

INPUT PAPER

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**MAINSTREAMING DISASTER RISK REDUCTION IN AGRICULTURE:  
AN ASSESSMENT OF PROGRESS MADE AGAINST THE HYOGO FRAMEWORK FOR  
ACTION**

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## Acronyms

ADRM	Agricultural Disaster Risk Management
CAADP	The Comprehensive Africa Agriculture Development Programme
CBDRR	Community Based Disaster Risk Reduction
CCA	Climate Change Adaptation
CRVA	Community Risk & Vulnerability Analysis
DA	Department of Agriculture
DRC	Democratic Republic of the Congo
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
FAO	Food and Agriculture Organization of the United Nations
FNS	Food and Nutrition Security
GAR15	Global Assessment Report 2015
HFA	Hyogo Framework for Action
HFA2	Post-2015 Hyogo Framework for Action
IPCC	Intergovernmental Panel on Climate Change
MDGs	Millennium Development Goals
MoA	Ministry of Agriculture
NAPA	National Adaptation Programme of Action
NEPAD	The New Partnership for Africa's Development
PA	Priority for Action (HFA)
PRSP	Poverty Reduction Strategy Paper
TAD	Trans-boundary Animal Diseases
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations Office for Disaster Risk Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WB	World Bank

## Introduction

The present paper was prepared by FAO to contribute to the objectives of the Global Assessment Report 2015 (GAR15), namely to determine to what degree the Hyogo Framework for Action (HFA) has been fit for purpose, and to identify improvements both in the content and the indicators of the successor framework to the HFA (HFA2) that will be adopted in 2015. In particular, the paper focuses on reviewing the progress achieved against HFA Priority for Action (PA) 1, and specifically the progress in mainstreaming disaster risk reduction (DRR) within the agriculture sector. The review focuses on the following core indicators of the HFA:

**HFA PRIORITY 1:** Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.

Core Indicator 1: National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels

Core Indicator 2: Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels

Core Indicator 3: Community participation and decentralization are ensured through the delegation of authority and resources to local levels

**HFA PRIORITY 5:** Strengthen disaster preparedness for effective response at all levels:

Core Indicator 1: Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.

For the purposes of this paper, the agriculture sector is understood to encompass the crops, livestock, fisheries and forestry sub-sectors. Also, mainstreaming is understood as a *process* that includes a policy environment that is conducive to mainstreaming within the sector, particularly sector-specific planning instruments that provide strategic guidance, supported by an institutional architecture within the agriculture sector in which key ministries/departments, research institutions, civil society and other relevant national actors contribute to planning and implementation. Finally, the mainstreaming process includes financial resources that enable actionable results based on the DRR measures proposed in the national plans, as well as implementation at local levels, which requires services and actions that benefit local farming communities and promote resilient livelihoods.

A total of 30 countries were reviewed to assess progress in mainstreaming DRR in agriculture, focusing on the following key elements:

**The integration of DRR in agricultural development planning** –an overview of DRR measures that received priority or emphasis in agricultural development plans, the HFA priorities for action addressed, and assessing the levels of integration of DRR in agricultural development planning using a basic scale.

**The agriculture sector within national strategies for disaster risk reduction** –to assess if they include mainstreaming across sectors as one of the priorities, and if they address the agricultural sector in particular.

**Disaster risk reduction in post-disaster recovery planning in agriculture** –to assess if and how DRR was integrated into the recovery plans for the agriculture sector in disasters since 2005 in Pakistan, Kenya and Philippines.

**The drivers for mainstreaming DRR in the agriculture sector** –an assessment of the factors that drive the mainstreaming of DRR in the sector.

**A retrospective assessment of progress made in mainstreaming DRR in agriculture 2005-2013** –the timeline of progress made since 2005 in a sample of national DRR plans and national agricultural development plans.

**The implementation of risk reduction in agriculture** – Overview of the extent to which disaster risk reduction has been implemented within the agriculture sector, particularly in relation to 1) national and local institutional mechanisms for DRR in the agriculture sector, and 2) financing for DRR within the sector at all levels.

**Emerging trends on DRR in the agriculture sector** –an overview of recent trends within the sector.

**Agriculture in national HFA progress reports** –an overview of the progress reported for the agriculture sector in national HFA progress reports, and a retrospective assessment of progress reported for the agriculture sector in a sample of national HFA reports.

## Methodology

The findings of the study are based on a combination of methods applied to obtain both quantitative and qualitative results, as follows:

1) Desk review: For the 30 countries selected the study reviewed the following key national planning instruments:

- National agricultural development strategies / plans –to assess the level of DRR mainstreaming
- Sectoral DRR strategies / plans specific to the agriculture sector
- National DRR strategies / plans -to assess the integration of agriculture
- National HFA progress reports -to assess the extent to which these report progress within the agriculture sector

The study focused on reviewing the current or most recent planning documents mentioned above, while also reviewing those developed since 2005 for a select group of countries in order to evaluate the progress achieved over time since the inception of the HFA.<sup>1</sup>

2) In-depth analysis: twelve countries (among the 30 selected for review) were studied in-depth to gain greater insights on DRR mainstreaming in agriculture, such as the DRR priorities found in the sector, DRR measures being adopted across the 5 HFA priorities for action, potential drivers of change in mainstreaming, and trends in the timeline of progress made since 2005.

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<sup>1</sup> For some countries additional information sources (formal government documents only) were used when available to the authors and considered relevant.

3) Questionnaires and direct discussions: in order to assess the extent to which DRR has been implemented in practice, the study used a structured questionnaire to obtain additional information from FAO country offices (and through them from the Ministry of Agriculture, where possible). The questionnaires also served as a guideline for direct discussions with government officials where possible. The aim was to obtain information related to the implementation of national plans, on financing and resource allocation to DRR within the sector, and on sector-specific institutional mechanisms in place for DRR.

4) Case studies: to complement the analysis of quantitative and qualitative information, the study includes several case studies highlighting examples of good DRR practice applied within the agriculture sector.

5) Observation based on FAO field experience: FAO's knowledge and experience while supporting governments to mainstream DRR into agriculture also served to complement the qualitative analysis, particularly in terms of progress in implementing national policies and plans, local-level implementation, and financing.

## **The Selection of Countries for Review**

A total of thirty countries were selected for review. For the selection of these countries FAO considered 10 established and well recognized indexes of countries at risk, listed below. Six of these indexes identify and rank countries most at risk of natural hazards and crises based on different criteria or methodologies. Two indexes are on vulnerability to climate change and another two indexes focus on malnutrition and hunger, that is, those having the highest incidence of undernourishment (in millions and as percentage).

For the purpose of this study, the selection of countries was based on a simple count of the number of indexes in which a country is listed among the top 30 most at risk. No effort to integrate existing indexes was done, nor to create a new index. Each country appearing among top 30 in any one of the indices was given a score "1" (per index) and plotted into a comparative matrix<sup>2</sup>; the overall number of scores per country were added up into a final ranking.<sup>3</sup> Of the 30 countries selected for the present paper, 19 appear in at least 8 of the 10 indexes used, and therefore represent the countries most at risk from a food security perspective. An additional 9 countries were found in 6 to 7 of the indexes. Finally 2 countries were included although they did not rank among the most frequently listed countries cross the indexes, namely Peru which appears in 4 indexes and South Africa which does not appear among the top ranked vulnerable countries. These two countries were included in the study to highlight examples of good practice in DRR in the agriculture sector. See Annex 1 for further reference.

### Indexes on risk (natural hazards)

1. Countries most exposed to multiple hazards, from *Natural Disaster Hotspots: a Global Risk Analysis*<sup>4</sup>

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<sup>2</sup> For those indices which did not give a ranking (such as IIED study) all countries included were listed.

<sup>3</sup> All indexes ranked countries with the exception of IIED.

<sup>4</sup> Dilley, M. et al. 2005. *Natural Disaster Hotspots. A Global Risk Analysis*. Disaster Risk Management Series No. 5. The World Bank. Washington D.C, USA.

2. World Risk Index 2012<sup>5</sup>
3. Global Focus Model (GFM) 2013, of countries at risk, from UNOCHA.<sup>6</sup>
4. Countries found in conditions of protracted crisis, from FAO.<sup>7</sup>
5. Multiple hazards mortality risk, from UNISDR 2009<sup>8</sup>
6. Global Needs Assessment Vulnerability Index 2011-2012 by the European Commission<sup>9</sup>

#### Indexes on risk (climate change)

1. Critical List: The 100 nations most vulnerable to climate change by the IIED.<sup>10</sup>
2. Impacts of Climate Change by the Centre of Global Development.<sup>11</sup>

#### Indexes on food insecurity

1. Prevalence of undernourishment (number of undernourished people per country) by FAO.<sup>12</sup>
2. Prevalence of undernourishment (percentage of population suffering from undernourishment) by FAO.<sup>13</sup>

## **Limitations of the study**

The findings of this study are not to be considered representative of the progress achieved across all countries. For example, the thirty countries reviewed were selected among those most at risk, likely excluding those facing lower levels of risk yet having potentially higher levels of achievement in mainstreaming DRR within the sector. The review conducted for the 30 selected countries is also not to be considered comprehensive or the findings complete. For instance, only a sample of planning instruments were reviewed for these countries although they may have others of relevance to the sector that were not part of the review given the time constraints of the study. In fact, some countries have policies and strategies on agriculture, but also for rural development, on food security or even hazard specific plans (e.g. drought plans) for the sector. In some countries the planning instruments were not available for review.

Evaluating the timeline of progress made since 2005 proved challenging in the case of many countries, mainly because sector plans or DRR plans developed in previous years are no longer available and are typically replaced by the most recent or current ones.

The analysis of the level of implementation is based on consultations with FAO Country Offices and on FAO's field observation and experience, but could not include the quantitative evidence-base desired given the short timeframe given for the GAR15 input papers. For instance, it was not possible to assess the exact degree to which the DRR measures proposed in agricultural development plans have been funded and implemented.

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<sup>5</sup> Alliance Development Works. 2012. *World Risk Report 2012*.

<sup>6</sup> UNOCHA. 2013. *2013 Global Focus Model*.

<sup>7</sup> FAO. 2010. *The State of Food Insecurity. Addressing food insecurity in protracted crises*. Rome, Italy.

<sup>8</sup> UNISDR. 2009. *Global Assessment Report on Disaster Risk Reduction: Risk and poverty in a changing climate, Invest today for a safer tomorrow*.

<sup>9</sup> European Commission. 2011. *Methodology for the Identification of Priority Countries for the European Commission Humanitarian Aid "GNA and FCA"*. Technical Note. Brussels.

<sup>10</sup> Huq, S. et al. 2007. *Critical list: the 100 nations most vulnerable to climate change*. Sustainable Development Opinion.

International Institute for Environment and Development.

<sup>11</sup> <http://www.cgdev.org/page/mapping-impacts-climate-change> (accessed 20 Dec 2013)

<sup>12</sup> FAO. 2010. *The State of Food Insecurity. Addressing food insecurity in protracted crises*. Rome, Italy.

<sup>13</sup> Ibid

Assessing to what degree the HFA has been a trigger or driver within the agriculture sector was not always clear. This is primarily because the sector has a long-standing concern with natural hazards and its direct effect on production and food security. Over time, a number of approaches have been promoted within the sector by governments and the international community, including sustainable agriculture, food security, livelihood and ecosystem approaches, among other, and often closely linked to natural resource management and sustainable development. Therefore, a number of agricultural development plans promote DRR-related measures yet without referring to DRR or the HFA as such.

Finally, given the focus of Priority for Action 1 and its core indicators, the study focuses on government efforts to mainstream DRR into agriculture, yet acknowledges that civil society and national NGOs implement a multitude of DRR projects within the sector, particularly with measures that contribute to priorities for action 2 to 5 (less so for PA 1), and that the international community makes a significant contribution as well.

## **1. The Importance of DRR in Agriculture**

### **1.1 The agriculture sector and disasters**

In many developing countries agriculture is among the most important economic sectors. In Ethiopia, DR Congo, Liberia, Myanmar, and Sierra Leone it accounts for over 40% of GDP, as shown in Table 1. In Benin, Burundi, Afghanistan, Cambodia, Lao PDR, Mali, Mozambique, Nepal, and Nigeria it accounts for over 30% of GDP.

The sector provides roughly half of total employment in Afghanistan, Bangladesh, Benin, Haiti, Liberia, Mali, Myanmar, Nepal, Nigeria, Pakistan, Sierra Leone and Uganda, and over 70% of total employment in Burundi, Cambodia, Chad, DR Congo, Ethiopia, Guinea, Madagascar, Mozambique, Sudan and Tanzania.

At the same time, the level of food insecurity is high in many of the countries reviewed. Between 30 and 40 percent of the population is undernourished in Chad, Ethiopia, Guatemala, Mozambique, Sierra Leone, Sudan, Tanzania and Uganda. In Burundi, Eritrea and Haiti at least 50% of the population is food insecure.



**Table 1: Agriculture population, employment in agriculture, agriculture share of GDP<sup>14</sup>**

	Country	Agricultural population <sup>15</sup> (% share of total)	Agriculture value added (% share of GDP)	Employment in AG (% share of total employment)	Level of food insecurity (prevalence of undernourishment as % of population) <sup>16</sup>
1	Afghanistan	55	30	59 <sup>17</sup>	-
2	Angola	69	10	5	24
3	Bangladesh	46	18	48	16
4	Benin	44	32	43	6
5	Burundi	89	35	90 <sup>18</sup>	67
6	Cambodia	66	36	72	15
7	Chad	66	14	83	29
8	DRC	57	43	70 <sup>19</sup>	-
9	Eritrea	74	15	N/A	61
10	Ethiopia	77	42	79	37
11	Guatemala	-	11	33	31
12	Guinea	80	13	82 <sup>20</sup>	15
13	Haiti	-	--	51	50
14	Lao PDR	75	31	67 <sup>21</sup>	27
15	Liberia	62	53	49	29
16	Madagascar	70	29	80	27
17	Mali	75	39	66	7
18	Mozambique	76	32	81	37
19	Myanmar	67	48	63	-
20	Nepal	93	38	66	16
21	Nicaragua	-	19	32	22
22	Nigeria	25	33	45	7
23	Pakistan	43	24 <sup>22</sup>	48 <sup>23</sup>	17
24	Peru	-	6	1	12
25	Philippines	34	13	33	16
26	Sierra Leone	60	44	69	29
27	South Africa	10	2	5	<5
28	Sudan	80 <sup>24</sup>	24	80 <sup>25</sup>	39
29	Tanzania	73	27	77	33
30	Uganda	74	23	66	30

Note: Where the data is not included in the table it is because no data was readily available.

<sup>14</sup> Based on FAO Statistical Yearbook 2013 and World Bank (unless otherwise specified)

<sup>15</sup> The agricultural population is defined as all people depending on agriculture, forestry, fishing and hunting for their livelihoods. It comprises all the people economically active in agriculture and their non-working dependants, but the agricultural population does not necessarily live exclusively in rural areas.

<sup>16</sup> FAO. 2013. *The State of Food Security in the World 2013*.

<sup>17</sup> Government of the Islamic Republic of Afghanistan. 2012. *Afghanistan Statistical Yearbook 2011-12*, Agriculture Development Central Statistics Organization (CSO).

<sup>18</sup> Government of Burundi 2008. *Strategie Agricole Nationale 2008-2015*.

<sup>19</sup> Government of the Republique Democratique du Congo. 2012. *Programme National d'Investissement Agricole (PNIA)*. <http://www.statistiques-mondiales.com/guinee.htm> (accessed January 2014)

<sup>20</sup> Lao PDR. 2010. *Strategy for Agriculture Development 2011 to 2020*.

<sup>21</sup> Vaqar Ahmed et al. 2011. *National Economic and Environmental Development Study: the Case of Pakistan*. Planning Commission of Pakistan, Sustainable Development Policy Institute. Islamabad, Pakistan.

<sup>22</sup> Ibid.

<sup>23</sup> Source: [http://www.sudanembassy.org/index.php?option=com\\_content&view=article&id=88&Itemid=172c](http://www.sudanembassy.org/index.php?option=com_content&view=article&id=88&Itemid=172c)

<sup>24</sup> Ibid

Yet, natural hazards have a direct impact on agriculture and food security. In 2012, over 18 million people faced food insecurity in the Sahel region of West and Central Africa. The Sahel last experienced a major food crisis in 2010 affecting ten million people. In the Horn of Africa, the food security crisis which began in 2011, has threatened the lives and livelihoods of over 12 million people. In 2010, Pakistan experienced the worst flooding since 1929, which damaged 2.4 million hectares of cultivatable land and standing crops across the country. In 2011 the country's monsoon season caused renewed and devastating flooding, affecting about 880,000 hectares of area planted. The Haitian earthquake caused nearly US\$ 26 million in damages to the agricultural sector. The destruction of the Haitian capital severely affected access to markets and other production infrastructure. This, together with the migration of over half a million people from urban to rural areas, put additional pressure on rural livelihoods. In agricultural areas hit by the earthquake, debris and landslides damaged farmland irrigation systems, permanent storage facilities and processing centres, and the administrative and technical buildings of the Ministry of Agriculture. All these factors combined to produce sharp declines in income, food reserves and food availability, and helped trigger price hikes.<sup>26</sup>

## **1.2 The need to accelerate the mainstreaming of DRR in the agriculture sector**

Experience shows that the negative and cumulative impact of disasters erodes livelihoods and coping capacities overtime. Disasters destroy crops and livestock, physical capital and livelihood assets, market infrastructure and productive inputs. To cope, rural families will often use their savings or increase borrowing to meet basic needs, depleting their resource base even further, increasing levels of indebtedness and eroding livelihoods over time. In some cases, disasters destroy or contaminate productive land, destroy critical infrastructure and disrupt market access and trade.<sup>27</sup>

Not surprisingly, countries in protracted crisis situations show high levels of food insecurity. Protracted crises are characterized by recurrent natural disasters and/or conflict, longevity of food crises, breakdown of livelihoods and insufficient institutional capacity to react to the crises. On average, the proportion of people who are undernourished is almost three times as high in countries in protracted crisis as in other developing countries<sup>28</sup>.

Large shocks and consecutive disasters can cause serious long-term damage to livelihoods and food security, and they can contribute to reversing gains in poverty reduction, agricultural development and in the reduction of hunger. In Aceh, Indonesia, the 2004 tsunami is estimated to have increased the proportion of people living below the poverty line from 30 to 50 percent by 2006.<sup>29</sup> In the province of Sindh in Pakistan, progress to achieve the MDGs has been constrained by floods during three consecutive years (2010-2012), and by a declining economic and security situation, and the province is unlikely to achieve the MDGs in their entirety by

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<sup>26</sup> Trujillo, M. 2013. Disaster Risk Reduction: Strengthening Livelihood Resilience. In: *Climate-Smart Agriculture Sourcebook*, FAO. Rome, Italy.

<sup>27</sup> FAO. 2013. *Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security*.

<sup>28</sup> FAO. 2010. *The State of Food Insecurity in the World: addressing food insecurity in protracted crises*.

<sup>29</sup> DFID. 2006. *Reducing the Risk of Disasters –Helping to achieve sustainable poverty reduction in a vulnerable world: a DIFID policy paper*.

2015.<sup>30</sup> The prevalence of underweight children under 5 years of age increased in Sindh from 40% in 2004-5 to 40.5 percent in 2011-12, compared to the national average which fell from 38 to 31.5 percent between 2004/5 and 2010/11.<sup>31</sup> A study on Malawi revealed that the country loses an average of 1.7% of GDP yearly to crop losses due to droughts and floods, and that droughts alone increase poverty in Malawi by 1.3%.<sup>32</sup>

The clear link between shocks and hunger reveal the fragility of food production systems and their vulnerability to natural hazards. Climate change will add more risks and is expected to have a profound impact on agriculture. Broadly and with everything else being equal, climate change may lead to a decrease in crop and livestock productivity in tropical and subtropical areas. Among the most affected areas are economically vulnerable countries already food insecure. According to the International Food Policy Research Institute, it will cause an increase of between 8.5 and 10.3 percent in the number of malnourished children in all developing countries, relative to scenarios without climate change.<sup>33</sup>

Given this scenario, as well as other complex global trends and constraints, agriculture is challenged to transition towards farming systems that are more productive yet preserve the natural resource base and vital ecosystem services, use inputs more efficiently, have less variability and greater stability in their outputs, and are more resilient to risks, shocks and long-term climate variability. More productive and more resilient agriculture requires a major shift towards robust risk reduction measures, including sector specific DRR/CCA technologies and practices, and in the more efficient use and management of vital resources such as land, water, soil nutrients and genetic resources. Making this shift requires considerable changes in national and local governance, legislation, policies and financial mechanisms.

To reduce current and future exposure and loss and damage caused by natural hazards and disasters it is crucial to have DRR systematically mainstreamed into the agricultural sector. The analysis and findings of this study focus on the process and current stage of mainstreaming DRR into formal planning processes in 30 developing countries highly vulnerable to natural disasters.

## **2. The Integration of DRR in Agricultural Development Planning**

### **2.1 DRR measures found in agricultural development plans**

Thirty national agricultural development plans / strategies were reviewed from 30 different countries to assess their integration of disaster risk reduction. Twelve sector plans were reviewed in-depth to gain greater insights including on the timeline of progress made since 2005. Overall, the findings show that agricultural development plans vary significantly in their degree of DRR content, ranging from brief to detailed, and from high-level DRR priorities to

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<sup>30</sup> Government of Pakistan and UNDP. 2012. *Report on the Status of Millennium Development Goals: Sindh*.

<sup>31</sup> Government of Pakistan. 2012. *Pakistan Millennium Development Goals: Report 2013*.

<sup>32</sup> Pauw, K., Thurlow, J., Van Seventer, D. *Droughts and Floods in Malawi Assessing the Economywide Effects*. IFPRI Discussion Paper 00962, April 2010.

<sup>33</sup> Maybeck, A. 2013. Why Climate-Smart Agriculture, Forestry and Fisheries. In: *Climate-Smart Agriculture Sourcebook*, FAO. Rome, Italy.

lower-level specific actions. The plans have a wide diversity of DRR measures as well, reflecting all HFA priorities for action, as illustrated in Table 2.

**Table 2: Sample of DRR measures adopted in agricultural development plans reviewed**

HFA Priority for Action 1	
<ul style="list-style-type: none"> <li>• Introduce Disaster Risk Management in the agriculture and rural development planning activities of the Ministry of Agriculture</li> <li>• Develop agricultural community based action plans/programs for risk reduction</li> <li>• Prepare disaster management plan in districts</li> <li>• Strengthen technical capacity of the Ministry of Agriculture and relevant departments (to pro-actively address climate risks in agriculture)</li> </ul>	
HFA Priority for Action 2	HFA Priority for Action 3
<ul style="list-style-type: none"> <li>• Strengthen tracking and monitoring of food and nutrition surveillance system</li> <li>• Establish a system for the use of market price information to manage national response and price stabilization</li> <li>• Enhance food security monitoring</li> <li>• Establish a special early warning system for livestock including pastoral areas</li> <li>• Assess the geographical and agro ecological coverage of the current meteorological stations</li> <li>• Improve monitoring of plant pests and diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Train staff on agricultural disaster risk reduction and preparedness, early warning and forecasting system and post-disaster activities.</li> <li>• Develop awareness programs</li> <li>• Develop institutional capacity for disaster risk management and preparedness</li> <li>• Develop training manuals on early warning and crisis prevention</li> </ul>
HFA Priority for Action 4	HFA Priority for Action 5
<ul style="list-style-type: none"> <li>• Improve resource conservation technologies in more agro-climatically fragile areas</li> <li>• Promote the use of more sustainable cropping patterns and systems better adapted to local conditions</li> <li>• Promote technologies for integrated pest management</li> <li>• Promote water conservation and management practices</li> <li>• Research programmes on drought resistant pasture and forage for animals in pastoral areas</li> <li>• Improved management of water and land resources for productivity improvement and protection from natural disasters</li> </ul>	<ul style="list-style-type: none"> <li>• Establish mechanisms and guidelines for responding to food emergencies where the market is not able to respond</li> <li>• Upgrade the current national food reserve infrastructure and establish new facilities in sites and stock for six months</li> <li>• Design national food reserve utilization and management protocols</li> <li>• Identify key staple crops in vulnerable areas and establish emergency seed system</li> <li>• Design working modalities for the use of risk financing and contingency fund</li> <li>• Improve access to crop and livestock insurance</li> </ul>

## 2.2 HFA priorities for action found in agricultural development planning

Agricultural development plans were reviewed to identify the DRR measures adopted in each, to track the trends in terms priorities, similarities/differences across countries, and their relation to the HFA priorities for action. Table 3 summarizes the findings. Of 30 countries, 5 address PA 1, 17 address PA 2, 2 address PA 3, 18 address PA 4, and 17 address PA 5.

**Table 3: HFA priorities of action addressed in agricultural development plans**

HFA Priority for Action	Countries	No. of countries
1. Make Disaster Risk Reduction a Priority: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.	Bangladesh, Benin, Nepal, South Africa, Tanzania	5
2. Know the Risks and Take Action: Identify, assess, and monitor disaster risks - and enhance early warning.	Afghanistan, Angola, Bangladesh, Benin, Burundi, Cambodia, DRC, Guatemala, Mozambique, Nepal, Nicaragua, Nigeria, Philippines, South Africa, Sudan, Tanzania and Uganda	17
3. Build Understanding and Awareness: Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.	Bangladesh, Tanzania	2
4. Reduce Risk: Reduce the underlying risk factors.	Afghanistan, Angola, Bangladesh, Benin, Burundi, Cambodia, Ethiopia, Eritrea, Lao PDR, Mali, Nepal, Nigeria, Pakistan, Peru, Philippines, South Africa, Tanzania, Uganda	18
5. Be Prepared and Ready to Act: Strengthen disaster preparedness for effective response at all levels.	Afghanistan, Angola, Bangladesh, Benin, Cambodia, DRC, Ethiopia, Guatemala, Lao PDR, Liberia, Madagascar, Mozambique, Nepal, Nicaragua, Philippines, Sudan, Tanzania	17

## HFA PA 1

Given its objective, the present report focuses on mainstreaming within PA 1, and the review of all sector planning instruments included in this report provides the overall picture on mainstreaming. In terms of agricultural development plans, the results show that 5 of the 30 sector plans reviewed include measures on risk governance or HFA priority for action 1, mainly at the activity level as shown in Table 4.

