Plan of Action on Disaster Risk Reduction for Resilience and joint UN action on climate change (CEB/2016/HLCP32/CRP.5, paragraph 19).

- **General Assembly resolution** 'Effective global response to address the impacts of the El Niño phenomenon' (A/71/463/Add.3) recognizes the need for early warning and the exchange of data and information, and for this to be followed by integrated, coherent and comprehensive nationally led strategies to mitigate the adverse impacts of El Niño/La Niña. The resolution makes the point that response to ENSO events should not only address the immediate needs, but also support longer-term sustainable development and build the resilience of livelihoods—especially in the agricultural sectors and rural areas. The resolution calls for collaboration in support of affected countries, and for the UN system to take El Niño/La Niña phenomenon into account when designing risk reduction and development strategies. The resolution calls for the implementation of the Sendai Framework, and makes references to the Sustainable Development Goals, the Paris Agreement and the Addis Ababa Action Agenda.

- Following an extensive consultation process with Governments and stakeholders on the substantive aspects and draft agenda of the 2017 **Global Platform for Disaster Risk Reduction**, a final agenda for the May 2017 Global Platform was approved by the Task Force for the 2017 Global Platform Preparations in September 2016. The programme will include sessions on:
    - National and local disaster risk reduction strategies integrated with climate change and sustainable development plans
    - Reducing Vulnerability of Countries in Special Situations
    - Sendai Framework Monitoring
    - Coherence between the Sendai Framework and the 2030 Agenda for Sustainable Development