**Table 4: HFA priority for action 1 in sector development plans**

Country	Measures / activities / outputs planned
Tanzania	<ul style="list-style-type: none"> <li>Set-up institutional system for disaster risk management and preparedness (DRMP) <ul style="list-style-type: none"> <li>Outputs: <ul style="list-style-type: none"> <li>Reformulation of national disaster management and preparedness policies</li> <li>Development of institutional capacity for disaster risk management and preparedness</li> <li>Sample activities: revision of strategies, policies; mainstream DRMP into development policies and planning.</li> </ul> </li> </ul> </li> </ul>
South Africa	<ul style="list-style-type: none"> <li>Coordinate the development, implementation and monitoring of disaster risk reduction strategies</li> <li>Coordinate the development, implementation and monitoring of Climate Change Adaptation Plans</li> </ul>
Nepal	<ul style="list-style-type: none"> <li>Prepare disaster management plan in districts</li> <li>Strengthen technical capacity of the ministry and department of agriculture (to pro-actively address climate risks in agriculture)</li> <li>Introduce Disaster Risk Management (DRM) component in the agriculture and rural development planning activities of Ministry of Agriculture and Cooperatives</li> </ul>
Benin	Formulation of community plans for the prevention and management of crises
Bangladesh	Develop agricultural community based action plans/programs for risk reduction

## **HFA PA 2 and 5**

The results show that early warning and preparedness are the most common measures adopted in the agricultural development plans, possibly reflecting their importance to the sector. In some cases, however, it may reflect the continued emphasis on risk management rather than the broader set of measures of DRR. Seventeen plans address PA 2 and seventeen address PA 5, while five sector plans only address PA 2 and 5 but do not include any other priorities for action.

## **HFA PA 3**

Two sector plans included some actions to build awareness, knowledge, and education to promote a culture of resilience, those of Bangladesh and Tanzania.

## **HFA PA 4**

Reducing risks, or priority for action 4, received attention in 18 sector development plans. While the reasons are not always clear or explained, the high priority given to addressing the underlying risk factors tends to relate to the key role of appropriate agricultural technologies and practices in building resilient livelihoods, such as stress-tolerant crops, integrated pest management, conservation agriculture, resource-conservation technologies such as water-harvesting which are proposed in a number of plans. It also reflects the recognition of the fundamental nexus between agriculture and natural resources and the sector's dependence on ecosystem services. For example, the sector plan for Nepal highlights the dependency of the agriculture sector on the conservation and utilization of natural resources, and expresses concern over the serious stress on the country's watershed areas, the rapid deforestation rate, and the need for environment-friendly production practices. Hence in addition to actions taken in other priority areas, Nepal adopts a series of measures on natural resource conservation and utilization to reduce risks and promote adaptation. Other countries that include in their sector plans practices for sustainable environmental and natural resource management include Pakistan, Peru, Philippines, among others, often emphasizing ecosystem approaches (Philippines), "territorial" planning (Nicaragua), sector-wide approaches (Tanzania).

## **2.3 Levels of DRR integration in agricultural development planning**

The level of DRR integration in agricultural development planning was assessed in the same 30 national sector development plans / strategies. The results are summarized in Table 5. To assess the extent to which DRR is integrated, a general scale of 1 to 5 was developed, with level 1 representing the highest level of integration through the adoption of a comprehensive set of DRR measures, with DRR placed as a higher level objective/intervention with a set of deliverables or activities, and addressing 3 or more HFA priorities for action. These sector plans, representing examples of best practice, were found in Bangladesh, Nepal, Philippines, South Africa, Tanzania.

Eight other national agricultural development plans have substantial integration (level 2) in that they include a set of DRR measures addressing 1 to 3 HFA priorities for action, yet are not as comprehensive as those in level 1. These plans are from Angola, Cambodia, Eritrea, Lao PDR, Nicaragua, Pakistan, Peru and Uganda.

Eleven national plans had level 3 integration, in that they included some DRR measures (typically 3 to 5 measures), often at the activity level, and mainly focusing on risk management / disaster preparedness. These plans are from Afghanistan, Benin, Burundi, DRC, Ethiopia, Guatemala, Liberia, Madagascar, Mozambique, Nigeria and Sudan. Only 5 sector plans mentioned risk reduction without including measures (level 4) or had no DRR measures included (level 5).

**Table 5: Summary of DRR integration in Agricultural development planning**

	Country	National Plan for Agricultural Development	Level of mainstreaming DRR in the plan*	HFA Priority of Action addressed in the DRR content of plan
1	Bangladesh	National Food Policy Plan of Action (2008-2015)	Level 1	HFA PA 1, 2,3, 4, 5
2	Nepal	National Agriculture Sector Development Priority (NASDP) for the Medium-Term (2010/11 - 2014/15)	Level 1	HFA PA 1, 2, 4, 5
3	Philippines	Competitive and Sustainable Agriculture and Fisheries Sector (Chapter 4 of Philippine's Development Plan 2011-2016)	Level 1	HFA PA 2, 4, 5
4	South Africa	Strategic Plan for the Department of Agriculture, Forestry and Fisheries 2012/13 to 2016/17	Level 1	HFA PA 1, 2 4
5	Tanzania	Tanzania Agriculture and Food Security Investment Plan, 2012	Level 1	HFA PA 1, 2, 3, 4, 5
6	Angola	The National Strategy for food and nutritional security and its Plan of Action, 2009	Level 2	HFA PA 2, 4, 5
7	Cambodia	The Strategy for Agriculture and Water 2010-2013	Level 2	HFA PA 2, 4, some 5
8	Eritrea	Eritrea Food Security Strategy 2004 (could not find AG Development Plan 2013 or any other)	Level 2	HFA PA 4
9	Lao PDR	Strategy for Agricultural Development 2011-2020, final draft 2010	Level 2	HFA PA 4, 5
10	Nicaragua	El Plan Sectorial PRORURAL Incluyente 2010-2014	Level 2	HFA PA 2, 5
11	Pakistan	Agriculture and Food Security Policy (Draft) <sup>34</sup>	Level 2	HFA PA 4
12	Peru	Plan Estratégico Sectorial Multianual del Ministerio de Agricultura para el período 2012 – 2016.	Level 2	HFA PA 4
13	Uganda	Agriculture Sector Development Strategy and Investment Plan 2010/11-2014/15	Level 2	HFA PA 2, 4
14	Afghanistan	Agriculture and Rural Development Sector Strategy, 2007/2008-2012/2013	Level 3	HFA PA 2, 4, 5
15	Benin	Agricultural Investment Plan 2010-2015	Level 3	HFA PA 2, 4, 5
16	Burundi	Stratégie nationale agricole 2008-2015 (2008)	Level 3	HFA PA 2, 4
17	DRC	National Agriculture Investment Programme: Investment Plan 2013-2020 (Programme National d'Investissement Agricole, Plan d'Investissement 2013-2020, PNIA) (Sept. 2012)	Level 3	HFA PA 2, 5
18	Ethiopia	Ethiopia's Agriculture Sector Policy and Investment Framework 2010-2020 (PIF)	Level 3	HFA PA 4, 5
19	Guatemala	Política Agropecuaria 2011-2015	Level 3	HFA PA 2, 5
20	Liberia	Liberia Agriculture Sector Investment Program (LASIP)	Level 3	HFA PA 5

<sup>34</sup> The policy is in draft form and is not dated, but appears to be the most recent/current policy, on front page of Ministry's website.

		2010		
21	Madagascar	Programme Sectoriel Agricole (2008)	Level 3	HFA PA 5
22	Mozambique	Estrategia de Segurança Alimentar e Plano de Acção (Food Security Strategy and Plan of Action) 2008-2015	Level 3	HFA PA 2, 5
23	Nigeria	National Agricultural Investment Plan (NAIP) 2011-2014	Level 3	HFA PA 2,4
24	Sudan	Executive Programme for the Development of the Agricultural Sector 2008-2011	Level 3	HFA PA 2, 5
25	Chad	The National Food Security Program (2005) includes a priority action plan and investment program for 2011-2015	Level 4	N/A
26	Mali	Politique de Développement Agricole du Mali (PDA) 2013 (draft)	Level 4	HFA PA 4
27	Guinea	Agricultural Investment Plan 2010-2015	Level 5	N/A
28	Haiti	National Agricultural Investment Plan 2010-2016 (2010)	Level 5	N/A
29	Sierra Leone	National Sustainable Agriculture Development Plan (NSADP) 2010-2030	Level 5	N/A
30	Myanmar <sup>35</sup>	There is a National Strategy on Rural Development and Poverty Alleviation	N/A	N/A

\*Levels of DRR mainstreaming:

Level 1: Comprehensive set of DRR measures adopted, placed as higher level objective/intervention, with a set of deliverables or activities, and across 3 or more HFA priorities for action.

Level 2: With a set of DRR measures addressing 1 to 3 HFA priorities for action

Level 3: Some measures (3 to 5) adopted in the plan, typically at the activity level, and mainly focusing on risk management / disaster preparedness

Level 4: Only mentions DRR or prevention, but does not include measures

Level 5: No mention of DRR or DRM and no measures included

Overall, the results show that DRR is being integrated into agricultural development plans, albeit to varying degrees. Nearly 50% of the sector plans reviewed have substantial or high levels of DRR integration, while the remaining 50% has moderate to low levels of integration. Case study 1 (below) is on Tanzania's *Agriculture and Food Security Investment Plan*, which illustrates a high level of DRR integration.

<sup>35</sup> A formally endorsed sector strategy document for Myanmar could not be found/accessed online.



### **Case study 1: Mainstreaming DRR into agricultural development planning in Tanzania<sup>36</sup>**

The Tanzania Agriculture and Food Security Investment Plan (TAFSIP) was developed in 2012. The Goal of the TAFSIP is to “contribute to the national economic growth, household income and food security in line with national and sectoral development aspirations”. The Development Objective aims to “rationalize allocation of resources to achieve annual 6 percent agricultural GDP growth, consistent with national objectives to reduce rural poverty and improve household food and nutrition security”. At the central level the plan is to be coordinated by the Ministry of Agriculture, Food Security and Cooperatives and implemented by a number of relevant sector ministries.

The Plan is expressed in terms of seven thematic programme areas, each with its own sub-programmes, outputs, and activities. One of the seven thematic programme areas is specifically on “Disaster Management, Climate Change and Adaptation”. Within it has Sub-programme: 6.1: Disaster Risk Management and Preparedness, described below.

#### **Component: 6.1.1: Early Warning System for Crisis Prevention**

Priority inputs/ activities:

- Develop a comprehensive disaster vulnerability nutrition and food insecurity data collection framework;
- Develop an early warning database system with modern data sharing, analysis and dissemination mechanisms;
- Design training manuals on early warning data collection analysis and interpretation techniques tools and procedures;
- Build capacity of National, LGAs and District professionals involved on data collection and analysis on livelihoods food security nutrition and vulnerability assessments
- Provide equipment hardware and software to National Early Warning Unit and LGAs for data collection processing storage and communication;
- Establish mechanisms and guidelines for responding to food emergencies where the market is not able to respond;
- Establish a special early warning system for livestock including pastoral areas; and
- Develop systems of indicators of disaster risk and vulnerability at national and local level to enable easy assessment of disaster impacts.
- Assess the geographical and agro ecological coverage of the current meteorological stations;
- Increase the number of meteorological data collection centres;
- Design data sharing protocol and informative periodic weather related outputs and disseminate periodically using different outlets news letter monthly quarterly TV Radio press conferences in critical periods etc, and;
- Establish organic linkage with Early Warning Desk and Climate Change Research Group for un restricted data sharing and joint actions;
- Design periodic early warning outputs including prediction of disaster weather trends food security and vulnerability assessment household economy studies etc;
- Develop and update periodically and widely disseminate hazard maps and related information to decision-makers the general public and communities at risk in an appropriate format
- Design dissemination strategies that cover vulnerable groups and vulnerable geographic areas
- Create awareness on the use of vulnerability assessment results by Government , Development Partners and vulnerable groups themselves

#### **Component: 6.1.2: Emergency Response and Preparedness**

Priority inputs/ activities:

- Assess and identify appropriate national emergency food reserve sites;

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<sup>36</sup> “Annex 1a: Working Paper No. 9: Disaster Management, Climate Change Mitigation and Adaptation” in *Tanzania Agriculture and Food Security Investment Plan (TAFSIP) 2011/12 to 2020/21*

- Upgrade the current national food reserve infrastructure and establish new facilities in sites and stock for six months
- Design national food reserve utilization and management protocols
- Prepare contingency plans for emergencies using long-term early warning and weather variability information that will address possible effects on crop, livestock, human health, nutrition, asset protection, etc;
- Design working modalities for the use of risk financing and contingency fund
- Establish a system for the use of market price information to manage national response and price stabilization
- Identify key staple crops in vulnerable areas and establish emergency seed system;
- Design emergency seed management mechanism including cold storage for emergency seed stock;
- Based on long-term disaster occurrences make detail assessment of logistics requirements for emergency response including essential road infrastructure to disaster prone areas;
- Deploy essential emergency logistical requirements on selected sites; and
- Design a national guideline on additional logistics mobilization modalities during unforeseen national disasters.

#### **Component: 6.1.3: Institutional System for Disaster Risk Management and Preparedness (DRMP)**

Priority inputs/ activities:

- Revise existing DRMP strategies and policies in the context of TAFSIP and make necessary adjustments;
- Initiate public debate and awareness creation on the newly crafted DRMP strategies and policies;
- Establish organizational structures for DRMP up to the grassroots level such as multi sectoral national platforms with designated responsibilities at the national through to the local levels to facilitate coordination across sectors;
- Prepare necessary guidelines for the implementation of DRMP strategies and policies;
- Integrate DRMP as appropriate into development policies and planning at all levels of government including in poverty reduction strategies and sectors and multi sector policies and plans;
- Establish weather insurance system;
- Adopt or modify where necessary legislation to support disaster risk reduction including regulations and mechanisms that encourage compliance and that promote incentives for undertaking risk reduction and mitigation activities;
- Ensure that DRMP is a national and a local priority with a strong institutional basis for implementation; and
- Promote community participation in disaster risk reduction through the adoption of specific policies the promotion of networking the strategic management of volunteer resources the attribution of roles and responsibilities and the delegation and provision of the necessary authority and resources
- Assess existing human resource and institutional capacities for disaster risk management and preparedness at all levels and develop capacity-building plans and programmes for meeting ongoing and future requirements;
- Establish institutional capacities to ensure that early warning systems are well integrated into governmental policy and decision-making processes and emergency management systems at both the national and the local levels and are subject to regular system testing and performance assessments;
- Strengthen tracking and monitoring of food and nutrition surveillance system;
- Design and capacitate an inbuilt knowledge management system for DRMP including policy monitoring; and
- Mobilize required resources for continuous capacity building at all levels
- Formulate and implement a national contingency plan for disaster response mechanism and develop capacity building plan for villages, districts and national levels for better and timely responding to potential disaster shocks
- Support awareness and preparedness campaigns against Trans-boundary Animal Diseases (TADs) and pandemics;
- Provide facilities and equipment for tackling outbreaks of TADs and support veterinary and medical laboratories and;
- Enhance capacity of veterinary and medical staffs on early warning and disaster preparedness procedures.

### 3. Agriculture in National DRR Strategies

#### 3.1 Mainstreaming as a priority in national strategies for DRR

Thirty national strategies / plans for disaster risk reduction were reviewed to assess if they included mainstreaming across sectors as one of the priorities and if they addressed the agricultural sector in particular. The DRR plans of ten countries were unfortunately not found online for this study, therefore only the remaining 20 were reviewed. As shown in Table 6 below, of these 20 national DRR plans, eleven make mainstreaming risk reduction into development or sectors an explicit priority. These plans are for Bangladesh, Cambodia, Ethiopia, Liberia, Madagascar, Myanmar, Nepal, Pakistan, Philippines, South Africa and Uganda.

Mainstreaming DRR across sectors and at all levels is a core element in the National Strategy for Disaster Risk Management in Nepal (NSDRMN), developed in 2008. In relation to sectors, it proposes key actions such as the establishment of DRM Focal Points in each ministry with designated roles and responsibilities, the allocation of resources for the development and implementation of DRM policies, programs and regulations in all relevant sectors of the economy, among others. The NSDRMN identifies 8 key sectors, two of which are "Agriculture and Food security" and "Livelihood Protection". For both it recommends a set of strategies for incorporating DRR based on recommendations from sectoral workshops conducted for this purpose.

**Table 6: National DRR strategies / plans that include policy on mainstreaming**

	Country	National DRR Strategy / Plan	Mainstreaming DRR included as a priority
1	Afghanistan	Strategic National Action Plan (SNAP) for DRR, 2011-2015	No
2	Angola	No national DRR plan/strategy found	N/A
3	Bangladesh	National Plan for Disaster Management (NPDM) 2010-2015	Yes
4	Benin	No national DRR plan/strategy available	N/A
5	Burundi	No national DRR plan/strategy available	N/A
6	Cambodia	Strategic National Action Plan for Disaster Risk Reduction (2008-2013)	Yes
7	Chad	No national DRR plan/strategy available	N/A
8	DRC	No national DRR plan/strategy available	N/A
9	Ethiopia	National Policy and Strategy on Disaster Risk Management (NPSDRM) 2009	Yes
10	Eritrea	No national DRR plan/strategy available	N/A
11	Guatemala	Programa Nacional de Prevención y Mitigación ante Desastres 2009-2011	No
12	Guinea	No national DRR plan/strategy available	N/A
13	Haiti	No national DRR plan/strategy available	N/A
14	Lao PDR	No national DRR plan/strategy available	N/A
15	Liberia	National Disaster Management Policy (2012)	Yes
16	Madagascar	National DRM strategy (2007)	Yes
17	Mali	No national DRR plan/strategy available	N/A

18	Mozambique	Master plan for prevention and mitigation of natural disasters, 2006	No
19	Myanmar	Myanmar Action Plan on DRR (2009-2015)	Yes
20	Nepal	National Strategy for Disaster Risk Management in Nepal (NSDRMN), 2008	Yes
21	Nicaragua	No national DRR plan/strategy available	N/A
22	Nigeria	National Disaster Framework (2010)	Yes
23	Pakistan	National Disaster Management Plan (NDMP- 2012-22)	Yes
24	Peru	No national DRR plan/strategy available	N/A
25	Philippines	The National Disaster Risk Reduction and Management Plan 2011-28	Yes
26	Sierra Leone	Disaster Management Policy, 2006	Yes
27	South Africa	A Policy Framework for Disaster Risk Management in South Africa, no date specified	Yes
28	Sudan	No national DRR plan/strategy available	N/A
29	Tanzania	No national DRR plan/strategy available	N/A
30	Uganda	National Policy for Disaster Preparedness and Management (2010)	Yes

Note: In cases indicated that “no plans/strategies were found”, it is based on online research, although some of these countries may have plans.

Table 7 below provides a summary of the national objectives on mainstreaming DRR in agriculture in the countries that have made mainstreaming a policy priority. It indicates that of the 11 countries that have mainstreaming as a priority within the national DRR strategies / plans, seven countries subsequently developed agricultural development plans with DRR mainstreamed<sup>37</sup>, namely Cambodia, Ethiopia, Madagascar, Myanmar, Nepal, Philippines and Uganda. Of these countries, five have significant to very high levels of mainstreaming in their sector plans (levels 1 and 2) while Ethiopia and Madagascar have level 3. These results confirm the findings in the previous section, namely that the inclusion of mainstreaming as part of the national DRR strategy is more likely to lead to concrete results in the integration of DRR within the agriculture sector.

<sup>37</sup> In the case of Bangladesh and Liberia, the DRR plans reviewed were dated after the development of the sector development plans and could therefore not be included in the analysis; For Pakistan the sector plan is not dated nor the DRR plan for South Africa, and it was not possible to establish a cause-effect. For Myanmar, as already noted, the sector plan for the country could not be found online.

**Table 7: National objectives on mainstreaming DRR in agriculture in countries that have mainstreaming as a policy**

	Country	National DRR Strategies / Plans		Agricultural Development Plans
		National objectives on mainstreaming DRR in sectors.	Type of measures included on the agricultural sector	The level of DRR mainstreaming assessed
1	<b>Bangladesh</b>	<p><i>National Plan for Disaster Management (NPDM) 2010-2015.</i></p> <p>Mainstreaming DRR is one of its seven strategic goals, reinforcing the same policy which appears as early as 2005 in the <i>Corporate Plan of the Ministry of Food and Disaster Management 2005-09</i>, and in the draft <i>National Plan for Disaster Management 2008-2015 (NPDM)</i>. Strategies for mainstreaming include advocacy and awareness raising, review of existing policies and plans, capacity building, among others.</p>	It is not specific about the sector, but rather it proposes that every Ministry/Division prepare their respective Sectoral Development Plans, and that Guidelines will be prepared to incorporate DRR across sectors.	<p><i>National Food Policy Plan of Action (2008-2015)</i></p> <p>Level 1</p>
2	<b>Cambodia</b>	<p><i>Strategic National Action Plan for Disaster Risk Reduction (2008-2013)</i></p> <p>One of the 6 specific objectives of the plan is to “create a conducive environment for the mainstreaming of disaster risk reduction into development plans, policies and projects of the government”</p> <p>The plan further identifies priorities, and among these it categorizes some as being “critical or urgent”, which “consist primarily of Component 1 of the Disaster Risk Reduction Framework that seeks to ensure that disaster risk reduction forms an integral part of the government’s development agenda”.</p>	Given the current rapid rate of development and poverty in the country, the plan proposes that mainstreaming efforts should first focus on specific sectors, among them agriculture. In terms of “mainstreaming themes” to be pursued by the Ministry of Agriculture, Forestry and Fisheries the plan proposes programs on contingency crop planning to deal with climate variations and on crop diversification including hazard resistant crops; ensuring sustainable livelihoods in areas of recurrent climate risks by promoting supplementary income generation; and promoting effective insurance and credit schemes.	<p><i>The Strategy for Agriculture and Water 2010-2013</i></p> <p>Level 2</p>
3	<b>Ethiopia</b>	<p><i>National Policy and Strategy on Disaster Risk Management (the NPSDRM) 2009</i></p> <p>The strategy sees “DRM is a crosscutting and multi-sectoral responsibility whereby concerned institutions shall integrate DRM into their regular development activities. National development cannot be sustainable unless DRM is considered as part of sectoral development processes.” The strategy requires that DRM units are established in each line ministry and that disaster management units and focal bodies integrate DRM into existing and future local and national development strategies, policies, plans and programs for sustainable development</p>	The approach and proposals are multisectoral, and not sector-specific, although there is emphasis on agriculture-based livelihood systems	<p><i>Ethiopia’s Agriculture Sector Policy and Investment Framework 2010-2020 (PIF)</i></p> <p>Level 3</p>

4	<b>Liberia</b>	<p><i>National Disaster Management Policy (2012)</i></p> <p>One of the 5 policy objectives is to “provide overall direction for integrating disaster risk reduction into development, recovery and humanitarian response policy and plans”, along with 4 other aims. It adheres to the principle of achieving and maintaining sustainable development and that it must underpin all policies, programmes and projects, in particular the mainstreaming of DRM into development planning and the protection of development gains.</p>	<p>The policy is multisectoral and not sector-specific, although it establishes linkages with the <i>National Food Security and Nutrition Strategy</i>. Policy priority Area 4 includes promoting food security as an important factor in ensuring the resilience of communities to hazards. Issues of governance for food security, natural disaster risk identification and application of disaster proof risk management initiatives within the food security agenda shall be considered key priorities, and risk transfer and risk sharing initiatives.</p>	<p><i>Liberia Agriculture Sector Investment Program (LASIP), 2010</i></p> <p>Level 3</p>
5	<b>Madagascar</b>	<p><i>National DRM Strategy 2007</i></p> <p>Under its strategic priority on poverty reduction, it includes as a strategic action the inclusion of DRR and vulnerability as a cross-cutting issue in all sectoral programs and strategies.</p>		<p><i>Programme Sectoriel Agricole (2008)</i></p> <p>Level 3</p>
6	<b>Myanmar</b>	<p><i>Myanmar Action Plan on DRR (2009-2015)</i></p> <p>One of the 5 objectives in the plan is “To provide a conducive environment for mainstreaming DRR into development plans, and programs at the National, State, Division, Township, and Village Tract levels”</p>	<p>The plan envisages integrating DRR into specific sectors, among them agriculture.</p> <p>The plan proposes a Drought and a Flood Mitigation Plans for the Agricultural Sector. It sees an important role of the Ministry of Agriculture and Irrigation in the Sustainable Development of Dry Zone Area to Protect/Mitigate Against Drought;</p>	<p><i>National Strategy on Rural Development and Poverty Alleviation</i><sup>38</sup></p> <p>N/A</p>
7	<b>Nepal</b>	<p><i>National Strategy for Disaster Risk Management in Nepal (NSDRMN), 2008</i></p> <p>As part of its mission, the plan includes “ensuring integration of disaster risk reduction strategies into sectoral development and poverty alleviation plans. In relation to sectors, it proposes key actions such as the establishment of DRM Focal Points in each ministry with designated roles and responsibilities, the allocation of resources for the development and implementation of DRM policies, programs and regulations in all relevant sectors of the economy, among others.</p>	<p>The NSDRMN identifies 8 key sectors, to of which are “Agriculture and Food security” and “Livelihood Protection”. For both it recommends a set of strategies for incorporating DRR based on recommendations from sectoral workshops conducted for this purpose.</p>	<p><i>National Agriculture Sector Development Priority (NASDP) for the Medium-Term (2010/11 - 2014/15).</i></p> <p>Level 1</p>
8	<b>Nigeria</b>	<p><i>National Disaster Framework</i></p> <p>The framework states that “disaster risk reduction shall be mainstreamed into developmental efforts at all levels of Governance”. In particular it proposes that DRR be</p>	<p>It is not specific about the sector.</p>	<p><i>National Agricultural Investment Plan (NAIP) 2011-2014</i></p> <p>Level 3</p>

<sup>38</sup> Strategy not found

		mainstreamed in spatial development planning, the national development plan, and educational curriculum.		
9	<b>Pakistan</b>	<p><i>National Disaster Management Plan (NDMP- 2012-22)</i></p> <p>Envisages ten (10) interventions to establish an efficient and effective disaster management system in Pakistan. One of these is mainstreaming DRR into development, for which it identifies 4 key strategies and a number of priority actions and programs.</p>	The plan lists the “roles and responsibilities” of the Ministry of Food Security and Research with regards to DRR in the “pre-disaster phase” and the “emergency response phase”. See case study	<p><i>Agriculture and Food Security Policy</i> (Draft, not dated).</p> <p>Level 2</p>
10	<b>Philippines</b>	<p><i>The National Disaster Risk Reduction and Management Plan (NDRRMP), 2011-28</i></p> <p>The NDRRMP highlight the importance of DRRM mainstreaming by identifying as one of its main outcomes the mainstreaming of DRR and CCA into national, sectoral, regional and local development policies, plans and budget. The plan links to the <i>Philippine Development Plan 2011-2016</i>.</p>	The plan highlights the importance of mainstreaming in the AG sector, and links with the <i>Philippine’s Competitive and Sustainable Agriculture and Fisheries Sector Program</i> of the <i>Philippine Development Plan 2011-2016</i> .	<p><i>Competitive and Sustainable Agriculture and Fisheries Sector 2011-2016</i></p> <p>Level 1</p>
11	<b>Sierra Leone</b>	<p><i>Disaster Management Policy, 2006</i></p> <p>One of the objectives of the policy is to “Ensure the integration of disaster risk management into sustainable development programmes and policies to ensure a holistic approach to disaster management.” In its approach the policy includes the following:</p> <p>Advocate the inclusion of disaster risk reduction in development strategies and emergency response management at national and local level.</p> <p>Prepare and disseminate guidelines for integrating DRR in development planning and activities.</p>	Policy does not refer to sector as such, but states that the “Government shall encourage all line ministries to incorporate disaster risk reduction into development strategies.”	<p><i>National Sustainable Agriculture Development Plan (NSADP) 2010-2030.</i></p> <p>Level 5</p>
12	<b>South Africa</b>	<p><i>A Policy Framework for Disaster Risk Management in South Africa</i>, no date specified</p> <p>The policy states that DRM responsibilities must be integrated into the routine activities of the various sectors and disciplines within the relevant organs of state and their substructures; each national organ of state must determine its role and responsibilities in relation to DRM and assess its capacity to adhere to the requirements, particularly with reference to setting priorities for disaster risk reduction initiatives; each national organ of state must appoint an individual who will act as its focal or nodal point for disaster risk management.</p>	Does not specify measures for sectors	<p><i>Strategic Plan for the Department of Agriculture, Forestry and Fisheries 2012/13 to 2016/17.</i></p> <p>Level 1</p>

13	Uganda	<p><i>National Policy for Disaster Preparedness and Management (2010)</i></p> <p>The policy seeks to “provide a broad policy framework for the harmonization of sectoral and cross-sectoral policy objectives, principles and strategies , and to establish an integrated and multi sectoral approach to disaster management, among other aims. One of its policy objectives is to integrate “disaster preparedness and management” into development processes at all levels.</p>	<p>The Ministry of Agriculture is included in the plan as one of the key ministries for implementing the policy. It is expected to integrate DRM programmes into the national agricultural policy and its action plan.</p> <p>One of its objectives is to “To ensure that adequate food is produced for all areas of Uganda by promoting appropriate production and post production systems and good animal husbandry and fisheries practices with a view to prevent famine.” Actions included, amongst others: appropriate food storage facilities, improvement of traditional farming systems which conserve the soil and increase productivity, improvement and development of adequate food security systems, drought resistant seeds species, methods for the eradication of pest infestations on crops, earth dams; irrigated agriculture, inter institutional preparedness plans, provision of water, grazing facilities and subsidized fodder.</p>	<p><i>Agriculture Sector Development Strategy and Investment Plan 2010/11-2014/15</i></p> <p>Level 2</p>
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### 3.2 High level priority given to 'mainstreaming' in national DRR plans

Some countries give the highest level of priority to mainstreaming DRR, such as Cambodia: "Among the high priority disaster risk reduction interventions identified, an initial set of disaster risk reduction interventions has been further categorized as being critical or urgent. These interventions consist primarily of Component 1 of the Disaster Risk Reduction Framework that seeks to ensure that disaster risk reduction forms an integral part of the government's development agenda".<sup>39</sup>

In the Philippines, the legal and institutional framework for DRR/M is very well elaborated, with a strong DRM agenda and planning documents. DRR/M is cast in national legislation and policies: The national DRRMP 2011-28, the Philippines DEV plan 2011-16, the DRR/M Act 10121 of 2010. The Mainstreaming of DRR into sectors is legally endorsed through the DRR/M Act 10121 of 2010, and in the national DRR/M plan 2011. Pakistan introduced mainstreaming in its 2007 *National Disaster Risk Management Framework* with a high level of political commitment as shown in Case Study 2 below.

In some cases the DRR plans specifically include the agriculture sector and provide objectives to be achieved, as shown in Table 7. The DRR plan for Cambodia, for instance, proposes programs on contingency crop planning to deal with climate variations and on crop diversification including hazard resistant crops; ensuring sustainable livelihoods in areas of recurrent climate risks by promoting supplementary income generation; and promoting effective insurance and credit schemes. The DRR policy for Liberia proposes the establishment of linkages with the National Food Security Policy, and its Priority Action 4 focuses on promoting food security as an important factor in ensuring the resilience of communities to hazards. Issues of governance for food security, natural disaster risk identification and application of disaster proof risk management initiatives within the food security agenda are considered key priorities, along with risk transfer and risk sharing initiatives.

Overall, these findings indicate that the inclusion of mainstreaming as an explicit objective within national DRR strategies is more likely to lead to concrete results in the integration of DRR within the agriculture sector.

#### Case Study 2: Pakistan's policy and political commitment on mainstreaming DRR in development

Pakistan's ten years 'National Disaster Management Plan' (NDMP- 2012-22), prepared by the National Disaster Management Authority (NDMA) and the Ministry of Climate Change, is probably the most comprehensive and detailed, consisting of over 800 pages divided into 4 volumes. The plan identifies 10 "interventions" one of which is on mainstreaming disaster risk reduction into development, for which it identifies a series of "strategies" and "priority actions/programs" for the next ten years. The plan lists the "roles and responsibilities" of the Ministry of Food Security and Research which include actions across all HFA priorities for action.

Mainstreaming DRR in development was first introduced by Pakistan in its 2007 National Disaster Risk Management Framework (NDRMF), prepared by the National Disaster Management Authority (NDMA). As early as 2007, this NDRMF outlined the national DRR agenda and made mainstreaming one of its 9 priority areas. For the

<sup>39</sup> Strategic National Action Plan for Disaster Risk Reduction (2008-2013), pg 11.

agriculture sector, the plan lists the “roles and responsibilities” of the sectoral ministry, subsequently reinforced in the 2012 plan. The framework proposed a number of strategic and practical actions, such as:

- working with ministries on the integration of DRR into sectoral policy, planning and implementation,
- developing technical guidelines on incorporating risk assessment into sectoral project,
- conducting national and provincial workshops for selected line ministries to orient them on integrating risk assessment in programme planning and design and to include vulnerability reduction in programme implementation,
- reviewing the current status on mainstreaming DRR within the line ministries and departments, and
- producing case studies of good practice, among other measures.

In this framework, the “Prime Minister’s Message” reflects the level of priority given to mainstreaming: “To realize the vision and objectives of this Framework, the federal government is committed to allocate requisite financial resources in annual budgets. The government expects that all stakeholders, particularly the line ministries and provincial/regional governments will pay serious attention towards establishing institutional mechanisms, developing capacities and implementing strategies in their respective domains”(pg vii). The importance given to mainstreaming DRR is based on a clear recognition of the link between disaster risks and development: “Over the past few years, Pakistan’s economy has seen a sharp growth, which has made a positive impact on the lives and livelihoods of the people. This growth is, however, not risk free. The development infrastructure in hazard prone areas is at risk from disasters, which could negatively affect the pace of growth...At the time of disasters of big magnitude, relief and recovery activities may require reallocation of development resources, as was the case in the earthquake...”(pg vii)

By 2012, this link is further articulated in the NDMP: “Disaster risk reduction shall secure sustainable growth, reduce poverty and create a disaster resilient society. Therefore, mainstreaming disaster risk reduction into development is an integrated component of the development process” (pg 73).

The process of mainstreaming DRR into sustainable development included the establishment of a National Working Group on Mainstreaming DRR and Ministerial Working Groups of the 10 selected ministries.

## **4. The Integration of DRR in Post-Disaster Recovery for the Agriculture Sector –Progress since 2005**

This section reviews the extent to which disaster risk reduction has been integrated in post-disaster recovery planning for the agriculture sector. The assessment is retrospective and includes analysis of a sample of natural disasters since 2005 in Pakistan, Kenya and the Philippines.

### **4.1 Pakistan post-disaster recovery**

#### **4.1.1 The importance of the agriculture sector in Pakistan**

In Pakistan the agriculture sector is important to the country’s economy, and yet suffered considerable damage as a result of the disasters reviewed. The sector contributes 24% to

Pakistan's GDP, employs 48% of the labor force and contributes 70% of the export earnings. As such it represents the backbone of the country's economy.<sup>40</sup> The livelihood of more than 60 percent of the total population is directly or indirectly dependent on agriculture. Furthermore, the agriculture sector has strong backward and forward linkages and as a result has a large impact on the overall economic performance.<sup>41</sup>

**Table 8: Summary of the impact of disasters in Pakistan**

Disaster	Total Damage/Loss	Total Sector Damage/Loss	Provinces Affected	Description of Damage
2005 earthquake	US\$ 2.3 billion	US\$ 337 million <sup>42</sup>	North West Frontier, AJK	<ul style="list-style-type: none"> <li>About 241,000 cattle and buffalos were lost.</li> <li>Structural damage and destruction to extension and research buildings, and the irrigation subsector.</li> </ul>
2007 floods	US\$ 537 million	US\$ 284 million <sup>43</sup>	Sindh, Balochistan, North West Frontier, Punjab	<ul style="list-style-type: none"> <li>The agriculture sector sustained the greatest damage.</li> <li>In total, 189,644 ha of crop land were either partially or completely damaged.</li> <li>302,104 livestock perished.</li> </ul>
2010 floods	US\$ 10 billion (4.7 percent of GDP) <sup>44</sup>	US\$ 5 billion <sup>45</sup>	Sindh, Balochistan, AJK, FATA, Gilgit-Baltistan, Khyber Pakhtunkhwa, Punjab	<ul style="list-style-type: none"> <li>Agriculture – the basic livelihood for 80 percent of the affected population.</li> <li>2.4 million hectares of cultivatable land and standing crops were damaged across the country.</li> <li>1.2 million large and small animals, and 6 million poultry were lost.<sup>46</sup></li> </ul>
2011 floods	US\$ 3730 million (1.6 of GDP)	US\$ 1840 million <sup>47</sup>	Sindh, Balochistan, Punjab	<ul style="list-style-type: none"> <li>About 880,000 hectares of planted area was affected</li> <li>115,500 large &amp; small animals were lost.</li> <li>About .15 million tons of stocks of food grains were lost</li> </ul>

In the 2007, 2010 and 2011 floods in Pakistan, the agriculture sector sustained at least 50% of the total damage caused by the disasters, as indicated in Table 8. Also, these three events, as

<sup>40</sup> Vaqar Ahmed et al. 2011. *National Economic and Environmental Development Study: the Case of Pakistan*. Planning Commission of Pakistan, Sustainable Development Policy Institute. Islamabad, Pakistan

<sup>41</sup> Government of Pakistan, ADB and WB. 2011. *2011 Pakistan Floods: Preliminary Damage and Needs Assessment*.

<sup>42</sup> Refers to the total direct damage and indirect loss to the agriculture sector in AJK and NWFP, from *Pakistan 2005 Earthquake: Preliminary Damage and Needs Assessment*.

<sup>43</sup> Refers to the total direct damage and indirect losses to agriculture in Balochistan and Sindh including irrigation, crop, livestock, and fisheries.

<sup>44</sup> Refers to direct and indirect damages, based on Government of Pakistan. 2011. *Pakistan Flood Reconstruction Plan*.

<sup>45</sup> ADB and WB. 2010. *Pakistan Floods 2010: Preliminary Damage and Needs Assessment*.

<sup>46</sup> UN. 2010. *Pakistan Floods Relief and Early Recovery Response Plan: Revision 2010*.

<sup>47</sup> Refers to direct and indirect losses.

well as the 2012 monsoon floods, affected the provinces of Sindh, Balochistan and Punjab (among other provinces), compounding the damage in these. The province of Sindh was the worst affected by the 2010 and 2011 floods. In severely affected areas, food insecurity and malnutrition were already at critical levels before the 2011 floods. Agriculture is the key economic sector in Balochistan and Sindh provinces, accounting for about 30% and 17.4% of provincial GDPs and 65% and 50% of employment, respectively. Sindh has 30 percent and Balochistan 8 percent share in the national agricultural GDP.

Three years of repeated floods have inflicted serious damage on Pakistan's economy. A Pakistan Economic Survey showed that Pakistan lost a total of \$16 billion to the floods in 2010, 2011 and 2012. In relation to agriculture, the National Disaster Management Authority estimated that the sector sustained \$2 billion in flood damages on over 1 million acres of standing crops.<sup>48</sup>

Trends also suggest that the impact is felt in the country's ability to meet the MDGs by 2015. In Sindh, at the current rate of progress no MDG is expected to be achieved in its entirety.

Performance is not only considerably behind the targets but also behind the national average in all indicators of MDG 1.<sup>49</sup> The prevalence of underweight children under 5 years of age increased slightly in Sindh from 40% in 2004-5 to 40.5 percent in 2011-12, compared to the national average which fell from 38 to 31.5 percent in the same period of time.<sup>50</sup> The 2012 MDG report for the province of Sindh states, in relation to the status of progress against Goal 1, that the "target is unlikely to be met. Our poverty estimates are dated, and poverty incidence is actually expected to have increased over the last two years. The situation is particularly dire in the aftermath of the floods".<sup>51</sup>

#### **4.1.2 The review of DRR in post-disaster recovery planning in Pakistan**

For Pakistan the review included analysis of sector recovery plans relating to four disasters: the 2005 earthquake, and the floods in 2007<sup>52</sup>, 2010 and 2011. Case study 3 below summarizes the results.

Following the 2005 earthquake in Pakistan the country developed an Early Recovery Framework which included a "governance and disaster reduction" component that focused on 1) supporting institutional and legislative systems, 2) preparedness planning, and 3) community level risk reduction. The framework also notes that disaster reduction measures will be integrated within the earthquake recovery processes of all sectors. However, within this framework the recovery programme proposed on "Employment, Livelihoods and Agriculture" did not adopt measures in disaster risk reduction. Its focus was on recovery, through cash-for-work employment generation, reviving local economies, restoring financial services, rebuilding agriculture and rural livelihoods, and other similar measures.

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<sup>48</sup> Thomson Reuters Foundation - 9 Sep 2013. Floods have halved Pakistan's economic growth – expert.

<sup>49</sup> <http://www.undp.org/content/pakistan/en/home/mdgoverview/> (accessed 12 Feb 2014)

<sup>50</sup> Government of the Islamic Republic of Pakistan. 2012. *Pakistan Millennium Development Goals: Report 2013*.

<sup>51</sup> Government of the Islamic Republic of Pakistan and UNDP. 2012. *Report on the Status of the Millennium Development Goals: Sindh*, pg 16.

<sup>52</sup> In the case of the 2007 floods, the review is based on the analysis of the 2007 *Preliminary Damage and Needs Assessment Balochistan and Sindh*, as the recovery or reconstruction plan was not available.

The results are similar in the overall post-flood recovery strategies of 2007, 2010 and 2011. All three recovery / reconstruction strategies include a component on disaster risk reduction or 'disaster risk mitigation' or 'hazard risk management'. Yet the recovery plans for the agriculture sector did not integrate DRR measures, with some minor exceptions and improvements. For instance, the 2007 Reconstruction Strategy for "Agriculture, Livestock and Irrigation" proposes to restore flood protection bunds, the sustainable management of watersheds, and to strengthen the capacities of line departments in "prevention and management of flood-related disasters". The 2010 Reconstruction Strategy for "Livelihoods" proposes afforestation and watershed management though it is not framed within the context of DRR.

The 2011 Early Recovery Strategy for "Food Security" is the first to use DRR terminology and proposes to provide technical support on "DRR, risk profile, hazard mapping, among others" but does not elaborate further or explain the strategy. By 2012, the "Food Security Strategy" in the response plan adopted "the mainstreaming of resilience" as one of its core interventions, albeit without outlining specific measures.<sup>53</sup>

The findings provide a stark contrast to the more progressive policy environment for DRR in the country. Mainstreaming DRR in development was first introduced by Pakistan in its 2007 National Disaster Risk Management Framework and reinforced again in the country's 2012 National Disaster Management Plan (NDMP- 2012-22), which is comprehensive and detailed, consisting of 4 volumes. Yet, the mainstreaming policy was not reflected in the recovery processes reviewed. For further reference on Pakistan see case study 6 further below.

It is understood, however, that this analysis of recovery plans is only one measure to assess the integration of DRR. In practice it is very likely that numerous DRR-related projects were implemented during the recovery phase of these disasters, both by governments, civil society and the international community. For instance, one progress report indicated the rehabilitation and improvement of the one of the water channels of the Tank Zam waterway, which supplies irrigation water to approximately 1,375 acres of agriculture land and enabled the irrigation up to 8 to 10 km downstream.<sup>54</sup> Also model villages were built in Punjab on 334 acres of newly acquired land and included livestock sheds and dispensaries, as well as schools, health centers and other facilities.<sup>55</sup>

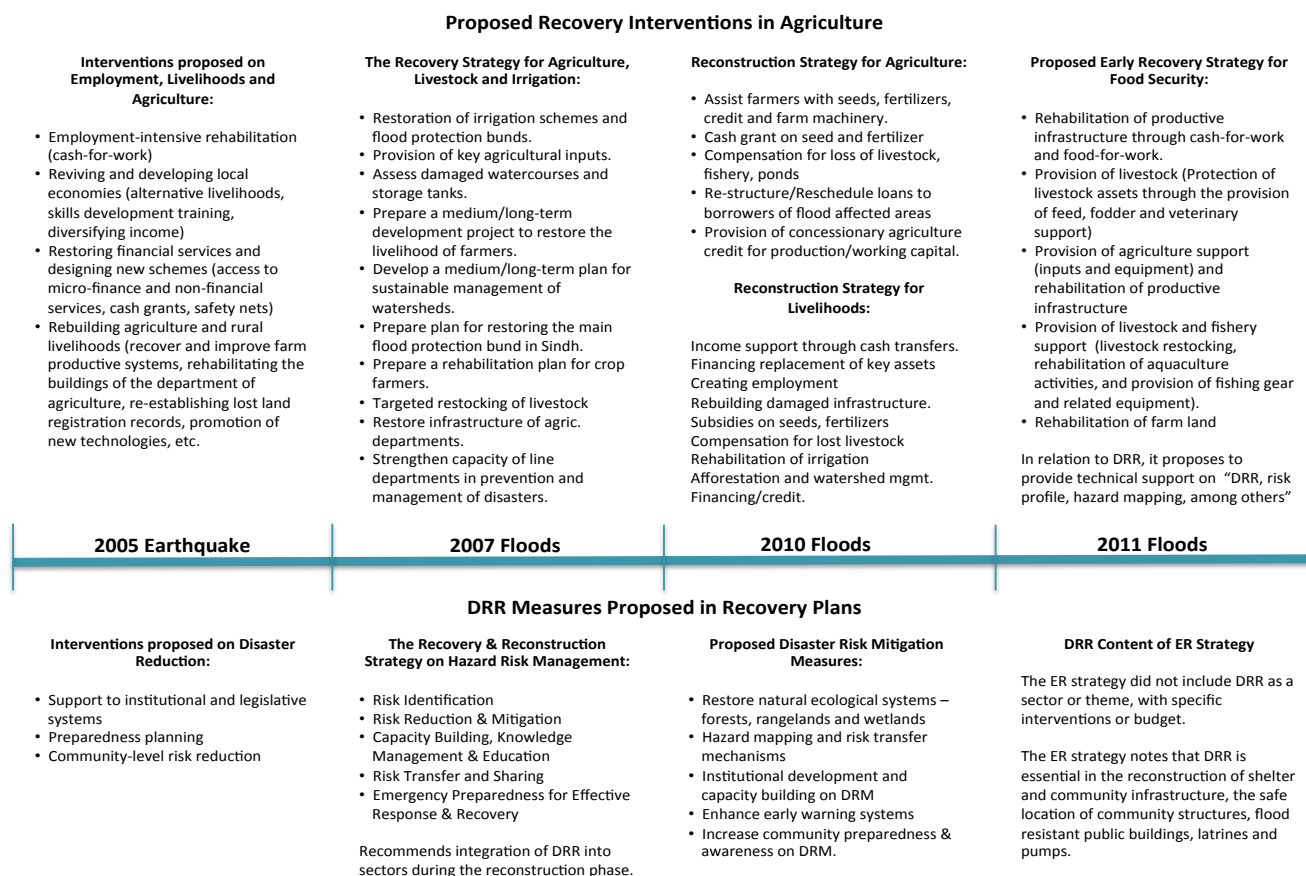
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<sup>53</sup> Pakistan Humanitarian Country Team. 2012. *Monsoon 2012: Revised Humanitarian Operations Plan (MHOP)*

<sup>54</sup> Government of Pakistan and United Nations. 2012. *Early Recovery – Floods 2010: Final Report*.

<sup>55</sup> <http://modelvillages.punjab.gov.pk/?q=history> (accessed 8 Feb 2014)

### Case Study 3: Timeline of Post-Disaster Recovery Plans for the Agriculture Sector in Pakistan<sup>56</sup>



<sup>56</sup> Timeline based on review of the following recovery planning documents: UN. 2005. *Pakistan 2005 Earthquake Early Recovery Framework*; ADB and WB. 2007. *Pakistan Cyclone and Floods 2007: Preliminary Damage and Needs Assessment Balochistan and Sindh*; Government of Pakistan and United Nations. 2011. *The National Flood Reconstruction Plan 2010*; Government of Pakistan and United Nations. 2012. *Pakistan Floods 2011: Early Recovery Framework*.

### 4.1.3 Characteristics and trends

The review of these four disasters in Pakistan reveals several important characteristics and trends. The first is that all four post-disaster recovery plans include disaster risk reduction, as a sector or theme within the plans or as a set of specific measures. The proposed measures in DRR tend to relate to the HFA's priorities for action, such as "support to institutional and legislative systems", "preparedness planning" (2005), "risk identification", "knowledge management and education" (2007), "institutional development and capacity building on DRM", "early warning systems" (2010). It is clear that the HFA guided the proposed measures, yet the priorities for action appear to be applied in a generic manner in most cases.

Disaster risk reduction in post-disaster recovery is expressed as a stand-alone sector or theme and is not being *mainstreamed* into the agriculture sector. The 2007 and 2011 post-flood recovery strategies recommend this sector integration but fall short of having DRR mainstreamed across sectors within the recovery strategy itself, with clear DRR measures in each.

Another trend observed is the emphasis on infrastructure-related recovery efforts, when sectors are linked to DRR in recovery plans. For instance, the 2011 recovery strategy proposed flood-resistant public buildings, the safe location of shelter, etc. The reconstruction strategy in 2007 proposed the revision and development of new building codes for disaster-resistant structures.

## 4.2 Kenya post-disaster recovery

For Kenya the review included analysis of sector recovery plans relating to three drought episodes in 2005-2006, 2008-2009 and 2011-2012. These droughts took place in the broader Horn of Africa.

### 4.2.1 The 2005-2006 drought

For the 2005-2006 drought response in Kenya, the review is based on three evaluations of the response which provide relevant insights on the level of integration of DRR in the response.<sup>57</sup>

The Real Time Evaluation of the humanitarian response in Kenya<sup>58</sup> indicates that a DRM approach in Kenya was starting to evolve when the drought developed. The government's 2004 National Disaster Management Policy was reported to be "introducing" some "innovative strategic options" such as disaster contingency plans, strategic food and non-food stockpiles, diversification of livelihood sources, creation of a disaster trust fund and insurance initiatives.

The evaluation found that the "link between emergency response and resilience strengthening" and longer term vulnerability reduction was not "credibly" done, and recommended some measures to be taken, such as the development of trade mechanisms on livestock products and

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<sup>57</sup> A response or recovery plan for the 2005-2006 drought in Kenya was not available for this review.

<sup>58</sup> François Grünewald et al. 2006. *Kenya RTE Mission: Final Report*.

measures to prevent asset depletion and migration, and to protect the environment.

Another evaluation pointed to the “weakness of formal policies and structures” which are based on the mistaken notion that food security “can be achieved predominantly through short-term measures” and that “humanitarian relief aims to save lives rather than also contributing towards preventing disaster or assisting in recovery”. The report suggested that “the principles of DRR can potentially offer ways of integrating relief and development”.<sup>59</sup>

The financial contribution made in response to the drought was also reported as a contributing factor. There was significantly lower funding for non-food interventions<sup>60</sup> (19%) compared to that for food aid (81%), because donors appeared to be less willing to fund non-food interventions but also because the appeals requested much less funding for non-food interventions.<sup>61</sup>

Some (non food) sustainable practices were implemented though these were reported to be “small scale and with varying levels of presumed impact”, such as such as irrigation schemes and water harvesting, promoting drought-tolerant crops varieties, livestock re-stocking, re-seeding pasture/rangelands, among other.

Finally, a third evaluation recommended the study of the long-term, root causes of food insecurity in the Horn of Africa, based on a thorough analysis of production and livelihoods systems, and the promotion of “longer-term recovery and resilience of local production systems to climatic shocks, through improved natural resource management, water and soil conservation...” among other measures.<sup>62</sup>

#### **4.2.2 The 2008-2009 drought**

The 2009 Humanitarian Response Plan was reviewed to assess the level of DRR integration in the agriculture sector. The results show that the plan included two (of four) strategic objectives relating to DRR, namely to 1) strengthen recovery and resilience for vulnerable populations and 2) strengthen preparedness and disaster risk reduction.<sup>63</sup> However, the response plan does not articulate a framework or strategy to build resilience to droughts nor does it include a set of measures to achieve these objectives.

Nonetheless, some DRR activities were proposed by the early recovery & food security cluster, such as:

- Supporting disaster preparedness, mitigation and management by assisting development of contingency plans.

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<sup>59</sup> Longley Catherine et al. No date. *Improving Drought Response In Pastoral Areas of Kenya: Lessons and recommendations*. Overseas Development Institute and CARE.

<sup>60</sup> In the report, non-food interventions were used as a proxy for livelihood interventions because budgets and financial tracking tend to be based on sectoral responses. However, non-food interventions are not synonymous with livelihood interventions.

<sup>61</sup> Longley Catherine et al. No date. *Improving Drought Response In Pastoral Areas of Kenya: Lessons and recommendations*. Overseas Development Institute and CARE.

<sup>62</sup> Nigel Nicholson et al. 2007. *Evaluation of FAO's Emergency & Rehabilitation Assistance in the Greater Horn of Africa 2004-2007: Evaluation Report*.

<sup>63</sup> UN. 2009. *Kenya Emergency Humanitarian Response Plan: Revision*.



- Awareness-raising on disaster preparedness and climatic changes.
- Building capacity of local government and communities to respond to disasters through technical assistance.
- Assisting with the establishment of disaster management sub- committees.

This reflects a positive improvement compared to the previous 2005 earthquake response, yet it does not reflect a holistic or strategic approach to building drought resilience and does not promote sustainable technologies or farming practices that help to achieve resilience. In practice, it is likely that a number of projects addressed DRR, but as found in one evaluation of the drought response in six arid and semi arid land districts in Kenya, “few addressed underlying causes of vulnerability in ways that would have longer lasting benefits”.<sup>64</sup>

#### **4.2.3 The 2011-2012 drought**

The 2011-2012 drought in the Horn of Africa has been considered the worst drought in 60 years, raising serious concern over the resulting severe food crisis as well as the specter of yet another drought event in the region, factors which were to influence a critical shift in the response.

The three-year Emergency Humanitarian Response Plan developed in 2011 recognizes that “the frequency and scale of droughts and floods require long-term and increased investments in DRR, and the inclusion of DRR initiatives in development planning and humanitarian response”. Therefore the plan adopts a twin-track approach to provide “immediate and medium-term food and non-food interventions that seek to mitigate urgent needs while concurrently restoring livelihoods and building their resilience.” In order to achieve this, the plan proposed four over-arching strategic objectives, as follows:

1. Timely and coordinated life-saving humanitarian assistance and protection.
2. Ensure the early recovery of populations affected is sustained and support the further integration of recovery approaches with longer-term interventions to reduce high levels of chronic vulnerability.
3. Enhance community resilience using targeted disaster risk reduction approaches to reduce the impacts of disasters and ensure linkages with longer-term initiatives to reduce vulnerability.
4. Targeted and sustained advocacy with the Government of Kenya (GoK) and development actors to further their engagement in resolving chronic vulnerability and in supporting durable solutions.

Similarly, for the agriculture sector a number of objectives and outputs were proposed to meet these over-arching goals, summarized in the table below.

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<sup>64</sup> European Union and ILRI. 2010. *An assessment of the response to the 2008- 2009 drought in Kenya: A report to the European Union Delegation to the Republic of Kenya*. Nairobi, Kenya.

**Table 9: Objectives and outputs of the 2011 response plan for agriculture and livestock in Kenya**

Objectives	Outputs
1. Strengthen the development of early warning mechanisms, food security information systems and vulnerability analysis to inform preparedness and response.	<ul style="list-style-type: none"> <li>• Regular updates on humanitarian situation.</li> <li>• Improved availability, and analysis of early warning and food security information to facilitate decision-making.</li> <li>• Early warning system and food security information in place and functional.</li> </ul>
2. Support vulnerable pastoralists in selected drought affected parts of ASALs to protect and rebuild livestock assets.	<ul style="list-style-type: none"> <li>• Regular and participatory livestock disease surveillance.</li> <li>• Functional community-based animal health workers (CAHWs) involving both men and women in place.</li> <li>• Improved availability of fodder and pastures.</li> <li>• Selective restocking with cattle, camels and ruminants to vulnerable households.</li> </ul>
3. Facilitate vulnerable small-scale farmers in marginal agriculture areas to sustainably improve their agricultural production.	<ul style="list-style-type: none"> <li>• Vulnerable households provided with suitable and adapted drought tolerant crop seeds.</li> <li>• Training on improved dryland crops production technologies, crop diversification.</li> <li>• Capacity-building on post-harvest handling including time of harvesting, drying and storage, linkages to markets.</li> <li>• Promotion of community-based seed bulking to ensure seed resilience.</li> </ul>
4. Increase resilience of vulnerable farmers in pastoral, agro-pastoral and marginal agricultural areas	<ul style="list-style-type: none"> <li>• Soil and water conservation and water harvesting structures established.</li> <li>• Promotion of conservation agriculture.</li> <li>• Promotion of small-scale irrigation.</li> <li>• Rehabilitation of denuded rangelands and promotion of fodder production.</li> <li>• Enhanced natural resource and environmental management.</li> </ul>

The response strategy for the sector marks a significant departure from the short-term responses to previous droughts in the country, and reflects a positive shift towards more sustainable humanitarian responses. The real-time evaluation for this drought recovery noted that “there is a strong impetus in the IA community to significantly increase disaster mitigation programming, particularly through more scalable DRR programming and market base interventions, that will more effectively strengthen the coping capacities of those in the most vulnerable communities. This shift is both appropriate and needed”.<sup>65</sup>

At the same time, it does not have the comprehensive longer-term vision and approach required to effectively build resilience in a country plagued by re-current drought. As recognized in the same response plan for the sector, there is “limited understanding of DRR” and a “need to document good practices and lessons learned, with which to improve understanding of DRR and increase effective action”. It is worth noting that only 25% of funding requirements for the sector response had been met by end of 2012, while 73% of the requirements for the overall response had been met.<sup>66</sup>

<sup>65</sup> Global Emergency Group RTE Team. No date. *IASC Real Time Evaluation to the Humanitarian Response to the Horn of Africa Drought Crisis: Kenya*.

<sup>66</sup> Sector funding requirements increased over time in response to increased demand for assistance.

Nonetheless, progress was reported in 2012 against the proposed objectives of the 2011 humanitarian response plan, thereby measuring impact and strengthening accountability. With regards to the agriculture and livestock sector, the review found that “almost all of the projects are linked to DRR”. Progress was measured for each of the specific objectives planned for the sector, for instance, that small-scale irrigation for 5000 acres of land was put in place and 6,000 acres under soil and water conservation.<sup>67</sup>

#### 4.2.4 Drivers and trends

One of the key drivers in this positive shift towards more resilient drought response in Kenya, and the Horn of Africa as well, was the Nairobi Summit held in 2011 in which the crisis was discussed by the Heads of State and Government of IGAD and EAC member states. The Summit was convened in response to the grave concern over the magnitude of the crisis in the HoA, the worsening re-occurrence of drought disaster emergencies in the region, and their “dire humanitarian, environmental and productivity consequences”. More important, however, was the “acknowledgement of the ineffectiveness of past drought response approaches and the need to find more enduring solutions”.<sup>68</sup>

The Summit led to the development of the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI), which proposed to “do things differently by combining preventive (rather than reactive) methods, acting regionally (rather than as individual Member State) and using twin-track (rather than only emergency) and holistic (rather than silos) approaches”. The Strategy identifies 7 priority intervention areas where the necessary investment and action will help build resilience, and called for increased commitment by affected countries and development partners to support sustainable development.

Since then, the IGAD Secretariat has taken steps to operationalize IDDRSI, such as establishing the Regional Drought Resilience Platform, a Platform Coordination Unit, and holding consultative meetings with donors, development partners, CSOs, private sector, etc., as part of the process of reaching a common understanding of the initiative, establishing the strategic direction, institutional mechanisms and the funding arrangements necessary.

The Summit and call to end drought in the region resulted in the formation of new partnerships, such as the Global Alliance for Action for Drought Resilience and Growth<sup>69</sup> formed in 2012 and bringing together over 50 donor and international relief and development partners to support the resilience agenda. The purpose of the alliance is to “change the way the international community does business and put resilience at the heart of development efforts”.

Another initiative that has emerged is the Drought Resilience and Sustainable Livelihoods Programme (DRSLP) for the HoA.<sup>70</sup> Phase 1 of the programme began implementation in 2013 in Djibouti, Ethiopia, and Kenya. The project encompasses an integrated approach to pastoral and

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<sup>67</sup> UN. 2012. *Kenya 2012 Emergency Humanitarian Response Plan*.

<sup>68</sup> IGAD. 2013. *The IDDRSI Strategy: IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI)*.

<sup>69</sup> The Sahel region is also supported by the Global Alliance.

<sup>70</sup> <http://reliefweb.int/report/somalia/landmark-workshop-drought-resilience-and-sustainable-livelihoods-program-horn-africa> (accessed 10 Feb 2014)

agro-pastoral area development as opposed to the single sector approach regularly used.

Given that these initiatives are recent it is too early to assess their effectiveness, but they clearly mark an unprecedented shift towards a resilience agenda within both the relief and development communities and at national and international levels. The driving force has been the scale of the crisis in the Horn of Africa, the increasing frequency of droughts, and above all the political will of governments in the region combined with international support.

### **4.3 Philippines post-disaster recovery**

The Philippines has been struck by seven tropical storms / typhoons since 2005: in 2006, 2008, 2009, 2010, 2011, 2012 and 2013. To assess the level of DRR integration in sector recovery planning, an analysis was done for two recent storm events in the country: Tropical storm Sendong in 2011 and Typhoon Yolanda in 2013.

#### **4.3.1 The 2011 tropical storm Sendong**

The recovery plan for tropical storm Sendong proposed stand-alone measures in disaster risk reduction with a budget allocation, including the following interventions (among other):

- The development and implementation of Local DRRM Plans.
- Updating/reviewing comprehensive land use plans to include hazards mapping, vulnerability assessment, and risk assessment and revision of the zoning ordinance.
- Require that all lifelines and major infrastructures are supported with geological and hydro-meteorological hazard clearance from mandated government agencies.
- Strict implementation of "Danger Zones" Ordinance in certain cities
- Budget tracking for transparent accountable governance in the use of the Local DRRM Fund.
- More effective early warning system.
- Establish community-based disaster risk reduction (CBDRR) programs.
- Physical vulnerability assessment of critical facilities and lifelines.

For the agriculture sector the primary purpose of recovery and reconstruction was to "restore to normalcy the productive capacity of the sector in the affected areas as soon as possible" through the provision of production inputs, the replacement of farm equipment and gear, and the repair of essential facilities, among other measures. The sector recovery plan does include, as one of the six criteria considered for the selection of recovery programs, mitigation projects to "ensure that the vulnerabilities and risks to similar disasters of farmers and existing infrastructure assets are significantly prevented or minimized", although it does not outline how this will be done.

#### **4.3.2 The 2013 response to Typhoon Yolanda (Haiyan)**

Following Typhoon Yolanda (referred also as Haiyan) which struck the Philippines in November 2013, the government developed a reconstruction plan to "guide the recovery and reconstruction of the economy, lives, and livelihoods in the affected areas". Early in the post-

disaster response process, the Philippine Government expressed its commitment to “Build Back Better”: “We know that we cannot allow ourselves to be trapped in a vicious cycle of destruction and reconstruction. We know that it is more efficient to prioritize resilience now, rather than to keep rebuilding. This is why we are going to build back better.”<sup>71</sup>

The objective of the reconstruction plan is “to restore the economic and social conditions of these areas at the very least to their pre-typhoon levels and to a higher level of disaster resilience”.<sup>72</sup> The plan acknowledges the country’s significant gains achieved in disaster risk reduction following the enactment of the National Disaster Risk Reduction and Management Act in 2010, including the guidelines across sectors and levels of governance.

However, the plan does not outline a framework to build back better or include a set of measures to achieve resilient recovery. When referring to DRR it emphasizes the importance of “demarcating safe locations and hazard zones” as pivotal to the recovery and reconstruction process, and “upgrading of engineering standards and designs, particularly for critical infrastructure”.

For the Agriculture, Livestock, Fisheries, and Food Security sector, the reconstruction plan did not propose DRR-specific interventions, but rather it focused broadly on the following two goals:

- The immediate need for recovery is to provide assistance to farmers to establish field/annual and plantation crops.
- Reconstruction will focus on repairing damaged infrastructure (irrigation systems, fish ports, offices), replacing equipment, and distributing poultry and draft animals.

Three months after Typhoon Yolanda the government is understandably still focused on the immediate response, and it is too early to assess the integration of DRR into the longer term recovery process. For the previous disaster reviewed the findings indicate that, while the Philippines has developed a strong capacity in disaster risk reduction and in disaster response including robust legal and policy frameworks as well as government commitment, the integration of DRR into post-disaster recovery was limited in the agriculture sector.

#### **4.4 Overall findings**

The case studies on post-disaster recovery planning in Pakistan, Kenya and the Philippines indicate some progress in the integration of disaster risk reduction in agriculture recovery, yet it has been largely slow and minimal. The post-disaster recovery plans studied did not encompass a comprehensive longer-term vision and approach to DRR or to building back better in the agriculture sector, in spite of the need to effectively promote resilience in these three countries plagued by re-current disasters.

In Kenya, the 2012 drought response marks an unprecedented shift towards a resilience agenda driven by the scale and severity of the crisis, the increasing frequency of their occurrence, and the political will of governments in the HoA region.

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<sup>71</sup> <http://www.gov.ph/2013/12/18/philippine-government-briefs-development-partners-on-reconstruction-assistance-on-yolanda-vows-to-build-back-better/> (accessed 11 Feb 2014)

<sup>72</sup> Government of the Philippines. 2013. *Reconstruction Assistance of Yolanda: Build Back Better*.

Disaster risk reduction is increasingly being included in post-disaster recovery planning as a stand-alone sector or theme or as a set of specific measures, but typically reflecting standard measures along the lines of the HFA priorities for action. DRR is not being *mainstreamed* adequately into post-disaster recovery efforts in the agriculture sector.

Another trend observed in the DRR measures recommended in recovery planning is their focus on infrastructure-related recovery efforts, for example, the safe location and building standards of new infrastructure such as housing and schools.

## 5. The Drivers for Mainstreaming DRR in Agriculture

Thirteen agricultural development plans and thirteen national DRR plans were reviewed to identify potential drivers of mainstreaming within the sector. Table 10 summarizes some of the results of the analysis. The findings indicate the following potential drivers:

- Understanding the nexus between disaster risk and sustainable development
- National legislation and policies for “mainstreaming” DRR
- DRR in national development policy and poverty reduction strategies
- International policy instruments
- Broad consultation and participation
- The agenda on climate change adaptation

The results suggest that some factors may be *conducive* to mainstreaming in agricultural development plans while others may be direct *drivers*.

**Table 10: Potential drivers for the mainstreaming of DRR into agricultural development plans**

	Country	Plan refers to natural hazards	Reference made in plan to national policy instruments	Reference made in plan to international instruments	Technical support given by the international community to develop the plan	Level of DRR mainstreaming in plan <sup>73</sup>
1	Bangladesh	Yes	PRSP, National Food Policy	MDGs	FAO	Level 1
2	Cambodia	Yes	National Strategic Development Plan	MDGs, UNFCCC, IPCC, Kyoto	Development Partners of the TWGAW	Level 2
3	DRC	Yes	PRSP	CAADP, MDGs	Not mentioned	Level 3
4	Ethiopia	Yes	Five-Year Growth and Transformation Plan, Plan for Accelerated and Sustained Development to end Poverty, Rural Development Policy and Strategies	CAADP, MDGs	FAO, RED&FS WG	Level 3
5	Haiti	Yes (earthquake)	National Strategic Document of Growth and Poverty Reduction (DSNCRP)	No	FAO, IICA	Level 5
6	Madagascar	Yes	Agricultural Sector Policy	No	Not mentioned	Level 3
7	Nepal	Yes	Poverty Reduction Strategy, Agriculture Perspective Plan, and Three-Year Interim Plan	MDGs, WFS PA	FAO	Level 1
8	Nicaragua	Yes	National Plan for Human	No	Not mentioned	Level 2

<sup>73</sup> Level of mainstreaming as indicated previously in Tables 5 and 7.

			Development			
9	Pakistan	Yes	No	No	FAO	Level 2
10	Peru	Yes	Strategic Plan for National Development 2021, Poverty Reduction Strategy, Policy #15 on Food and Nutrition Security	No	Not mentioned	Level 2
11	Philippines	Yes	Philippine's Development Plan 2011-2016	MDGs	Not mentioned.	Level 1
12	South Africa	Yes	Medium Term Strategic Framework, New Growth Path, Industrial Policy Action Plan 2, the Comprehensive Rural Development Programme, The Integrated Growth and Development Plan	UNFCCC	Not mentioned	Level 1
13	Tanzania	No	National Strategy for Growth and Reduction of Poverty, Vision 2025	MDGs, CAADP	FAO, World Bank, USAID	Level 1

WFS PA = World Food Summit Plan of Action

RED&FS WG = Rural Economic Development and Food Security Sector Working Group

TWGAW = Technical Working Group on Agriculture and Water

## Understanding the nexus between disaster risk and sustainable development

As shown in Table 8, twelve of the thirteen agricultural development plans reviewed refer to natural hazards affecting the country and express concern over their impact on agriculture and / or food security. Given that the levels of DRR mainstreaming found in these sector plans varies considerably, from level 1 to 5, these results suggest that awareness / knowledge alone of natural hazards is not necessarily influencing mainstreaming of DRR in the sector, or is not a sufficient factor in mainstreaming.

However, understanding the nexus between disaster risks and sustainable development is a critical factor in driving the mainstreaming of DRR. One of the distinct features of the DRR plans that give priority to mainstreaming (as discussed in Section 3) is the clear connection they make between disasters and sustainable development.

In Cambodia's DRR plan the nexus is made explicit: "Over the last 10 years, Cambodia has been affected by a series of exceptional floods and by widespread but highly localized agricultural droughts. As a result, the government has become aware that without serious efforts in risk reduction, disasters will increasingly become a serious obstacle to the achievement of the country's development aspirations, particularly to its highest priority of poverty reduction..."<sup>74</sup>. In Myanmar this understanding is reflected in the goal of its *Action Plan on DRR (2009-2015)*: "To

<sup>74</sup> Strategic National Action Plan for Disaster Risk Reduction (2008-2013), pg 9.



make Myanmar Safer and more Resilient against Natural Hazards, thus Protecting Lives, Livelihood and Developmental Gains”.

Pakistan’s 2007 National Disaster Risk Management Framework (NDRMF) also recognizes the link between disaster risks and development: “Over the past few years, Pakistan’s economy has seen a sharp growth, which has made a positive impact on the lives and livelihoods of the people. This growth is, however, not risk free. The development infrastructure in hazard prone areas is at risk from disasters, which could negatively affect the pace of growth...At the time of disasters of big magnitude, relief and recovery activities may require reallocation of development resources, as was the case in the earthquake...”<sup>75</sup>

These examples indicate that mainstreaming DRR into development and across sectors receives high level priority in countries where governments understand that reducing disaster risks and promoting resilience is fundamental for achieving sustainable development and poverty reduction.

### **National legislation and policies for “mainstreaming” DRR**

As previously illustrated in Section 3, it is the national policy environment for *mainstreaming* DRR in development and especially into sectors that provides a strong foundation for the integration of DRR into agricultural development planning. Of the 11 countries that have mainstreaming as a priority within the national DRR strategies / plans, seven countries subsequently developed agricultural development plans with DRR mainstreamed, namely Cambodia, Ethiopia, Madagascar, Myanmar, Nepal, Philippines and Uganda. All seven countries have significant, very high or moderate levels of mainstreaming in their sector plans. The findings indicate that explicit national policy objectives on mainstreaming in sectors is a key driver of change in agriculture. National DRR legislation and policies are especially instrumental when they make mainstreaming DRR into development sectors a strategic priority.

### **DRR in national development policy and poverty reduction strategies**

Almost all the agriculture development plans reviewed are anchored on, or linked to, national policy instruments. The overwhelming majority of sector plans (12 of 13) are anchored to one or more national policies, particularly national or sector development policies and poverty reduction strategies. Tanzania’s sector plan is anchored to, and aligned with the country’s social and economic development aspirations as expressed in *Vision 2025*, and the *National Strategy for Growth and Reduction of Poverty*, among other policy instruments. Peru’s agricultural development plan is anchored in the country’s *Strategic Plan for National Development 2021*, *Poverty Reduction Strategy*, and *Policy #15 on Food and Nutrition Security*. The findings indicate the importance of national development policies and strategies in shaping sector-specific development plans. This suggests that if DRR is included in core national development instruments and if mainstreaming is made an explicit objective, it is more likely that sector plans will integrate DRR as well. While this is a positive influence, it is an indirect and slower mainstreaming process for sectors than if mainstreaming DRR is understood from the onset as a

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<sup>75</sup> Pakistan 2007 National Disaster Risk Management Framework (NDRMF), pg. vii.

process inclusive of all sectors and pursued in parallel to mainstreaming in broader development policies and plans.

### **International policy instruments**

In terms of international instruments, the MDGs is most often referenced in sector development plans, this is the case for Bangladesh, Cambodia, DRC, Nepal, Ethiopia, Philippines and Tanzania, while the UNFCCC is mentioned in the plans for Cambodia and South Africa. The MDGs are clearly informing sector development. The HFA was not referred to in the 13 agriculture development plans reviewed in-depth, suggesting it is not a direct driver for mainstreaming in the sector. The findings suggest that if DRR is included in key international instruments such as the MDGs or the emerging post-2015 development agenda, it is more likely to influence the integration of DRR in sector development planning.

### **Broad consultation and participation**

The process followed for the development of sector development plans was highly consultative in the countries with plans scoring highest in their level of DRR mainstreaming (level 1), namely Bangladesh, Nepal, Philippines, South Africa and Tanzania.

In Bangladesh the agricultural development plan was prepared by four Thematic Research Teams involving officials of 11 line ministries/agencies, under the leadership of Ministry of Food and Disaster Management (MoFDM) and overall guidance of the Food Policy Working Group (FPWG). There were also several rounds of consultative meetings and technical seminars with a number of national ministries/divisions and the donor community. In Nepal, the formulation of the sector plan was guided by an Inter-Ministerial Task Force, established under the chairmanship of Joint Secretary (Planning) at MoAC and with representation from different line agencies related to agriculture and food security. It is also informed by 12 thematic studies and a review of overriding policies and plans.

In Tanzania, for example, the sector plan "...is a product of a broad based collaborative process involving key stakeholders; including national and sectoral institutions from public and private sector, development partners, members of academia, civil society organisations, Regional Economic Communities (RECs), African Union Commission (AUC), NEPAD- CAADP Pillar Institutions and the National CAADP Task Force comprising representatives of all relevant stakeholders, ReSAKSS/IFPRI and other regional and international bodies."(Pg. 3)

These examples suggest that broad consultation and participation may have been conducive to mainstreaming though not necessarily a driver. In the Philippines the sector plan is part of the broader National Development Plan 2011-2016 (Chapter 4) and the process for developing the plan is not described, as is the case for South Africa's sector plan.

### **The agenda on climate change adaptation**

Another important driver is the national CCA agenda, which has been gaining momentum at national level in recent years, making significant inroads into key policy commitments and

planning instruments, in some cases gaining more priority and receiving significant donor support. This is the case for instance in the Philippines, where the link between DRR and CCA materialized in 2013 within the Department of Agriculture (DA). The Philippine's 2009 Climate Change Act mandated the "mainstreaming of climate change in policy formulation, such that policies and measures that address climate change are integrated in development planning and sectoral decision-making". In 2013, the Department of Agriculture initiated "seven systems-wide" programs on climate change, under the responsibility of a climate change office within the DA, and with an allocation of the necessary financial resources for its successful implementation<sup>76</sup>. The seven programs relate to DRR and include<sup>77</sup>:

1. Mainstreaming climate change adaptation and mitigation initiative in agriculture
2. Climate information system
3. Philippines adaptation and mitigation in agriculture knowledge toolbox
4. Climate smart agriculture infrastructure
5. Financing and risk transfer instruments on climate change
6. Climate smart agriculture and fisheries regulations
7. Climate smart agriculture extension system

See also Section 8 below on emerging trends, illustrating how the CCA agenda is increasingly making progress in the agriculture sector, such as in Nepal, Bangladesh and Peru.

Overall, while the HFA has been a primary driver in the development of national DRR policies, strategies / plans, it is not evident from the analysis that the HFA has also been a direct driver in mainstreaming DRR in agriculture. Instead, the key driver for the agriculture sector are clear national policies that make *mainstreaming* DRR into development sectors an explicit and strategic priority. Such DRR policies represent examples of good practice that should be followed in the future to accelerate mainstreaming in agriculture. They tend to develop when governments have a clear understanding of the nexus between disaster risk and sustainable development, specifically that disaster risks arrest or reverse growth and development, including in the agriculture sector which is a significant contributor to the national GDP. Increasingly, the global agenda for adaptation is making significant in-roads at national levels in the agriculture sector, and this progress can drive also disaster risk reduction, or in some cases, overshadow it.

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<sup>76</sup> A directive was issued for allocation of the "necessary financial resources" but without specifying the amount or percentage.

<sup>77</sup> Republic of the Philippines. 2013. *Memorandum: Mainstreaming Climate Change in the DA Programs, Plans & Budget*.

## 6. The Timeline of Progress on Integrating DRR in Agriculture (2005-2013)

To assess the progress made in DRR within the sector since 2005, an in-depth review was done for Bangladesh, Pakistan and Liberia in relation to a select number of their national DRR plans and national agricultural development plans since 2005. These countries were selected because they are among the few for which the planning documents could be found.<sup>78</sup>

### 6.1 Progress in Bangladesh

An in-depth review was conducted on the policy and planning framework within the agricultural sector in Bangladesh during the period 2005 - 2013, as well as on national disaster risk reduction during the same timeframe. Thirteen policies and plans were reviewed in total providing a representative sample though not exhaustive.

#### Broad national DRR measures adopted

Although the review did not consider the years prior to 2005, the study notes that Bangladesh had Standing Orders on Disasters since 1997, and that the Strategic Plan for the period 2002-2006 of the Department of Agricultural Extension in the MoA, considered climatic conditions and pest infestations in its aim to increase production and productivity, and promoted natural resource conservation, but does not explicitly strive to reduce risks as such.

In 2005 the Ministry of Food and Disaster Management (MoFDM), which is responsible for coordinating national disaster management efforts, developed its *Corporate Plan* for the period 2005-09, which adopts 4 goals on disaster risk management including promoting a best practice Disaster Risk Management system and the mainstreaming of DRM in national development processes.

By 2008, some of these goals materialize in the development by the MoFDM of the *National Plan for Disaster Management 2008-15* (NPDM), which outlines how sector plans will integrate DRR and CCA, among other proposals. In 2009, guidelines on mainstreaming DRR and CCA into development processes is published by the MoFDM.

#### DRR measures adopted in the agriculture sector

In 2008 the MoFDM develops the *National Food Policy Plan of Action 2008-2015* which proposes as the overarching action line the effective implementation of the *National Plan for Disaster Management*, and 2 of its 3 objectives include a set of agricultural DRR measures such as agricultural community-based action plans for risk reduction, research programs on drought/submergence/disease tolerant varieties, training on DRR, pest management, etc.

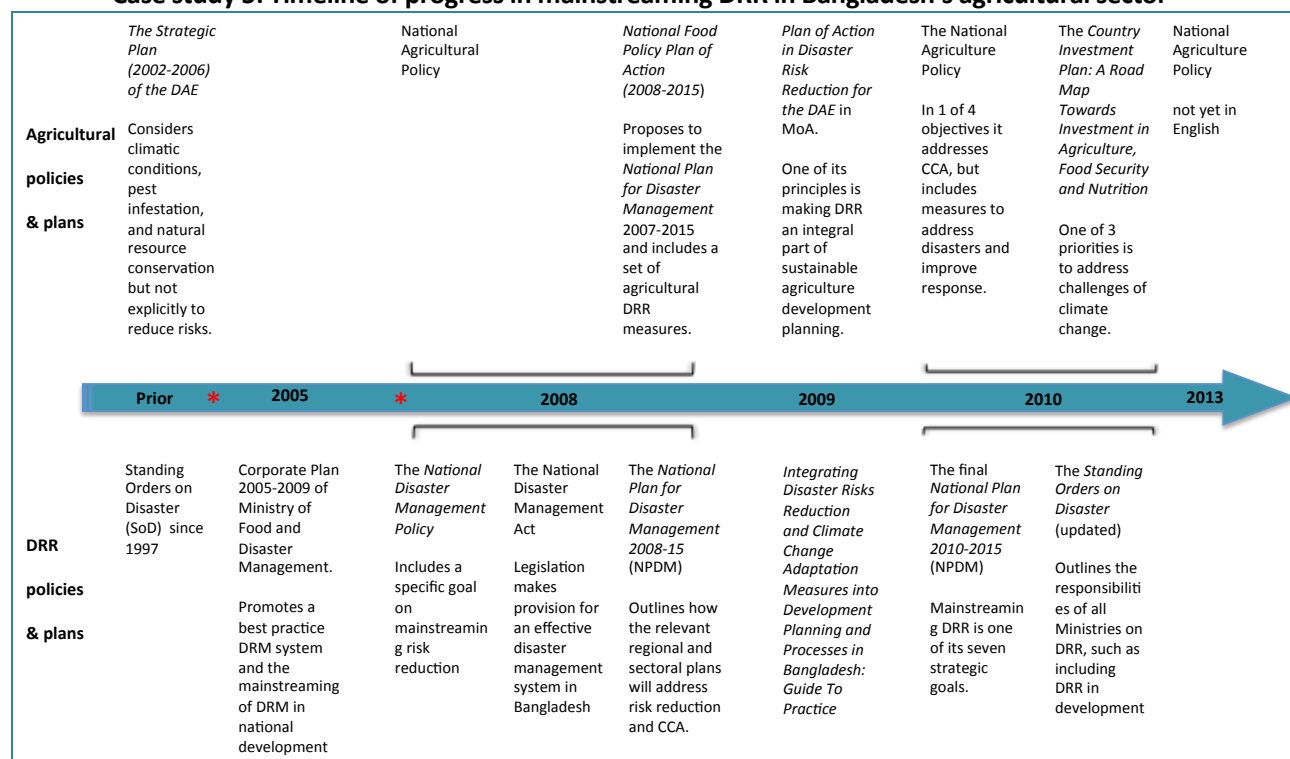
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<sup>78</sup> For the vast majority of countries reviewed, planning instruments developed previously are not available online, which limited the retrospective analysis of progress made since 2005.

In 2009, the Ministry of Agriculture, through its Department of Agricultural Extension (DAE), develops the *Plan of Action in Disaster Risk Reduction* which aims to articulate a DRR approach within the DAE, to provide the DAE with a framework to strengthen skills and increase capacities for DRR, and upgrade DAE services to farmers on DRR in the sector. The plan is aligned to the HFA and proposes actions along the 5 priorities, such as to institutionalize DRR within the DAE, to revise its policy and planning frameworks to include DRR, enhance early warning, knowledge management, technical options to reduce underlying risks, etc. It builds on a draft plan that was prepared as part of an FAO project that provided technical assistance to DAE upon request of the GOB.

In 2010, the country develops a National Agriculture Policy that includes measures to address climate change adaptation and disasters within one of its four objectives.

#### Case study 5: Timeline of progress in mainstreaming DRR in Bangladesh's agricultural sector



\*= disasters in Bangladesh: 2004 Floods and earthquake, and 2007 storm, classified as among top 10 disasters in the country by population affected and economic damage.<sup>79</sup>

The results, summarized in Case study 5 above, show that disaster management efforts in the country pre-date the HFA given the country's long history of disasters, but that the year 2005 marks a significant shift towards clear objectives in building a strong national capacity in risk management that bears fruit in the years 2008 and 2009 in particular, both within the broader DRR efforts of the country and in the agricultural sector. Coincidentally, Bangladesh was affected in 2004 by floods and an earthquake, and in 2007 by a storm and floods, all classified

<sup>79</sup> EM-DAT: The OFDA/CRED International Disaster Database, [www.emdat.be](http://www.emdat.be) - Université catholique de Louvain - Brussels – Belgium.

among the top 10 disasters to impact the country in the period 1900-2013<sup>80</sup>, suggesting that these may have been drivers as well. The timeframe between the 2005 introduction of mainstreaming DRR in Bangladesh and its actual implementation in the sector in 2009 suggests the time required to materialize change, reflected in a comprehensive plan of action in DRR for the agriculture sector of Bangladesh.

## 6.2 Progress in Liberia

Liberia's case is particular given the country's 14-year civil war (1989-2003). Considering the major adverse impact of Liberia's protracted conflict including the destruction of infrastructure and the decimation of social cohesion, governance and national capacity at all levels, post-war efforts are understandably focused on rebuilding and transitioning towards growth and development, which is clearly reflected in the agriculture sector.

### Broad national DRR measures adopted

The country's 1976 Disaster Relief Plan (amended in 1987) was the chief directive and largely focused on relief and response. In 2007 Liberia developed a National Disaster Management Action Plan for Capacity Building in DRR, based on a Government commissioned Capacity Needs Assessment for DRR which identified the need to establish in the country a national framework and legislation on DRR that defines responsibilities at various levels of Government and the need to address DRR within development sectors. Yet it is not until 2012 that Liberia develops its National Disaster Management Policy, which refers to the HFA and its five priorities, as well as the Africa Regional Strategy for Disaster Risk Reduction and the MDGs.

One of the 5 policy objectives of the action plan is to "provide overall direction for integrating disaster risk reduction into development, recovery and humanitarian response policy and plans"<sup>81</sup>. It adheres to the principle of achieving and maintaining sustainable development and that it must underpin all policies, programmes and projects, in particular the mainstreaming of DRM into development planning and the "protection of development gains". Policy priority Area 4 includes promoting food security as an important factor in ensuring resilience to hazards. Natural disaster risk identification and application of disaster proof risk management initiatives within the food security agenda are considered key priorities, and risk transfer and risk sharing initiatives. Given the recent development of this DRM policy, its influence in the agriculture sector remains to be seen.

### DRR measures adopted in the agriculture sector

The government carried out in 2006/7 a Comprehensive Assessment of the Agriculture Sector of Liberia to determine how the sector can be effective in the country's reconstruction and development, and identified the need and urgency to prepare a Comprehensive Policy, an Investment Strategy and an Action Plan. This materialized in 2008 with the formulation of the *Food and Agriculture Policy and Strategy* (FAPS) as well as the *National Food Security and Nutrition Strategy* (FSNS). Both were anchored on the National Poverty Reduction Strategy and were expected to contribute to the MDGs, yet neither refers to the HFA.

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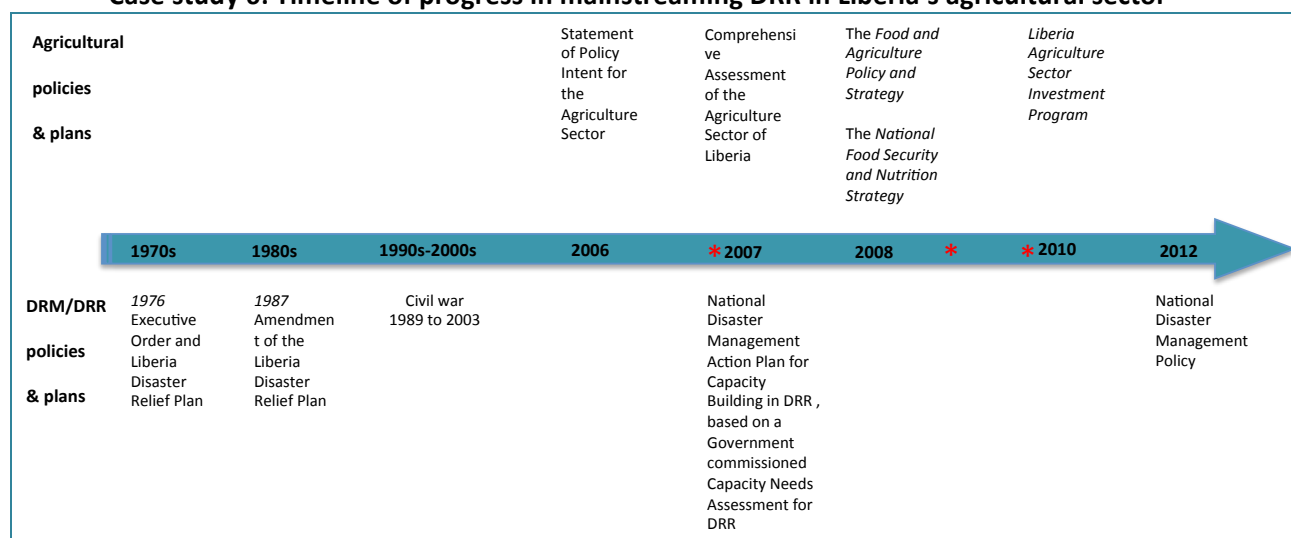
<sup>80</sup> Ibid

<sup>81</sup> National Disaster Management Policy, 2012, pg. 3.

One of the cross-cutting issues addressed in the FAPS is the reduction of risks due to climate change through coping mechanisms and adaptation measures. The FAPS recognizes the need for “mitigating risks to producers” and the FSNS recognizes “vulnerabilities” linked to food security such as higher levels of pest infestation, increased incidence of disease, or localized droughts and floods, and especially market related shocks such as high food prices. They both promote risk management solutions, such as safety net programs, strategic food reserves and diversification of food production. The FAPS proposes strategies for creating basic infrastructure and functions not previously there, such as establishing a plant protection unit and an environmental unit in the MoA and formulating a National Plant Protection Policy that will incorporate Integrated Pest Management.

In 2010 the country developed the *Liberia Agriculture Sector Investment Program* in partial fulfilment of the requirements for the Comprehensive African Agriculture Development Programme (CAADP), and presents the country’s strategies for agricultural growth and development over the next ten years in an environmentally friendly and sustainable manner. Under its Programme 1 and 2 it proposes to improve emergency preparedness, response, and contingency plans including through maintaining national grain reserves, productive safety nets, pest management methods, reflecting and reinforcing the disaster management approach of previous sector policy and strategies. One of its cross-cutting issues is “Environmental protection” where it makes reference to climate change and its potential impact on the country, and identifies 10 issues it will address, including combating desertification, conservation of biological diversity, conservation farming, climate change related research, etc.

**Case study 6: Timeline of progress in mainstreaming DRR in Liberia’s agricultural sector**



\* = disasters affecting Liberia: 2007 floods and storm, 2009 insect infestation, 2010 floods, , classified as among top 10 disasters in the country by population affected.<sup>82</sup>

In Liberia, the year 2007 marked a shift towards concerted efforts toward building a national capacity for DRR, although the national DRM policy is not developed until 2012, where the integration of DRR into development is made an explicit goal. In the agriculture and food security sector, the country designs in 2008 two policies / strategies that integrate some DRR

<sup>82</sup> EM-DAT: The OFDA/CRED International Disaster Database, [www.emdat.be](http://www.emdat.be) - Université catholique de Louvain - Brussels – Belgium.

measures although the focus appears to be primarily on risk management. The 2010 sector investment program seems to mirror this DRM approach. The findings suggest that the goal of mainstreaming DRR in development, introduced explicitly in 2012, is yet to materialize fully in the agriculture sector.

## 6.3 Progress in Pakistan

### Broad national DRR measures adopted

As illustrated in the case study in Section 3, in Pakistan the HFA and the 2005 earthquake were key drivers of change in DRR. This shift found its first expression in the 2006 National Disaster Management Ordinance (replaced in 2010 by the current National Disaster Management -NDM Act), followed by the *National Disaster Risk Management Framework* (NDRMF) 2007-2012. The NDRMF made mainstreaming one of its 9 priority areas and describes a set of responsibilities for key stakeholders, including those of the Ministry of Food, Agriculture and Livestock, among them the development of DRM plans and the allocation of funds in the annual budget for DRM activities. Pakistan's subsequent *National Disaster Management Plan (NDMP- 2012-22)* mirrors and reinforces the 2007 NDRMF in terms of the priority given to mainstreaming DRR into development and in describing the roles and responsibilities of the Ministry.

### DRR measures adopted in the agriculture sector

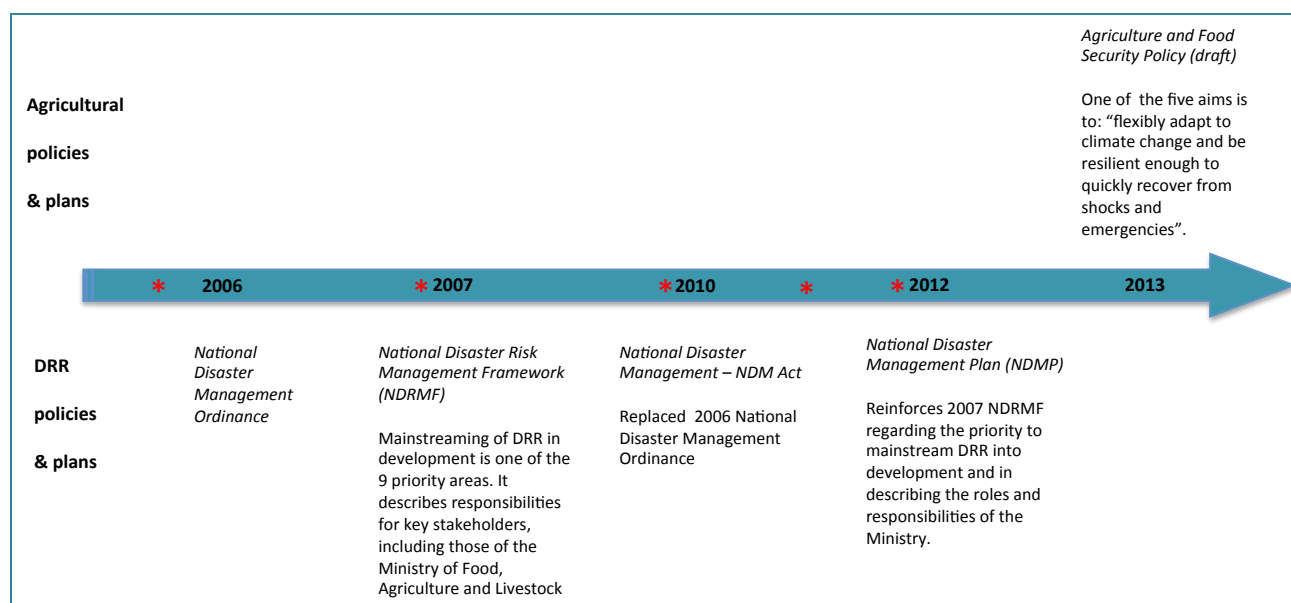
The current *Agriculture and Food Security Policy* (Draft), by the Ministry of National Food Security and Research has one aim (out of five aims) relating to risk reduction, which is to: "flexibly adapt to climate change and be resilient enough to quickly recover from shocks and emergencies", suggesting an integration of CCA and DRR in the policy. The policy includes a series of "actions" although they are listed without reference to any of the aims/objectives, so it is not clear if they are linked to the above aim, DRR or CCA. The DRR-related actions found in the sector policy include the adoption of guidelines for land use planning, water and effluent management, the promotion of IPM technologies, better management of land and water, the use of more sustainable cropping patterns and systems better adapted to local conditions, improved resource conservation technologies, including water-harvesting and erosion control, in more agro-climatically fragile areas such as arid and high elevations lands, among others. Agricultural policies or plans for previous years were not available for this review, therefore it is not possible to determine when DRR began to be mainstreamed into sector planning.

Overall, the retrospective analysis of progress made in DRR within the sector in these 3 countries reveals some important findings, namely:

- Disaster management legislation predates the HFA. In the agriculture sector some risk management measures also pre-date the HFA given, for example, the sector's long-standing concern over plant pest and diseases and with natural resource management.
- Yet 2005 marks a shift towards broader DRR measures beyond disaster response in Bangladesh, while in Pakistan the shift is seen in 2006/07. In Liberia, the shift begins in 2007 but materializes into a DRM policy in 2012, likely influenced by the civil war and the post-war rebuilding efforts. This is also observed in the agriculture sector, where more comprehensive and strategic measures are adopted when there is a clear objective to mainstream DRR.



## Case study 7: Timeline of progress in mainstreaming DRR in Pakistan's agricultural sector



\* = disasters affecting Pakistan: 2005 earthquake, and floods/storm in 2007, and floods in 2010, 2011 and 2012, classified as among top 10 disasters in the country by population affected and economic damage.<sup>83</sup>

- The analysis of progress confirms previous findings in relation to the need for "mainstreaming" to be an explicit policy objective in order to effect change in the agriculture sector. Within the broader national DRR agenda, mainstreaming DRR appears for the first time in Bangladesh in 2005, and in 2009 a DRR plan is developed for the agriculture sector. In Liberia mainstreaming is made an explicit goal in its 2012 DRM policy, and while risk management measures are reflected in its sector plans (developed prior to 2012) these do not adopt broader and comprehensive DRR measures yet. In Pakistan mainstreaming appears in 2007 though it is not clear when DRR was mainstreamed into the agriculture sector.
- The findings also reveal a significant time span between the introduction of mainstreaming as a national priority and its effective implementation in agricultural development planning. This time gap could have been bridged if national efforts to mainstream DRR had been inclusive of development sectors from the start in 2005.

<sup>83</sup> EM-DAT: The OFDA/CRED International Disaster Database, [www.emdat.be](http://www.emdat.be) - Université catholique de Louvain - Brussels – Belgium.

## 7. The Implementation of Disaster Risk Reduction in Agriculture

Reviewing the extent to which disaster risk reduction has been implemented within the agriculture sector, for example in relation to the DRR measures proposed in national plans for agricultural development, is a key element for assessing effectiveness. Yet, this requires field-level analysis to collect the evidence-base and provide quantitative conclusions, such as budget allocations for DRR in agriculture or level of implementation at local levels. Such field-based research is beyond the scope of this paper given the time given to prepare input papers for GAR15. However, some analysis and findings were collected based on the desk review, some additional research, questionnaires/interviews with FAO staff at country level, as well as on FAOs experience in supporting governments to mainstream DRR in agriculture across all regions. This section addresses implementation in relation to institutional mechanisms and financing for DRR in the agriculture sector at national and sub-national levels.

### 7.1 National and local institutional mechanisms for DRR in agriculture

National and sub-national multi-sectoral platforms for DRR exist in a number of countries by now, although some still tend to be led by civil defense agencies and focus on disaster management rather than the broader DRR. Where they exist, national DRR platforms have been fundamental in shaping DRR policies and for ensuring coordination, coherence and holistic approaches. Also, overarching national DRR agencies or departments are necessary to provide leadership, determine broad disaster risk reduction legislation and policies, and oversee implementation.

However, these institutional mechanisms have not been effective in fostering mainstreaming in the agriculture sector. As concluded during the consultations on the Post-2015 Framework on DRR, “the institutional and legislative arrangements developed to manage disaster risk have largely taken the form of disaster-focused organizations and systems. These systems have had little real influence on the development processes”.<sup>84</sup>

This is reflected in the agriculture sector as well. In Jamaica, prior to the development of the DRM Plan for the agriculture sector, the approach was largely reactive, “...with little consideration for mitigation and prevention within the sector. The few mitigation interventions that exist represent either the initiatives of farmers at the community level...or piecemeal interventions by nationally and internationally sponsored projects”.<sup>85</sup>

Multi-sectoral platforms can promote mainstreaming but they are not equipped to perform this task for the agriculture sector. To effectively mainstream DRR into agriculture it is necessary to have a sector-specific institutional mechanism to coordinate within the sector, drive policy formulation and planning for DRR in agriculture, and oversee implementation. Indeed this has been the case for all mainstreaming efforts in agriculture reviewed in this paper. The sector planning process has to be informed by stakeholders who play a key role in agriculture in the public and private sectors. Often, this requires an inter-institutional body within the sector that has the mandate and capacity to bring together relevant ministries and departments

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<sup>84</sup> UNISDR. 2013. Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2).

<sup>85</sup> Government of Jamaica and FAO. 2010. *Agricultural Disaster Risk Management Plan* – Jamaica.

(agriculture, fisheries, livestock, forestry, environment and natural resource management, irrigation and water authorities, etc), agricultural research services, extension services, producer organizations, farm cooperatives, agricultural academic and vocational schools, trade unions, and other civil society organizations.

Yet, the existence of such mechanisms within the agriculture sector is still incipient and needs to be strengthened in the future to accelerate progress. A starting point is the establishment of an internal capacity for DRR within sector ministries. Some countries are moving in this direction, such as Peru where the MoA has a Working Group for Disaster Risk Management (Grupo de Trabajo para la Gestión de Riesgos de Desastres -GTGRD) responsible for articulating policy formulation, planning, evaluation and coordination.

Such sector-specific capacities are needed at both the national and local levels. The participation of the sector and its capacity to deliver is significantly reduced when sub-national mechanisms are not in place for the sector with a corresponding mandate, staff and resources. Recognizing the need for local capacity, some sector ministries have made decentralization a priority. In Jamaica for example, the vision of the national DRM plan for agriculture "is predicated on the recognition that a community-based approach must be the focus of any planned intervention for disaster risk management. This Plan therefore proposes the active participation and partnership of communities, governmental and non-governmental organizations, private-sector and development partners, as critical for the effective conceptualization, design and implementation of disaster risk management measures for the agricultural sector. The plan involves the establishment of parish- and national-level committees for Agricultural Disaster Risk Management (ADRM) led by the Rural Agricultural Development Authority (RADA)...ADRM committees of necessity include sector stakeholders from the public and private sectors as well as NGO's and development partners. An important feature of the ADRM plan was the preparation of Community-based Agricultural Disaster Risk Reduction (ADRM) Plans".<sup>86</sup>

Much more support is needed to promote the establishment of technical units within sector ministries to address DRR, yet this objective is not made clear in the HFA. Also it is not always clear if this internal capacity for disaster risk reduction is in place. Such sector-specific information is not reported in the HFA progress reports.

## **7.2 Financing for DRR within the agriculture sector**

It is well recognized by now that there can be immense benefits if public investment becomes a vehicle for DRR, yet it is also known that progress has been slow on securing such resources from national budgets.<sup>87</sup> In this respect progress is even more limited within the agriculture sector. Even in the few cases where national funding is allocated to DRR, these do not directly benefit the agriculture sector.

For instance in Bangladesh the draft National Plan for Disaster Management 2010-2015 (NPDM), which is the key national umbrella plan that provides overall guidance for all levels and relevant sectors and includes the principles of mainstreaming into development and sectors, makes provision for the establishment of a "National Risk Reduction Fund" by the Disaster Management

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<sup>86</sup> Government of Jamaica and FAO. 2010. *Agricultural Disaster Risk Management Plan* – Jamaica.

<sup>87</sup> UNISDR. 2013. Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2).

and Relief Division in consultation with the Ministry of Finance, for projects designed for the purpose of prevention, mitigation and preparedness. At the same time, the NPDM stipulates that relevant Ministries/ Divisions/ Directorates and departments will make provision in their annual budget to fund the Disaster Risk Reduction programmes in their respective sectoral development plans. This implies that the proposed National Risk Reduction Fund is not necessarily intended to flow into sectors.

By far, in most cases there is no specific funding for DRR within the budgets of agriculture ministries. Instead ad hoc project funds are used for most DRR activities within the agriculture sector. As reported by Pakistan, "Since DRR is a cross cutting field, the relevant Federal and Provincial Ministries/Departments contribute substantially to DRR by virtue of their functions through implementation of various projects which directly or indirectly contribute to disaster risk reduction".<sup>88</sup>

Often DRR-related activities are not labeled or earmarked for funding as such, they form part of the regular sector budget for activities which have long been part of regular development activities in agriculture, such as the monitoring and mitigation of plant pests and diseases. In the Philippines, for example, initiatives on breeding for hazard tolerant varieties are part of overall national agricultural development budgeting and are not necessarily considered DRR actions as such. Instead, the country's Department of Agriculture has several extra budgetary projects on DRR. The only earmarked funding from the regular program budget is mainly for a specific calamity fund for agriculture.

The same is true at the sub-national level, where resources must be allocated from the central level of the sector ministries. In the Philippines, the laws for DRRM and Local Government Units (LGUs) require that 5% of LGU funds be earmarked for DRM, of which 70% is to be for DRR and 30% for disaster response. Yet, the specific budget allocation for DRR in agriculture is not specified by law. The Mayor of an LGU can decide about the LGU level of budget allocation and priorities.

Funding for DRR has conventionally been delivered through stand-alone projects and programmes, yet budget allocations for national and local DRR-specific agencies or departments is not enough and should not be an end in itself. Budget allocations for DRR must be made through ministries/departments as well. This is essential if public investment is to be relevant and sustainable for sectors such as agriculture. Similarly, funding for DRR at the sub-national level should go beyond advocating for resources to a specific local agency responsible for DRR, by targeting the mainstreaming of resource allocation across sub-national ministries and departments which receive revenue from the central level.

The case study below represents an example of a new consortium that brings together international humanitarian and development partners with the government and financial institutions on a common platform and overall funding umbrella for DRR. It adopts a holistic approach that brings DRR policy development and project implementation together, and takes into account long-term planning and investment for preparedness and DRR.

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<sup>88</sup> UNISDR. 2013. *Pakistan National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*.

### Case Study 8: The Nepal Risk Reduction Consortium<sup>89</sup>

The Nepal Risk Reduction Consortium (NRRC) is a unique arrangement that unites humanitarian and development partners with financial institutions in partnership with the Government of Nepal in order to reduce Nepal's vulnerability to natural disasters. Established in 2009 in the aftermath of a series of global and regional disasters, it benefited from the momentum of change in the understanding of disasters, when a number of donors were ready to commit to investing in DRR activities. Its objectives are to support the development of a long term Disaster Risk Reduction Action Plan based on the National Strategy for Disaster Risk Management (NSDRM), to initiate a multi-stakeholder participatory process with the GoN and CSOs, and to identify short to medium term DRR priorities. It aims to generate funding for, and improve the coordination of disaster preparedness and risk reduction in Nepal. Its founding members are the Asian Development Bank (ADB), IFRC, UNDP, OCHA, UNISDR and the World Bank. Other members include the WHO, ECHO, DFID, the Embassy of the United States and AusAid.

The NRRC comprises five flagship priorities for sustainable disaster risk management as summarized in the table below.

**Nepal Risk Reduction Consortium Flagship Areas**

	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5
NRRC Flagship Area	School and Hospital Safety	Emergency Preparedness and Response	Flood Risk Management in the Koshi River Basin	Community Based Disaster Risk Reduction	Policy/ Institutional Support for DRM
Coordinator (Agency)	ADB (supported by WHO)	UNOCHA	World Bank	IFRC	UNDP
Coordinator (Government Ministry)	Ministry of Education Ministry of Health and Population, Ministry of Physical Planning and works	Ministry of Home Affairs	Ministry of Irrigation and Department of Water Induced Disasters, Ministry of Environment and Department of Hydrology and Meteorology	Ministry of Local Development	Ministry of Home Affairs, Office of the Prime Minister, National Planning Commission, Ministry of Law and Justice
Budget	US\$ 50.8 million	US\$ 28 million	US\$ 24.2 million	US\$ 30 million	US\$ 13.8 million

The agriculture sector is not part of the NRRC and is not represented through the Government Ministry or any other agricultural agency. This is unfortunate and unexpected, especially considering that agriculture is identified as one of eight priority sectors in Nepal's 2008 *National Strategy for Disaster Risk Management* and recommends a set of strategies for incorporating DRR in the sector.

Nonetheless the NRRC is an example of good practice of an innovative partnership of the international community supporting a government to implement a well articulated DRR country programme. Its unique structure and its non-cluster approach allow its members to align their mandate and priorities to the consortium without enforcing it and create a light framework that motivated stakeholders to become engaged in DRR. This structure also contributes to the involvement of International Financial Institutions (IFI), which is important to go beyond humanitarian and development agendas as well as to get support from the Ministry of Finance.

<sup>89</sup> UNDP, UNICEF and WFP. 2013. *UN Inter-Agency Cooperation on Disaster Risk Reduction*.

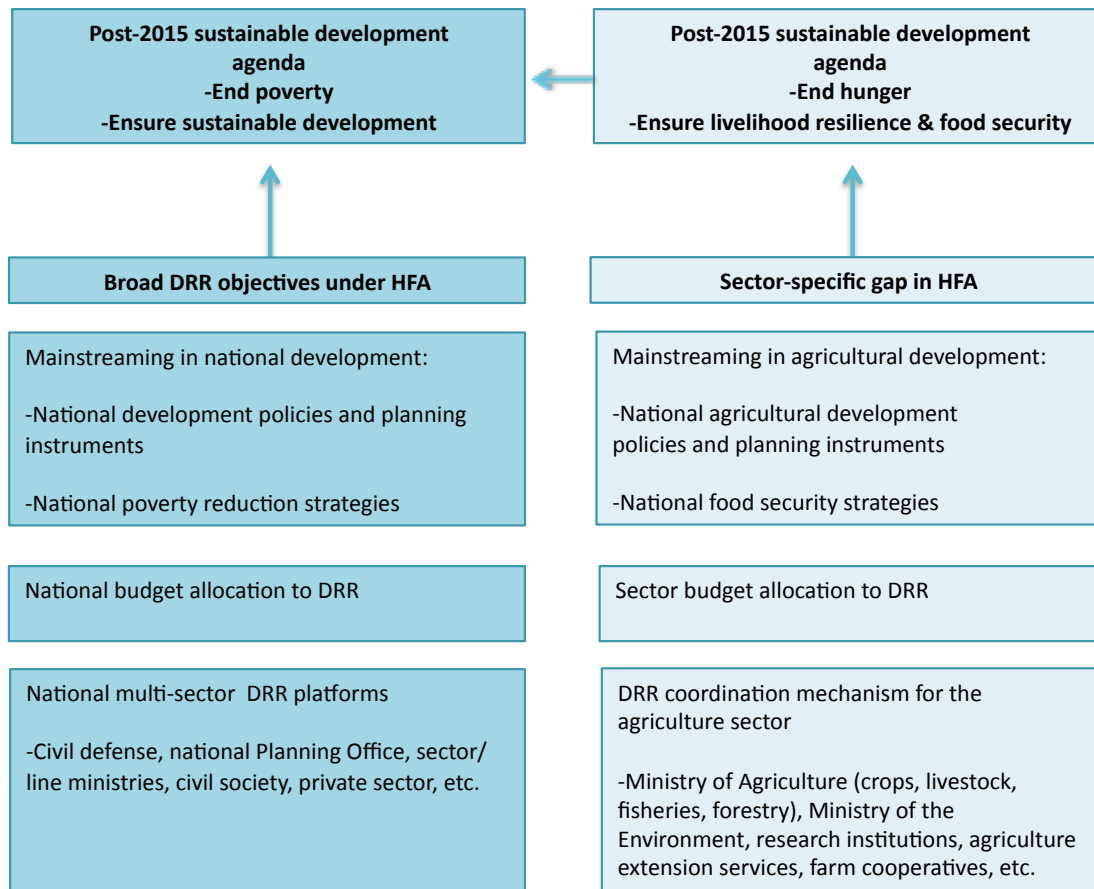
Despite a number of challenges still to overcome, such as the lack of enforcement mechanisms and that measures rely more on the goodwill of the members, in a short time span of three years this coordinated effort has raised interest and funding for DRR and bridged the humanitarian and development divide by bringing all actors together under a common DRR agenda for Nepal.

### **7.3 The needed enabling environment to mainstream DRR in agriculture**

Overall, the above findings suggest that implementation of DRR in the agriculture sector is lagging behind and remains a gap. One of the factors influencing this limited progress is the focus of the HFA on establishing DRR legislations, policies, multi-sector platforms and resources without due consideration of the need to promote the formation of similar DRR functions in sectors as well.

To be actively engaged and achieve full mainstreaming, the agriculture sector needs a sector-specific enabling environment that facilitates planning and implementation at national and local levels. The diagram below illustrates the specific elements of an enabling environment needed in agriculture for this purpose. This is differentiated from the broader national governance systems which ultimately contribute to the MDGs or post-2015 development agenda, while agriculture contributes to specific goals within the MDGs or future framework when DRR is fully mainstreamed within the sector.

**Diagram 1: The enabling environment needed to mainstream DRR in agriculture**



As illustrated in the diagram above, an effective enabling environment for disaster risk reduction in the agriculture sector requires sector-specific institutional mechanisms to coordinate internally within the sector and accelerate policy formulation and planning for DRR in agriculture, and to oversee implementation. It also needs its own planning process to define priority needs and strategic measures to reduce risks in the sector in a holistic manner, as well as the corresponding financial resources to implement. The sector planning process must be informed by stakeholders who play a key role in agriculture. As noted above, a similar enabling environment is also required at local levels.

## 8. Emerging Trends on DRR in the Agriculture Sector

### 8.1 Agriculture-specific DRR planning

In recent years, a number of countries have developed agriculture-specific plans for disaster risk reduction, often integrating a comprehensive set of strategic measures in the sector across all five HFA priorities for action. This is the case for instance of Nepal, Bangladesh, Belize, Peru, Saint Lucia, Jamaica, Grenada, Saint Vincent and Grenadines.<sup>90</sup>

DRR plans for agriculture are necessary to design sector-specific strategies, measures and specific activities in risk reduction based on an assessment of the particular impact of disasters on livelihoods in different agro-ecological zones. They provide the overall vision, give strategic guidance and set priorities for key DRR actions within the country's agricultural sector. They promote the application of appropriate and proven farming practices and agricultural technologies, the replication and scaling-up of these, and encourage knowledge sharing. Ultimately, however, these plans must be included as one of the core element in national agricultural development plans.

In many cases, these DRR plans identify measures needed to strengthen risk governance within the sector, thereby helping to meet priority for action 1 under the HFA. In Nepal for example, the *Plan of Action for Disaster Risk Reduction for Agriculture* provided for the first time an institutional framework for the sector since agriculture did not previously have any formal structure to address disaster risk prevention or preparedness. Building the institutional and technical capacity of the Ministry of Agriculture and Cooperatives was a key element of the plan. Another strategic measure proposed was the formation of a coordination committee for DRM and CCA under the Director General of the Department of Agriculture.

In Belize, the *Plan of Action for Disaster Risk Reduction* of the Ministry of Agriculture and Fisheries includes objectives for institutionalizing disaster risk reduction and CCA within the Ministry through the following measures: 1) the establishment of a Planning & Implementation Committee on DRR and CCA in Agriculture & Fisheries, 2) the mainstreaming of DRR and CCA into the Ministry's policies, plans and programmes, and 3) the development of staff capacity within the ministry on DRR and CCA based on a capacity needs assessment.

Often in line with the HFA, DRR plans for the agriculture sector serve to structure strategies and measures for strengthening the resilience of farming systems and livelihoods as they relate to the other four priorities for action. For instance in Belize, the plan included the following initiatives: 1) the design and roll out of a cross-sectoral Community Based Disaster Risk Reduction process at community level, 2) the incorporation of Community Based Disaster Risk Reduction Plans (CBDRRP) into the district and agriculture and fisheries sector development

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<sup>90</sup> Belize Ministry of Agriculture and Fisheries and FAO. 2011. *Plan of Action For Disaster Risk Reduction*; Bangladesh Department of Agricultural Extension and FAO. 2009. *Plan of Action for Department Of Agricultural Extension in Disaster Risk Reduction*; Nepal Ministry of Agriculture and Cooperatives. 2009. *Plan of Action For Disaster Risk Reduction For Agriculture*; Jamaica Ministry of Agriculture and Fisheries and FAO. 2010. *Agricultural Disaster Risk Management Plan* – Jamaica; Peru Ministerio de Agricultura and FAO. 2012. *Plan De Gestión de Riesgo y Adaptación al Cambio Climático en el Sector Agrario, Período 2012-2021* (PLANGRACC-A); Saint Lucia Ministry of Agriculture, Lands, Forestry and Fisheries, and FAO. 2011. *Strategic Framework for the Ministry of Agriculture, Lands Forestry And Fisheries -For Disaster Risk Reduction in Agriculture, Forestry And Fisheries*.



plan, 3) the establishment of a standard methodology for Community Risk & Vulnerability Analysis (CRVA) with special focus on the agriculture sector, 4) collaboration with the agro-meteorological departments on improved climate information and early warning products tailored to the needs of farmers, 5) the development of a menu of location and hazard specific agricultural good practices/options for DRR and CCA covering all regions of Belize, 6) the wider replication of good practices and/or technologies that have been tested and proven effective, among many other measures. These emerging plans reveal a comprehensive and strategic framework for the systematic mainstreaming of disaster risk reduction in the agriculture sector, with levels of analysis, strategic planning and institutional engagement that only sector specific processes can achieve.

FAO has developed a framework to guide its support in disaster risk reduction to member states in a systematic and strategic manner. The *FAO Framework Programme on Disaster Risk Reduction for Food and Nutrition Security* was developed in response to FAO's corporate commitment to disaster risk reduction.

**Diagram 2: Summary of FAO's Framework Programme on Disaster Risk Reduction for Food and Nutrition Security<sup>91</sup>**

HFA PA	FAO Objectives	Sample of FAO support to member countries
<b>1</b>	<b>Enabling the environment for resilient livelihoods.</b>  To support the enabling environment of member states with appropriate policies, strategies and institutional frameworks for DRR in agricultural sector, and to strengthen the institutional capacities.	<ul style="list-style-type: none"> <li>• Policy Frameworks and Planning on Disaster Risk Reduction for Food and Nutrition Security</li> <li>• Institutional Structures and Coordination in Agriculture sector</li> <li>• Capacity Development for the Implementation of Risk Reduction in and across agricultural sectors</li> </ul>
<b>2</b>	<b>Watch to safeguard livelihoods</b>  To strengthen and harmonize FNS information and early warning systems to better monitor the multiple threats and inform decision-making in preparedness and response, policy, advocacy and programming.	<ul style="list-style-type: none"> <li>• Food and Nutrition Security Baselines (Statistical baselines, mapping risks to agricultural related livelihoods, and vulnerability assessment and analysis.</li> <li>• Monitoring and Early Warning of Threats to Food and Nutrition Security (short-term forecasts and medium-term projections on food supply and demand, food balance sheets, food prices, crop prospects, trans-boundary animal and plant pests and diseases, etc)</li> </ul>
<b>3</b>	<b>Cross-cutting priorities:</b>  Knowledge Management and Communication Capacity Development Strategic partnerships Gender equity	<ul style="list-style-type: none"> <li>• Stimulating the generation, documentation, sharing and application of knowledge on DRR for agriculture</li> <li>• Increase awareness, understanding and visibility, and foster greater commitment on DRR for the sector</li> <li>• Capacity development with technical expertise, technology transfer,</li> <li>• practical tools, methodologies, extension, training, policy advice, advocacy, education and awareness-raising.</li> </ul>
<b>4</b>	<b>Promoting prevention and mitigation measures</b>  To reduce the underlying risks to FNS and build the resilience of livelihoods through the application of good practices and technologies in farming, fisheries, forestry, and natural resource management.	<ul style="list-style-type: none"> <li>• Support sustainable models of food production and the application of appropriate agricultural technologies and practices, which raise yields and increase resilience against production failure.</li> <li>• Examples include better management of crop species, the promotion of crop, livestock and fish varieties that are more resilient to stress (floods, droughts or saline conditions), plant breeding to develop new adaptive and productive varieties, efficient seed delivery systems, resilient animal breeding, fodder conservation, conservation agriculture, among other.</li> </ul>
<b>5</b>	<b>Prepare to respond</b>  To strengthen preparedness capacities at all levels, to improve response to, and recovery from, future threats to food and nutrition security.	<ul style="list-style-type: none"> <li>• Agricultural Practices to Strengthen Preparedness at National/Local Level (seed and grazing fodder reserves, safe storage facility for seeds, harvests and tools, livestock shelters, vaccine banks, etc)</li> <li>• Preparedness Planning in the Agriculture Sector</li> </ul>

<sup>91</sup> FAO. 2013. *Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security*.

In line with its corporate mandate, FAO supports member countries in areas that directly contribute to DRR within the agriculture sector. Its goal is to enhance the resilience of livelihoods against threats and emergencies to ensure the food and nutrition security of vulnerable farmers, fishers, herders, foresters and other at risk groups. The framework is aligned to the Hyogo Framework for Action and therefore adopts strategic objectives and measures for each of the HFA five priorities for action, as summarized in the next diagram.

## 8.2 The integration of DRR and CCA within agriculture

Another recent trend is the development of plans that integrate DRR and CCA within the agriculture sector, reflecting the increasing recognition of the linkages and overlaps between CCA and DRR, as well as the complementarities.

Examples of good practice are emerging of agricultural plans that combine disaster risk and climate change adaptation. In Nepal, the Ministry of Agriculture in collaboration with FAO and UNDP developed in 2011 the *Priority Framework for Action for Climate Change Adaptation and Disaster Risk Management in Agriculture*. The Framework promotes policy coherence by drawing on the actions previously outlined in the NAPA and National Strategy for Disaster Risk Management. Nepal's integrated framework is a promising example of good practice in partnerships, coordination and synergy and for reaching practical technical solutions. The Framework acknowledges the existence of good practice technologies and approaches, and the vital importance of knowledge sharing, and therefore adopts priority measures in knowledge sharing, such as establishing a good practice database relevant to agriculture and livestock for climate change adaptation and DRR, integrating climate change, disaster risk management and sustainable land management into farmer field schools, establishing model demonstrations to showcase relevant good practice examples on climate change adaptation and disaster risk management, and disseminating tested good practices, among other measures.<sup>92</sup>

Peru is another example where the Ministry of Agriculture has recently developed a national plan integrating both DRR and CCA -*Plan De Gestión de Riesgo y Adaptación al Cambio Climático en el Sector Agrario, Período 2012-2021* (PLANGRACC-A). The case study shown below on the Philippines illustrates how a national enabling environment that acknowledges the synergies of both DRR and CCA can be conducive to the integration of both in the agriculture sector.

This trend is also emerging in the institutional arrangements within ministries, where a technical unit or office is formed mandated to oversee both DRR and CCA. Recently, Bangladesh formed a Climate Change Unit within the MoA for addressing both CCA and DRR in the agriculture sector. The unit is intended to function as the nerve centre for an integrated approach to climate risk management within the agriculture sector and as the centre for planning and coordination among relevant ministries and departments. It is also responsible for planning at various levels, for capacity building of staff, among other tasks.

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<sup>92</sup> Trujillo, M. 2013. Disaster Risk Reduction: Strengthening Livelihood Resilience. In: *Climate Smart Agriculture Sourcebook*. FAO.

### Case study 9: The enabling environments in the Philippines integrating DRR and CCA in agriculture<sup>93</sup>

A Disaster Risk Reduction and Management Act was enacted in 2010, which included a policy to mainstream DRR and climate change into socio-economic development planning, budgeting, and governance, including the agriculture sector. Under the Act, Local Government Units (LGUs) are now obliged to use at least 5 percent of their budgets for DRR. The formulation of a disaster risk reduction and management plan by the LGUs forms the basis for the disbursement of the funds.

The Climate Change Act was enacted in 2009. The first of its kind in Southeast Asia, the Act recognizes that climate change and DRR are closely interrelated and that effective disaster risk reduction will enhance climate change adaptive capacity. The Act mentions that “...the State shall integrate disaster risk reduction into climate change programs and initiatives”. The Act also establishes a Climate Change Commission attached to the Office of the President and an advisory board composed of all relevant line Ministries, with the provision that at least one of the sectoral representatives shall come from the disaster risk reduction community. Among the functions of the Commission is ensuring the mainstreaming of climate change, in synergy with disaster risk reduction, into the national, sectoral and local development plans and programs, and partnership with the National Disaster Coordinating Council in order to increase efficiency and effectiveness.

The National Framework Strategy on Climate Change 2010-2022 recognizes that the Philippines faces increasing disaster risks with geological/seismic dangers closely interacting with meteorological hazards. The Strategy integrates DRR, including the enhancement of monitoring, forecasting and hazard warning systems, and mainstreams DRR and climate change adaptation into development and land-use planning based on disaster risk assessments.

Similarly, the national Development Plan identifies three goals for the agriculture sector, one of which is to increase sector resilience to climate change risks, by:

- Reducing climate change-related risks and the vulnerability of natural ecosystems and biodiversity;
- Increasing the resilience of agriculture communities through the development of climate change-sensitive technologies, climate-resilient agricultural infrastructure and climate-responsive food production systems;
- Strengthening the agriculture and fisheries insurance system as an important risk sharing mechanism;
- Incorporating natural hazards and climate risk in the agricultural land use plan;
- Strengthening the capacity of communities to respond effectively to climate risks and natural hazards; and
- Continuing vulnerability and adaptation assessments, especially in food production areas.

Peru's MoA has a Working Group on DRR as well as a Technical Group on Food Security and Climate Change (Grupo Técnico de Seguridad Alimentaria y Cambio Climático –GTTSACC). There is indication that to improve internal coordination, the MoA may merge these two into one single working group, potentially to be named “Working Group for Risk Management, Climate Change Adaptation and Food Security (Grupo de Trabajo para la Gestión de Riesgos, Adaptación al Cambio Climático y la Seguridad Alimentaria)<sup>94</sup>.

Overall, these are positive trends within the agriculture sector, and although still in their infancy they point the way to future practice that should be accelerated. The examples of Nepal, Peru and the Philippines illustrate the type of partnership and enabling environment in DRR and CCA that yields good practice in the integration of both within the agriculture sector.

<sup>93</sup> Ibid

<sup>94</sup> Dr. Schneir, Eric Rendón. 2012. *Informe de Consultoría: Consultoría Para la Elaboración de un Mecanismo de Integración de Políticas de Gestión de Riesgo y de Cambio Climático en el Ministerio de Agricultura (MINAG) del Perú.*

## 9. The Agriculture Sector in the HFA Progress Reports

### 9.1 Progress reported for the agriculture sector in national HFA reports

The most recent national HFA progress reports were reviewed in 30 countries to identify the progress reported for the agriculture sector across all HFA priorities for action (PA). However, for 7 of these countries no HFA reports were available<sup>95</sup> and hence 23 reports were reviewed. The findings are summarized in Table 11. The results show that reporting on the sector varies considerably. One HFA report, that of Mozambique, reported substantially for the sector across all 5 PA. Four HFA reports had moderate amounts of reporting on the sector (at least 2 PA), namely those of Philippines, Pakistan, Nepal and Haiti, or reported on 1 PA but with some level of detail such as those for Bangladesh, Myanmar and Tanzania. The remaining 15 HFA progress reports had very limited or no reporting on agriculture. For instance the report from Afghanistan informs only that the Ministry of Agriculture is one of the key line ministries that has an allocated budget for DRR and response, and from Angola that there are policies and plans to promote the integrated and sustainable socio-economic development for the agricultural sector, but neither provides further details nor additional reporting on the sector.

**Table 11: Progress reported for the agriculture sector in national HFA reports**

<b>Afghanistan: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that Ministry of Agriculture is one of the key line ministries that has allocated budget for DRR and response.
<b>Angola: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)</b>	
PA 4	There are policies and plans to promote the integrated and sustainable socio-economic development for the agricultural sector.
<b>Bangladesh: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 4	<p>Reports “major progress in the sectors” like agriculture, livestock, and forestry. Some of the key examples are as follows:</p> <ul style="list-style-type: none"> <li>• Disaster and Climate Resilient Crops introduced in the AILA affected coastal saline prone zone for assisting farmers to recover from disaster losses</li> <li>• Cross breeding of fish, goat and cattle have been developed by the fisheries and livestock department to ensure economic safety to poor families against the disaster risks</li> <li>• Sundarban Environmental Security Project implemented as a part of ‘Forestry Protection Plan and Policy’</li> <li>• Initiatives have been taken to ensure recovery of Wet lands and Biodiversity Conservation</li> <li>• Ongoing Coastal Green Belt and Char Development Projects are aiming to protect public investment in livelihood and transfer asset to the poor communities</li> <li>• Directorate of Agriculture Extension (DAE) provided cold-wave resistant rice seedling production technology</li> </ul> <p>“Sectoral plans of GoB have adopted the multi-hazard approach in their development plans. Fisheries, agriculture, education, health, WATSAN, public works and other sectors have developed DRR integrated plan.</p>
<b>Benin: No HFA progress reports available</b>	
<b>Burundi: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 4	Reports that environmental aspects were integrated into sectoral policies of the Ministry of Agriculture “Intégré de l'environnement dans les politiques sectoriels de certains Ministères (Agriculture et Elevage, Energie et Mines, Santé Publique et Commerce et Industrie)”
<b>Cambodia: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)</b>	

<sup>95</sup> Reports not available on ISDR or Preventionweb websites.

	Reports that Ministry of Rural Development (and other ministries) are responsible for implementing post disaster recovery projects. Food security is mentioned in the context of which donors are doing what.
<b>Chad: No HFA progress reports available</b>	
<b>DRC: No HFA progress reports available</b>	
<b>Ethiopia: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
N/A	The report does not mention agriculture specifically but reflects the various policy and institutional changes captures in the other sections of the country profile.
<b>Eritrea: No HFA progress reports available</b>	
<b>Guatemala: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 3	Reports research on climate change by the Instituto de Agricultura, Recursos Naturales y Ambiente –IARNA
PA 4	Reports that the MoA has no data for the planning of public investment in the productive economic sectors focusing on DRR.
<b>Guinea: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
N/A	Does not report on sector
<b>Haiti: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that the National System for DRM is comprised of various entities, including institutional, organizational and thematic structures, more or less functional, in sectors such as agriculture Reports that 15% of national budget is allocated to DRR: 184 million USD allocated to sectoral development against disasters, from which 95 million USD go to agriculture and environment. Also reports the various funding allocations from donors for the agriculture and rural development sectors.
PA 2	Reports that a joint Haitian-Dominican Commission was set up to discuss common difficulties that need joint decisions in the areas of agriculture.
PA 4	Reports that one of the pillars of the Agricultural Policy 2010-2025 is the securing of economic activities in rural areas in the context of natural disasters. The Haitian government, assisted by donors, has undertaken a series of actions related to environmental, economic and infrastructure vulnerability reduction, such as: Technical innovations related to climate-smart practices in rice cropping Reduction of losses caused by floods Creation of linkages between farmers and the private sector in order to provide new opportunities, increased agricultural production Also reports capacity building of farmers in agroforestry, set-up of nursery gardens, soil conservation, landscape management
<b>Lao PDR: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that key line ministries and the Lao Red Cross allocate annual budget for disaster management activities. For example, the Ministry of Agriculture and Forestry (MoAF) allocates budget for fixing flood protection gates, emergency rice seeds, fish fingerlings, animal stock, etc.”.
<b>Liberia: No HFA progress reports available</b>	
<b>Madagascar: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 3	Reports that a Memorandum of Understanding between the national Meteorological Service and the Ministry of Agriculture is currently in place for the provision of meteorological services to agriculture.
PA 4	Reports that policies and programs exist in the agriculture sector in order to reduce the vulnerability of economic activities. The aim is to trigger livelihood diversification and income stability so that in case of disaster, they can re-bounce quickly.
<b>Mali: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 1	Reports that DRR activities are conducted through the implementation of the Agricultural Orientation Law (LOA) which establishes elements of the Agricultural Development Policy in Mali. The LOA provides for the establishment of a national Fund for Agricultural Development of about seven billion CFA francs (About USD 16,279,070), which includes a component for national risks and Disasters Fund. Reports also a Food Security Fund but not explained.
<b>Mozambique: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that funds were allocated to hazard proofing sectoral development investments such as agriculture, and that “...funding for proofing development infrastructure remains inadequate. As result, flood risks to

	<p>agriculture development projects, road and railway networks and housing...remain high. Drought risk to agriculture remains high as investment for expansion of alternative irrigation sources and techniques ...is still low.”</p> <p>Reports donor funding for climate risk proofing to agriculture in the Limpopo dry lands and in the Zambezi valley</p> <p>Reports that the MoA is a member of the national platform for DRM.</p>
PA 2	<p>Reports that the agriculture sector has already used disaster risk assessment as a precondition for sectoral development planning and programming. Also that “In agriculture sector and urban areas, measures to reduce known past vulnerabilities to flooding or coastal erosion are not fully implemented”.</p>
PA 3	<p>Reports that the “...National Institute for Disaster Management has successfully conducted comprehensive research covering 8 sectors on climate impacts on agriculture, water resources, private sectors, cities and people.”</p> <p>Reports community training on coping with droughts in the arid and semi arid zones communities.</p>
PA 4	<p>Reports that “...New ambitious DRR/CC programs and projects were also initiated: 1) The Pilot Program for Climate Resilience... in the amount of USD 91 million for 8 investment projects to build resilience in agriculture, natural resources management... 2) The Development Policy Operations... to support institutional and policy reforms in the sectors most vulnerable to climate change and disasters (agriculture, energy, roads...)”</p> <p>Reports that “...there has been growing political awareness favouring integration of DRR in development projects as the only means to reduce vulnerability of key productive infrastructure...with emphasis on agriculture...” One of the first initiatives was the “Pilot Program for Climate Resilience”, which has 2 pilot projects to build resilience in agriculture...”.</p> <p>Reports that “DRM and Climate change mainstreaming in development projects is being undertaken in agriculture, roads and energy, through sector policy reforms under the Development Policy Operations” such as integration in the National Agriculture Investment Program, approved in 2012 by the Council of Ministers, of conservation agriculture and measures aiming at the promotion of drought resilient crops and protection of irrigation schemes from flooding.</p> <p>Reports that “Rapid post-disaster recovery financing is assigned to priority interventions aiming at...resuming of economic activities, particularly, agriculture and commerce.”</p>
PA 5	<p>Reports that “Despite all sectors are frequently and severely affected by climatic extreme events, results of preparedness planning are still limited to a few sectors, such as roads, health, water and sanitation and agriculture.”</p>
<b>Myanmar: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 1	<p>Reports that the “Institutional arrangement for DRR in Myanmar” is undertaken by Ministry of Agriculture among other ministries, but they do not specifically highlight the DRR component but rather as a cross-cutting issue, making it difficult to calculate the budget used for DRR in each Ministry.</p> <p>Reports on the Monsoon Forum, formed as a mechanism for fostering closer dialogue between forecast producers and users to enhance the uptake of weather and climate forecasts for disaster mitigation, particularly in sectors such as agriculture.</p>
<b>Nepal: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 1	<p>Reports that DRR has been included in the national development plan and in sector strategies/plans, but it does not specify which sectors. It also notes that “In an ongoing effort to integrate DRR and CCA, MoHA and National Planning Commission (NPC) are working jointly with other line ministries for Climate Change and Disaster Resilient Planning which will result in integration of DRR and CCA issues in all sectoral plan for current 3-year National development Plan.” The report recommends the “Integration of CCA and DRR issues in sectoral plans of all Ministries in the current 3-year plan (2010-12) “.</p>
PA 4	<p>Reports that “Agriculture is still the largest contributor the GDP of Nepal. Large share of agriculture is still rain-fed and slight climatic variations result in loss of substantial amount of food production. As agriculture is still a informal sector and has yet to develop as industrial sector, insurance of crop is not practiced”.</p> <p>“There is no safety net for loss of lives, loss of products and loss of livelihoods support system.”</p> <p>“Sectoral policies such as National Agriculture Policy 2004...etc. have incorporated the disaster risk reduction issues. However, implementation of these policies is weak.”</p> <p>Reports that “Livelihood capacities of communities have been strengthened in 5 VDCs in 2 districts”.</p>
<b>Nicaragua: Nicaragua: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo (2009-2011)</b>	

PA 1	Reports the development of the 2009 National Human Development Plan which includes DRR in national development but does not refer to sectors.
PA 4	Reports that the Ministry of Environment (MARENA), has conducted studies on the vulnerability of water resources and agriculture, and developed an adaptation. Reports on an agriculture recovery project implemented in response to Hurricane Felix.
PA 5	Reports the development of a national plan on pandemic influenza
<b>Nigeria: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
N/A	Does not report on sector
<b>Pakistan: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that DRR is taken into account in sector strategies and plans, but does not indicate which sectors or how. Reports that "Since DRR is a cross cutting field, the relevant Federal and Provincial Ministries/Departments contribute substantially to DRR by virtue of their functions through implementation of various projects which directly or indirectly contribute to disaster risk reduction." But does not specify sectors or activities.
PA 4	Reports on safety net programs such as the Benazir Income Support Programme, Punjab Food Support Scheme, Crop Loan Insurance Scheme, and Disaster Risk Insurance mechanism. Reports that "the National Framework has assigned the Ministry of Food Security (earlier Ministry of Agriculture and Livestock) to integrate DRR element in its policies...Accordingly, the Ministry is required to allocate substantial funds for implementation of DRR activities in the hazard prone agricultural areas. The DRR activities ought to focus on vulnerability and risk analysis for food, agriculture and livestock sectors particularly in relation to floods, droughts, cyclones and locust attacks, developing early warning systems, promote contingency crop planning to deal with year to year climate variations and crop diversification, ensure sustainable livelihoods in areas of recurrent climate risks by promoting supplementary off- farm and non-farm activities....In line with the Framework, the Federal Government has introduced a comprehensive insurance cover to all crops". Reports that a National Working Group on mainstreaming DRR was established to integrate DRR into development projects, represented by key ministries involved in developing and implementing mega projects in various sectors, but it does not refer to the agriculture sector.
<b>Peru: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo (2011-2013)</b>	
PA 1	Reports that the MoA is one of the government bodies that manages funds for risk reduction and emergency response. It also mentions the DRR and CCA plan of the MoA.
PA 4	Reports that the Sustainable Rural Development Program has been working with other ministries to integrate DRR into public investment projects
PA 5	Reports that existence of sectoral contingency plans but does not specify for the agriculture sector.
<b>Philippines: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)</b>	
PA 2	Reports "Provision of Risk Information for Sustainable Livelihood in the Agriculture Sector
PA 4	Reports that "...Currently, legal instruments are in place to govern the utilization and management of various environmental and ecological system such as ... Fisheries Code of 1998, PD 705 – Forestry Code, RA 8435 – Agriculture and Fisheries Modernization Act (AFMA)..." Reports that "The National Framework Strategy on Climate Change (2010 -2011) promotes the protection of agricultural communities and crops. It aims to increase the resilience of agriculture communities through the development of climate change-sensitive technologies, establishment of climate proof agricultural infrastructure and climate-responsive food production systems, ...and strengthen the crop insurance system as an important risk sharing mechanisms..." Reports the "...mainstreaming of DRM including CCA strategies/measures in the Land Use Plans, Comprehensive Development Plans, and AIPs to ensure financing, address vulnerabilities of the localities to be resilient (livelihoods, protection of agricultural resources, minimizing disaster-related diseases, safe shelter location)..."
PA 5	Reports that "For the agricultural sector, the National Framework Strategy on Climate Change (2010 -2011) promotes the protection of agricultural communities and crops by strengthening the crop insurance system as an important risk sharing mechanism system. The Philippine Crop Insurance Corporation...offers various insurance products intended to benefit farmers, fisher folks, lending institutions and agricultural stakeholders by



	protecting their production investments against losses to agricultural risks (such as typhoons, floods, drought, earthquakes and volcanic eruptions as well as plant pests and diseases) and to further facilitate credit for agricultural production of farmers...”
<b>Sierra Leone: National progress report on the implementation of the Hyogo Framework for Action (2009-2011),</b>	
PA 4	Reports that “Disaster risk reduction is part of the pillars of the poverty reduction strategy paper (PRSP) and all development and social policies on WATSAN, agriculture etc incorporate disaster management as not to create a disaster during development.”
<b>South Africa: No HFA reports available</b>	
<b>Sudan: HFA reports only available in Arabic</b>	
<b>Tanzania: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)</b>	
PA 1	Reports that DRR is included in specific sector strategies such as agriculture, and that the sector is also included in NAPA 2010. Reports the establishment of DRR related department: “Food Security Department and Plant protection Unit at the Ministry of Agriculture and Food Security”. Reports that “In agriculture department they allocate budget for combating army weevil, research and collection of data on food security status...”
<b>Uganda: No HFA reports available</b>	

Some trends can be observed in the results. For example, 11 of the 23 HFA reports reviewed, less than half, provide feedback on PA 1, although most of them minimally with the exception of Mozambique, and to a lesser extent Haiti, Mali, Myanmar, Nepal, Pakistan and Tanzania. Sector reporting for PA 4 was the most frequent, found in 13 HFA progress reports. More broadly, reporting on progress made in the agriculture sector is sporadic and irregular, and scattered across the HFA PA.

## 9.2 Timeline of progress reported on agriculture within the HFA reports

In addition to the above review, the study assessed the extent to which the national HFA reports have captured the progress made within the agricultural sector since 2005 in mainstreaming DRR. To this end, an in-depth analysis was made for Pakistan and Bangladesh. The DRR measures adopted over time within the agriculture sector of Pakistan and Bangladesh, such as legislation, policies or plans, were compared with the progress reported for the sector in the various HFA national reports.

The findings summarized in Tables 12 and 13 show that the significant progress made in DRR in the sector is not being captured in the HFA reports. In Bangladesh for example, at least five national policies and/or plans have been developed of significant importance to the agriculture sector, some of which outline a set of DRR measures to be implemented, such as in the 2008 *National Agriculture Policy*, the *National Food Policy Plan of Action 2008-2015*, and the 2009 *Plan of Action in Disaster Risk Reduction* by the Ministry of Agriculture. The development of these important sector planning instruments are not reported in any of the HFA progress reports.



**Table 12: Reported progress in sector versus actual progress made in Bangladesh**

DRR Measures Adopted in Agriculture	National HFA Progress Reports
<p><u>2007-2009</u></p> <p>In 2008, developed the <i>National Plan for Disaster Management 2008-15</i> (NPDM) by the MoFDM, which outlines how sector plans will integrate DRR and CCA, among other proposals.</p> <p>In 2008 developed the <i>National Agriculture Policy</i> which proposes the following DRR-related content:</p> <ul style="list-style-type: none"> <li>• Establishing a self reliant and sustainable agriculture, adaptive to climate change</li> <li>• Promoting sustainable land and water management</li> <li>• Research on weather forecast, climate change and disaster management in general.</li> <li>• Contains a subsection “<i>Addressing Vulnerabilities</i>”, to facilitate multiple approaches during and after crises, such as efficient irrigation system, etc.</li> </ul> <p>In 2008, the MoFDM developed the <i>National Food Policy Plan of Action 2008-2015</i>. Two of its 3 objectives include a set of agricultural DRR measures, for example:</p> <ul style="list-style-type: none"> <li>• Agricultural Credit and Insurance -Improving coverage of financial loss due to production failures.</li> <li>• Establishment of well-functioning early warning system</li> <li>• Enhancing disaster preparedness and post-disaster rehabilitation in agricultural systems.</li> <li>• Continue research programs on drought/ submergence/disease tolerant varieties.</li> <li>• Implement integrated disease/pest management.</li> <li>• Implement programs on irrigation supplementation during drought.</li> <li>• Explore insurance mechanisms in agriculture</li> <li>• Train staff on agricultural disaster risk reduction</li> <li>• Develop agricultural community based action plans/programs for risk reduction.</li> </ul>	<p><u>National Progress Report on the Implementation of the Hyogo Framework for Action (2007-2009)</u></p> <p>Reports the following in relation to the agriculture sector:</p> <ul style="list-style-type: none"> <li>• A number of sectoral plans (agriculture, water, livestock, fisheries and handloom etc) have been revised incorporating DRR elements.</li> <li>• Progress has been made in assessing risk in agriculture.</li> <li>• Ministry of Agriculture is engaged in continuous process to develop climate resilient crop varieties.</li> <li>• A project is launched in 2008 by FFWC and ActionAid to understand effectiveness of expandable DRR approaches into climate change.</li> <li>• New studies initiated to understand approaches to make agricultural more resilient to disaster in the context of climate change and variability in flood, saline prone and drought-prone areas. DAE introduced new crop varieties.</li> </ul>
<p><u>2009-2011</u></p> <p>In 2009, developed the <i>Plan of Action in Disaster Risk Reduction</i> by the Ministry of Agriculture through its Department of Agricultural Extension (DAE), which aims to:</p> <ul style="list-style-type: none"> <li>• Articulate a comprehensive DRR approach in the DAE.</li> <li>• Provide the DAE with a framework to strengthen skills and increase capacities for DRR</li> <li>• Upgrade DAE services to farmers on DRR in the sector.</li> </ul>	<p><u>National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011)</u></p> <p>No additional progress reported against previous report in relation to the sector.</p> <p><u>National Progress Report on the Implementation of the Hyogo Framework for Action (2011-2013)</u></p> <p>Reports “major progress in the sectors” like agriculture, livestock, and forestry. Some of the key examples given:</p>

<p>The plan is aligned to the HFA and proposes actions along the 5 priorities, such as to institutionalize DRR within the DAE, to revise its policy and planning frameworks to include DRR, etc.</p> <p>In 2010, developed the <i>National Agriculture Policy</i> which included the following DRR-related measures:</p> <ul style="list-style-type: none"> <li>• Research on biotechnology, hybrid, climate change, disaster and stress including flood, drought, cyclone, salinity, upland/hill, etc.</li> <li>• Consider an agricultural disaster response fund in the MoA.</li> <li>• Modern irrigation, drainage and water application systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Disaster and Climate Resilient Crops introduced in the AILA affected coastal saline prone zone.</li> <li>• Cross breeding of fish, goat and cattle developed by the fisheries and livestock department to ensure economic safety against the disaster risks.</li> <li>• Ongoing Coastal Green Belt and Char Development Projects are aiming to protect public investment in livelihood and transfer asset to poor communities.</li> <li>• The Directorate of Agriculture Extension (DAE) provided cold-wave resistant rice seedling production technology.</li> <li>• Sectoral plans have adopted the multi-hazard approach in their development plans. Fisheries, agriculture, education, health, WATSAN, public works and other sectors have developed DRR integrated plan.</li> </ul>
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Similarly, in Pakistan the development of DRR policies and strategies directly relevant to the agriculture sector are not reported in the HFA monitor, such as the 2007 *National Disaster Risk Management Framework* (NDRMF), the current *Agriculture and Food Security Policy*, and the 2012 *National Disaster Management Plan*<sup>96</sup> (NDMP- 2012-22). In the case of Tanzania, the development of its *Agriculture and Food Security Investment Plan (TAFSIP)* in 2012 with its comprehensive set of measures in disaster risk reduction, as outlined in detail in the case study above, is not reported in the HFA progress report covering the period 2011-2013.

For Mozambique, the significant amount of reporting in the most recent HFA progress report on the agriculture sector could not be compared against actual progress made because no sector development strategies/plans were available except the 2008 *Estrategia de Segurança Alimentar e Plano de Acção (Food Security Strategy and PA) 2008-2015*. In the case of Haiti, the HFA progress report indicates achievements, such as through the *Agricultural Policy 2010-2025*, but could not be compared against actual progress since this policy and other sector plans were not available for review. The *National Agricultural Investment Plan 2010-2016*, which was reviewed for this paper, does not reflect the progress reported.

**Table 13: Reported progress in sector versus actual progress made in Pakistan**

DRR Measures Adopted in Agriculture	National HFA Progress Reports
<p><u>2011-2013</u></p> <p>Developed the <i>Agriculture and Food Security Policy</i> (Draft)<sup>96</sup>, by the Ministry of National Food Security and Research. One of the five aims of the policy is to: “flexibly adapt to climate change and be resilient enough to quickly recover from shocks and emergencies”. The policy includes a series of DRR-related “actions” though it is not clear if they are linked to DRR or CCA, such as:</p>	<p><u>Pakistan: National Progress Report on the Implementation of the Hyogo Framework for Action (2011-2013)</u></p> <p>Reports that DRR is taken into account in sector strategies and plans, but does not indicate which sectors or how.</p> <p>Reports that “Since DRR is a cross cutting field, the relevant Federal and Provincial Ministries/Departments contribute substantially to DRR through various projects which directly</p>

<sup>96</sup> This policy is in draft form and is not dated but seems to be the most current policy as it is published online on the website of the Ministry of National Food Security and Research.

<ul style="list-style-type: none"> <li>• Adoption of guidelines for land use planning, water and effluent management and promotion of Integrated Pest Management technologies.</li> <li>• Better management of land and water.</li> <li>• The use of sustainable cropping patterns and systems better adapted to local conditions.</li> <li>• Improved resource conservation technologies, including water-harvesting and erosion control, in more agro-climatically fragile areas such as arid and high elevations lands.</li> <li>• Production of “public goods” such as research, pest and disease surveillance, efficient water use, etc.</li> </ul> <p>In 2012, developed the ‘<i>National Disaster Management Plan</i>’ (NDMP- 2012-22), prepared by the National Disaster Management Authority (NDMA) and the Ministry of Climate Change. The plan lists the “roles and responsibilities” in DRR of the Ministry of Food Security and Research which include actions across all HFA priorities for action.</p>	<p>or indirectly contribute to disaster risk reduction”, but does not specify sectors or activities.</p> <p>Reports on safety net programs such as the Benazir Income Support Programme, Punjab Food Support Scheme, Crop Loan Insurance Scheme, and Disaster Risk Insurance mechanism.</p> <p>Reports that the “National Framework has assigned the Ministry of Food Security...to integrate DRR element in its policies...” and lists the responsibilities assigned, such as to allocate funds for DRR, promote contingency crop planning, etc.</p> <p>Reports the introduction of a comprehensive insurance to cover to all crops.</p> <p>Reports that a National Working Group on mainstreaming DRR was established to integrate DRR into development projects, represented by key ministries, but it does not refer to the agriculture sector.</p>
<p><u>2007-2011</u></p> <p>In 2007 developed the <i>National Disaster Risk Management Framework</i> (NDRMF), prepared by the National Disaster Management Authority (NDMA), which outlined the national DRR agenda and made mainstreaming one of its 9 priority areas. For the agriculture sector, the plan lists the “roles and responsibilities” of the sectoral ministry, subsequently reinforced in the 2012 plan. The framework proposed a number of strategic and practical actions, such as:</p> <ul style="list-style-type: none"> <li>• working with ministries on the integration of DRR into sectoral policy, planning and implementation.</li> <li>• developing technical guidelines on incorporating risk assessment into sectoral projects.</li> <li>• conducting national and provincial workshops for selected line ministries to orient them on integrating risk assessment in programme planning and design.</li> <li>• reviewing the current status on mainstreaming DRR within the line ministries and departments, and</li> <li>• producing case studies of good practice, among other measures.</li> </ul>	<p><u>Pakistan: National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011)</u></p> <p>Does not report on the agriculture sector, although it informs of efforts in mainstreaming in development and across line ministries. It also reports that the National Disaster Management Commission (NDMC) is functioning as the apex national forum in disaster management, and that sectoral representation has been ensured through ministerial membership from each key sector.</p> <p><u>Pakistan: National Progress Report on the Implementation of the Hyogo Framework for Action (2007-2009)</u></p> <p>This first HFA report does not include AG and reports much along the lines of the two above.</p>

The above examples indicate that the national HFA reports have not been adequately capturing the progress made in disaster risk reduction within the agriculture sector. Reporting on the sector is patchy and inconsistent. This is largely due to the design of the HFA monitor itself and

particularly the formulation of questions within it that are broad and non-sector specific. For instance, for priority for action 1, core indicator 1 on national policies and legal frameworks for DRR, it asks the following two “key questions and means of verification”:

1. Is disaster risk taken into account in public investment and planning decisions?
2. Have legislative and/or regulatory provisions been made for managing disaster risk?

Similarly, for priority for action 1, core indicator 4 on national multi sectoral platforms for DRR, it includes the following two generic “key questions and means of verification”:

1. Are civil society organizations, national finance and planning institutions, key economic and development sector organizations represented in the national platform?
2. Where is the coordinating lead institution for disaster risk reduction located?

The questions used to measure progress for priority for action 1 encourage the reporting of progress in the broader national DRR system, and while some allude to sectors or imply their inclusion, it is only in a cursory manner and misses the specific achievements made in agriculture (or other sectors). Another contributing factor is that HFA reporting is typically done by a central body responsible for DRR, such as civil protection, who is not familiar with all the activities of sectors. In future, reporting should actively engage all line ministries and these should be responsible for reporting for their respective sector.

## **10. Summary of Main Findings**

This study has focused on reviewing the extent to which DRR has been mainstreamed within the agriculture sector. For this purpose, mainstreaming has been conceived as a process that includes a policy environment that is conducive to mainstreaming within the sector, particularly sector-specific planning instruments that provide strategic guidance, supported by an institutional architecture for the agriculture sector in which key ministries/departments, research institutions, civil society and other relevant national actors contribute to planning and implementation. It also includes financial resources that enable actionable results based on the DRR measures proposed in the national plans, and finally with sub-national mechanisms and actions that benefit local farming communities and promote resilient livelihoods. Below is a summary of the main findings of this study in relation to the process of mainstreaming disaster risk reduction in the agriculture sector.

### **10.1 Disaster risk reduction in agricultural development planning**

- Progress has been achieved in addressing DRR in agricultural development planning. Of the 30 sector plans reviewed, nearly 50% have included DRR in sector plans to a substantial degree. This represents an important first step in the process of mainstreaming, but continued effort is necessary to achieve broader progress across countries, and to support implementation, as the following main findings reveal.
- In agricultural development plans, the type of DRR content varies significantly, ranging from high level DRR priorities in some plans to lower-level specific actions in others. The plans have a wide diversity of DRR measures as well, reflecting a combination of some of the HFA priorities for action in an ad hoc manner. For instance:
  - HFA Priority for Action 1 - is not given priority in agricultural development plans. As a result, strategic objectives and measures in risk governance are not being addressed in the sector.
  - HFA Priority for Action 3 - receives very limited attention in sector plans reviewed.
  - HFA Priority for Action 4 -receives a high degree of priority in agriculture development plans.
  - HFA Priority for Action 2 and 5- these are the most commonly addressed in agricultural development plans, suggesting a persistent focus on risk management rather than DRR.
- While the DRR content in national sector plans is always a function of national needs, the degree of variation appears to reflect the lack of structure in the integration of DRR in the sector. Part of the challenge is that the HFA does not provide clear guidance for sectors, for example how the five priorities relate to sectors or what objectives they should strive to meet in relation to priority for action 1 as well as the other 4 PAs.

### **10.2 Disaster risk reduction in post-disaster recovery planning**

- There has been some progress in the integration of disaster risk reduction in post-disaster recovery planning, yet it has been largely slow and minimal.
  - Recovery planning typically does not encompass a comprehensive longer-term vision and approach to DRR or to building back better.

- When DRR is addressed in recovery planning, it tends to focus on standard measures along the lines of the HFA priorities for action to strengthen the national DRR system and much less on ensuring a resilient recovery.
  - DRR measures in recovery planning tend to focus on infrastructure-related DRR efforts, such as the safe location and building standards of new infrastructure (e.g. housing and schools).
- DRR is not being *mainstreamed* adequately into post-disaster recovery efforts in the agriculture sector.

In part the above findings reflect the lack of clear guidance in the HFA. While it clearly advocates for the integration of DRR into post-disaster recovery, it does not specify how this can be achieved. In the absence of clear guidance, the HFA priorities for action are included as a standard approach in recovery planning, focusing on strengthening the DRR system in the country (often as an “opportunity”), yet failing to fully embed DRR into the fabric of the recovery strategy itself to build-back-better and ensure the sustainability of recovery investments through all sectors.

As another study of the response to disasters in Aceh, Myanmar and Haiti also found, there is no common agreement on what DRR means in post-disaster recovery, or the concept of “building back better”, and what these mean in terms of programming: “Although the phrase (build back better) was widely employed by humanitarian agencies in all three studies, there was little analysis of what ‘better’ might mean in specific circumstances, and agencies largely operated through existing frameworks, methodologies and programmatic interventions”.<sup>97</sup>

Another contributing factor is the funding priorities of overseas development assistance. Although economic losses from disasters have topped one trillion US dollars worldwide since 2000, more than 95% of humanitarian finance is still spent on disaster response and less than 5% is spent on reducing the risk of disasters.<sup>98</sup>

### 10.3 Implementation of DRR in the agriculture sector

- Progress has been more limited in the implementation of disaster risk reduction in the sector. Successfully mainstreaming DRR in agriculture requires an enabling environment within the sector which is still largely undeveloped in most countries, for example:
  - An internal capacity within ministries to drive DRR and an inter-institutional mechanism within the sector to coordinate and accelerate policy formulation and planning for DRR in agriculture.
  - The sector needs its own planning process to define the vision, priority needs and strategic measures to reduce risks within the agriculture sector of countries, informed by stakeholders in the public and private spheres who play a key role in agriculture.
  - Resource allocation for DRR within the agriculture sector (see below for further reference).
  - Similar sector-specific capacities, planning processes and financing are needed at the local levels.

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<sup>97</sup> Fan Lilianne. 2013. *Disaster as opportunity? Building back better in Aceh, Myanmar and Haiti*. HPF Working Paper. Overseas Development Institute. London, UK.

<sup>98</sup> ODI. 2012. *Disaster Risk Management in post-2015 Policy Frameworks*. Briefing Paper. London. UK.

- One of the factors influencing this limited progress is the focus of the HFA on establishing DRR legislations, policies, agencies, multi-sector platforms and resources without due consideration of the need to promote the formation of similar DRR functions in sectors as well. Broad DRR policies, for example, are needed but they are insufficient, and multi-sectoral platforms can promote mainstreaming but they are not equipped to perform this task for the agriculture sector. Much greater support will be needed in the future for ensuring that the emerging policy environment for mainstreaming in the sector does not lose its momentum and is supported by enabling institutional mechanisms, financing and local action.

#### **10.4 Financing for disaster risk reduction in the agriculture sector**

- In most cases there is no specific funding for DRR within the budgets of agriculture ministries. Instead ad hoc project funds are used for most DRR activities within the agriculture sector. Even in the few cases where national funding is allocated to DRR, these do not necessarily benefit the agriculture sector.
- The HFA has focused primarily on securing stand-alone financial resources for DRR. Yet budget allocations for national and local DRR-specific agencies or departments is not enough, and must be complemented by allocations within ministries/departments as well. This is essential if public investment is to be relevant and sustainable for sectors such as agriculture. Similarly, funding for DRR at the sub-national level should go beyond advocating for resources to a specific local agency responsible for DRR, by targeting the mainstreaming of resource allocation across sub-national ministries and departments which receive revenue from the central level.

#### **10.5 Drivers in the mainstreaming of DRR in agriculture**

- While the HFA has been a primary driver in the development of national DRR policies, strategies / plans, the findings show that the HFA has only indirectly influenced the integration of DRR in agriculture in two ways:
  - Agricultural development plans are often anchored on national development plans and poverty reduction strategies, and typically only when these recognize the importance of DRR for achieving sustainable development, do they tend to subsequently influence mainstreaming in agriculture. The HFA was not referred to in the 13 sector development plans reviewed in-depth.
  - National DRR strategies/plans influence the mainstreaming of DRR in agriculture when they make mainstreaming an explicit priority objective. See below on drivers.
- The above indirect influence of the HFA has led to a slower mainstreaming process for the sector, considerably less so than if mainstreaming DRR had been understood from the onset as a process inclusive of all sectors and pursued in parallel to mainstreaming in broader development policies and plans.
- Although one of the three strategic goals of the HFA is on the “more effective integration of disaster risk considerations into sustainable development policies, planning and programming at

all levels...” it is not sufficiently explicit on mainstreaming across sectors. Also, the five priorities for action do not follow through on this goal by including targets to measure concretely the progress made in sector mainstreaming.

- The findings of the study indicate that the following were key drivers in mainstreaming DRR within the agriculture sector:
  - Clear national policies that make *mainstreaming* DRR into development sectors an explicit and strategic priority, particularly at the highest political level.
  - A clear understanding by governments of the nexus between disaster risk and sustainable development is also a key driver, specifically that disaster risks arrest or reverse growth and development, including in the agriculture sector which is a significant contributor to the national GDP in many developing countries. This suggests the importance of building an evidence –base of this critical link through research, cost-benefit analysis and case studies.
  - Increasingly, the global agenda for adaptation is making significant in-roads at national levels in the agriculture sector, and this progress can drive also disaster risk reduction, or in some cases, overshadow it.

## **10.6 Emerging trends in DRR within agriculture**

- Emerging trends in disaster risk reduction within the agriculture sector represent examples of good practice that should be explicitly supported in the HFA2 and used as models for accelerating sector mainstreaming. One trend emerging in the sector is the integration of DRR and CCA in sector planning instruments and institutional mechanisms.
- A second trend is the development of agriculture-specific plans for disaster risk reduction that integrate a comprehensive set of strategic measures in the sector across all five HFA priorities for action. Such plans are necessary for defining the overall vision, strategy, priorities and specific measures needed in DRR for the country’s agricultural sector. Ultimately these comprehensive DRR measures should be included as integral elements (among others) of the overall national agricultural development plans.

## **10.7 Agriculture within the national HFA progress reports**

- The progress made in DRR within the agriculture sector is not being captured in the HFA progress reports. Reporting on progress made in the sector varies considerably in the HFA reports, it tends to be sporadic and irregular, and scattered across the five HFA PA. Capturing such progress in the sector will require a re-design of the HFA Monitor to encourage greater reporting on agriculture (and other sectors).

The above main findings of the study point to the need for a post-2015 HFA2 that gives greater emphasis to those sectors where disaster risk reduction is most meaningful and can deliver more concrete results. The following recommendations that may help to achieve this.



## 11. Key Recommendations for the Post-2015 HFA

The present input paper was prepared by FAO to contribute to the objectives of the GAR15, namely to determine to what degree the HFA has been fit for purpose within the agriculture sector, and to identify improvements both in the content and the indicators of the successor framework to the HFA (HFA2) that will be adopted in 2015.

Based on the main findings of the present study on the retrospective assessment of progress made in mainstreaming disaster risk reduction into agriculture, as well as on FAOs experience and commitment to building resilient livelihoods, **6 KEY RECOMMENDATIONS** are proposed for the post-2015 Hyogo Framework for Action. These have been selected to focus on a few set of achievable and transformative changes that can drive and accelerate risk reduction in agriculture and food and nutrition security related sectors for the benefit of farming communities in high risk countries. They reflect universal aspirations that can be shared by all countries and therefore represent global minimum standards.

### **Recommendation 1 –Prioritize critical sectors and include specific targets for each**

One of the three strategic goals of the HFA is *the more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels*. Priority for Action 1 further reinforces this strategic goal by identifying the following key activity: *Integrate risk reduction, as appropriate, into development policies and planning at all levels of government, including in poverty reduction strategies and sectors and multi sector policies and plans*.

This is a core element and much needed goal that must remain in the HFA2, yet reinforced, better defined, and with more specific targets to accelerate mainstreaming in sector development. A key starting point recommended for the HFA2 is to select critical sectors or themes where progress needs to be bold. Critical sectors and themes are captured in the various Global Assessment Reports on Disaster Risk Reduction, such as land-use planning, ecosystems, health, productive sectors such as agriculture, among others.

It is well-acknowledged by now that disaster risk reduction is a cross-cutting theme and that sectors represent the development pathways where DRR can find its full expression and deliver concrete results. In effect, the selection of critical sectors means “unpacking” DRR into core building blocks that translate in a meaningful way into sustainable development. The HFA2 could set DRR related goals, targets and indicators for these critical sectors or building blocks. In this way mainstreaming would be embedded into the HFA2, providing the practical basis for the systematic mainstreaming of DRR where it is most needed.

This would be similar to the strategic approach taken in the MDGs and the emerging post-2015 development agenda, which focus on the world’s 8 most critical development challenges, expressed as goals and including targets to be reached by all countries for each.

FAO welcomes an HFA2 that accelerates progress on strengthening the resilience of livelihoods and farming systems, by selecting this sector among the critical themes in the HFA2. This bold

measure will fast-track progress in the sector as well as the commitments under the post-2015 development agenda, particularly its goal to end hunger.

Specific commitments and targets may be introduced for the sector, for example to reduce by half the losses suffered in the agriculture sector as a result of natural disasters, and commit countries to measure risk and account for losses in the agriculture sector.

Governments should be encouraged to include disaster losses in agriculture in national disaster loss databases. Sector indicators should include physical damage (crops, livestock, fisheries and sector infrastructure damaged and destroyed) and economic loss (replacement costs of damaged and destroyed assets). These disaster loss and damage metrics should be expressed in both absolute and relative terms, for example in relation to population, GDP, etc.

## **Recommendation 2 –Set agriculture-specific targets and indicators on risk governance**

The first of the five HFA 'priorities for action' is to *Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation*. This is a key priority that should remain in the HFA2.

Achievements under Priority for Action 1 have been significant in the development of broad national risk governance systems, yet much more is needed across sectors such as agriculture to ensure robust enabling environments that are able to drive and achieve full mainstreaming.

As concluded during the consultations on the Post-2015 Framework on DRR, "the institutional and legislative arrangements developed to manage disaster risk have largely taken the form of disaster-focused organizations and systems. These systems have had little real influence on the development processes".<sup>99</sup> FAO joins "the many calls for goals, outcomes, targets and indicators", including for risk governance, and supports recommendations for "integrating sector-specific targets" in the HFA2<sup>100</sup>.

The following table includes agriculture-specific targets and indicators recommended for Priority for Action 1 in the HFA2, as transformative aspirations that can be shared by all countries.

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<sup>99</sup> UNISDR. 2013. *Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2)*.

<sup>100</sup> UNISDR. 2013. *Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2)*, pg. 21.

HFA2 Priority for Action 1	Proposed sector targets	Proposed sector indicators
Core Indicator 1: National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels	<ol style="list-style-type: none"> <li>1. DRR is fully mainstreamed into national agricultural development policies, planning instruments, and in national food security strategies.</li> <li>2. Institutional arrangements for DRR are established within sector ministries at all levels.</li> <li>3. Coordination mechanisms are established for DRR within the agriculture sector at national and local levels, to oversee policy formulation, planning and implementation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of national agricultural development policies and plans that have DRR mainstreamed.</li> <li>2. Number of countries with institutional arrangements for DRR within sector ministries, at national and local level.</li> <li>3. Number of national agricultural coordination mechanisms for DRR established.</li> </ol>
Core Indicator 2: Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels	<ol style="list-style-type: none"> <li>1. A percentage budget allocation for DRR is made for the agriculture sector at national and local levels.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of countries with budget allocation for DRR in the agriculture sector.</li> </ol>
Core Indicator 3: Community participation and decentralization are ensured through the delegation of authority and resources to local levels.	<ol style="list-style-type: none"> <li>1. Decentralized units of the ministry of agriculture have delegated authority over DRR and resources to implement at local levels.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of countries with delegated authority and budgets in the agriculture sector at local level.</li> </ol>

### Recommendation 3 –Propose clear financial commitments across development sectors

Core indicator 2 of HFA ‘priority for action 1’ aims to ensure that *Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels.*

Advocating for the allocation of financial resources to DRR needs to continue as progress has been limited, but budget allocations for DRR-specific departments is not enough. DRR financing can be much more effective when it is mainstreamed into sectors as well.

FAO agrees with suggestions to place “more emphasis on disaster risk reduction in national budget allocations based on the principles of public expenditure management”<sup>101</sup>. The HFA2 should advocate for resource allocation in sector budgets at the central level. Similarly, funding for DRR at the sub-national level should go beyond advocating for resources to a specific agency responsible for DRR and target mainstreaming of resource allocation across sub-national ministries and departments which receive revenue from the central level.

Clear financial commitments across sectors should be proposed, for example as a percentage of the total budget allocation for agriculture. To ensure transparency and accountability, DRR funding within the agriculture sector should be clearly identifiable.

<sup>101</sup> UNISDR. 2013. *Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2)*, pg 22.

#### **Recommendation 4 -Define “Resilient Recovery” as goal in HFA2 with clear targets.**

One of the three strategic goals of the HFA is “*The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes*”. This is a critical goal that must remain in the HFA2 yet reinforced, better defined, and with more specific targets to accelerate the integration of DRR in post-disaster recovery and including sector recovery planning.

It is necessary that the HFA2 better define what it means to integrate DRR into post-disaster recovery, including across all sectors. To be effective, the HFA2 will need to introduce results-driven accountability measures for post-disaster recovery, such as: by 2030 all post-disaster recovery strategies and plans integrate DRR into all sectors.

The HFA2 should subsequently foster the development of guidance and practical tools for achieving this integration.

#### **Recommendation 5 –Monitor and report progress in critical sectors such as agriculture.**

Roughly 130 countries report regularly on progress against the *Hyogo Framework for Action*. Yet, as the study has shown, reporting has failed to capture important achievements in the agriculture sector.

The HFA Monitor should continue as a reporting mechanism for governments, but should be enhanced under the HFA2 to include self reporting by governments across critical sectors including agriculture. This means engaging sector ministries to report achievements under each of the five priorities for action (or equivalent priorities that emerge in HFA2), since the agriculture sector plays an important role in the implementation of all five within the context of the sector. This would help to strengthen accountability in the agriculture sector.

#### **Recommendation 6 –Be coherent with the post-2015 development agenda and the climate change adaptation agreement**

FAO joins the call of other stakeholders for a “holistic approach that embraces disaster risk reduction and climate risk management as fundamental to poverty reduction and sustainable development”<sup>102</sup>.

The HFA2 must incorporate the inter-related objectives of disaster risk reduction and climate change adaptation in an integrated way, including in sectors such as agriculture where this is already starting to take place, to ensure coherence, avoid duplication and maximize the use of scarce resources. Such integration must begin at the global level through the convergence between the evolving international frameworks of the HFA and of the UNFCCC.

In addition, the successor of the HFA should be coherent with the post-2015 development agenda. On one hand this means introducing risk sensitive development goals to ensure that the

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<sup>102</sup> UNISDR. 2013. *Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2)*.

mainstreaming of DRR is embedded in the next sustainable development agenda. On the other hand, this means aligning the critical sectors identified for the HFA2 (suggested under recommendation 1 above) with the post-2015 development agenda, creating a direct and mutually reinforcing framework. In the case of the agriculture sector, this means aligning the mainstreaming of DRR into the sector with the development goal to end hunger and malnutrition.

In fact the HFA successor should be the common way to deliver and account for the sustainable development goals in relation to disaster risks and losses. Future progress reports on sustainable development goals should factor disaster risk and disaster impact at national and sub-national levels, particularly to assess the impact of disasters on the achievement of the goals in countries that have been affected by disasters during the reporting period. The example of the 2012 MDG report on Sindh in Pakistan serves as a model reflecting an in-depth analysis of the impact of floods on the MDGs in the province.

## Bibliography

ADB and WB. 2010. *Pakistan Floods 2010: Preliminary Damage and Needs Assessment*.

ADB and WB. 2007. *Pakistan Cyclone and Floods 2007: Preliminary Damage and Needs Assessment Balochistan and Sindh*.

African Union. 2004. *Africa Regional Strategy for Disaster Risk Reduction*. Disaster Risk Reduction for Sustainable Development in Africa.

Alliance Development Works. 2012. *World Risk Report 2012*.

Benson, Charlotte. 2009. *Mainstreaming Disaster Risk Reduction into Development: Challenges and Experience in the Philippines*.

Development Group Limited (UK). 2006. *APP Implementation Status Report. Annexes*.

Dilley, M., Chen, R.S., Deichmann, U., Lerner-Lam, A.L., and Arnold, M. with Agwe, J., Piet Buys, P., Kjekstad, O., Lyon, B., and Yetman, G. 2005. Natural Disaster Hotspots. A Global Risk Analysis. In: *Disaster Risk Management Series No. 5*. The World Bank. Washington D.C, USA.

Economic Community of West African States. 2006. *Politique et mécanismes de la CEDEAO sur la réduction des risques de catastrophes*.

European Commission. 2011. *Methodology for the Identification of Priority Countries for the European Commission Humanitarian Aid "GNA and FCA"*. Technical Note. Brussels, Belgium.

European Union and ILRI. 2010. *An assessment of the response to the 2008- 2009 drought in Kenya: A report to the European Union Delegation to the Republic of Kenya*. Nairobi, Kenya.

Fan Lilianne. 2013. *Disaster as opportunity? Building back better in Aceh, Myanmar and Haiti*. HPF Working Paper. Overseas Development Institute. London, UK.

FAO. 2013. *Climate-Smart Agriculture Sourcebook*. Rome, Italy.

FAO. 2013. *Locust crisis Madagascar. Response to the locust plague. Three-year Programme 2013–2016*.

FAO. 2013. *Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security*. Rome, Italy.

FAO. 2013. *Statistical Yearbook 2013: World food and Agriculture*. Rome, Italy.

FAO. 2013. *The State of Food Security in the World 2013*. Rome, Italy.

FAO. 2011. *Plan d'action pour la gestion des risques de catastrophe en République démocratique du Congo 2011-2013*.

FAO. 2010. *The State of Food Insecurity in the World: addressing food insecurity in protracted crises*. Rome, Italy.

François Grünewald, Kate Robins, Ayoo Odicoh, Nigel Nicholson. 2006. *Kenya RTE Mission: Final Report*.

Global Emergency Group RTE Team. No date. *IASC Real Time Evaluation to the Humanitarian Response to the Horn of Africa Drought Crisis: Kenya*.

Global Environment Facility (GEF). 2013. *Angola: Promoting Climate-resilient Development and Enhanced Adaptive Capacity to withstand Disaster Risks in Angolan's Cuvelai River Basin*. Project Identification Form (PIF).

Government of Angola. 2008. *Angola: National progress report on the implementation of the Hyogo Framework for Action*. National Commission for Civil Protection.

Government of Bangladesh. 2013. *Bangladesh: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*. Ministry of Disaster Management and Relief, Department of Disaster.

Government of Bangladesh. 2011. *Bangladesh: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Ministry of Food and Disaster Management, Disaster Management Bureau, Disaster Management & Relief Division.

Government of Bangladesh. 2010. *Bangladesh: National progress report on the implementation of Hyogo Framework for Action. 2007-2009*. Ministry of Food and Disaster Management.

Government of Bangladesh. 2010. *National Agriculture Policy 2010*. Final Draft. Ministry of Agriculture.

Government of Bangladesh. 2010. *National Plan for Disaster Management 2010-2015*. Ministry of Food and Disaster Management, Disaster Management Bureau, Disaster Management & Relief Division.

Government of Bangladesh. 2008. *Disaster Management Act (Act No. - - of 2008)*.

Government of Bangladesh. 2008. *National Disaster Management Policy*. Draft. Ministry of Food and Disaster Management, Disaster Management Bureau. Bangladesh.

Government of Bangladesh. 2008. *National Food Policy Plan of Action (2008-2015)*. Ministry of Food and Disaster Management, Food Planning and Monitoring Unit. Dhaka, Bangladesh.

Government of Bangladesh and FAO. 2009. *Plan of Action in Disaster Risk Reduction*. Ministry of Agriculture, Department of Agricultural Extension.

Government of Belize and FAO. 2011. *Plan of Action For Disaster Risk Reduction*. Ministry of Agriculture and Fisheries.

Government of Benin. 2010. *Plan d'investissement agricole 2010-2015*. Ministère de l'agriculture, de l'élevage et de la pêche.

Government of Burundi. 2010. *Burundi: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo (2009-2011)*. Ministère de l'Intérieur et de la Sécurité Publique.

Government of Burundi. 2009. *Burundi. Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo. 2007-2009*. Ministère de l'Intérieur et de la Sécurité Publique.

Government of Burundi. 2008. *Stratégie nationale agricole 2008-2015*. Ministère de l'Agriculture et de l'Élevages. Bujumbura, Burundi.

Government of Burundi 2008. *Strategie Agricole Nationale 2008-2015*.

Government of Cambodia. *National Action Plan for Disaster Risk Reduction (2014-2018)*. Currently drafted.

Government of Cambodia. 2010. *Strategy for Agriculture and Water 2010-2013*. Ministry of Agriculture, Forestry and Fisheries and Ministry of Water Resources and Meteorology.

Government of Cambodia. 2009. *Cambodia: National progress report on the implementation of the Hyogo Framework for Action. 2007-2009*. National Committee for Disaster Management.

Government of Cambodia. 2008. *Strategic National Action Plan for Disaster Risk Reduction 2008-2013*. Cooperation between National Committee for Disaster Management and Ministry of Planning.

Government of Cambodia. 2006. *Agricultural Sector Strategic Development Plan (ASSDP), 2006-2010*. Ministry of Agriculture, Forestry and Fisheries. Phnom Pen, Cambodia.

Government of Chad. 2013. *Plan Quinquennal de développement de l'agriculture au Tchad*. Ministère de l'Agriculture et de l'Irrigation.

Government of Chad. 2005. *Programme National de Sécurité Alimentaire*.

Government of Democratic Republic of the Congo. 2012. *Programme National d'Investissement Agricole (PNIA), Plan d'Investissement 2013-2020*. Ministère de l'Agriculture and Ministère du Développement Rural.

Government of Democratic Republic of the Congo. 2010. *Stratégie Sectorielle de l'Agriculture et du Développement Rural*. Ministère de l'Agriculture and Ministère du Développement Rural.

Government of Democratic Republic of the Congo. 2006. *Programme d'Action National d'Adaptation au Changement Climatique de la République Démocratique du Congo*. Ministère de l'Environnement.

Government of Eritrea. 2004. *Food Security Strategy*. Asmara, Eritrea.



Government of Ethiopia. 2012. *Ethiopia: National progress report on the implementation of the Hyogo Framework for Action (2011-2013) – interim*. Disaster Risk Management and Food Security Sector of the Ministry of Agriculture and Rural Development.

Government of Ethiopia. 2010. *Ethiopia's Agriculture Sector Policy and Investment Framework (PIF) 2010-2020*. Draft Final Report, 15 September 2010. Ministry of Agriculture and Rural Development.

Government of Ethiopia. 2009. *National Policy and Strategy on Disaster Risk Management*. Draft Document. March 2009.

Government of Ethiopia. 2006. *Ethiopia: Building on Progress. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP)*. 2005/06-2009/10. Volume I: Main Text. Ministry of Finance and Economic Development. Addis Ababa, Ethiopia.

Government of Guatemala. 2012. *Guatemala: National progress report on the implementation of the Hyogo Framework for Action (2011-2013) – Interim*. Coordinadora Nacional para la Reducción de Desastres (CONRED).

Government of Guatemala. 2012. *Plan Operativo Annual POA 2013*. Ministerio de Agricultura, Ganadería y Alimentación, Dirección de Planeamiento.

Government of Guatemala. 2010. *Guatemala: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Coordinadora Nacional para la Reducción de Desastres (CONRED).

Government of Guatemala. 2010. *Política Agropecuaria 2011-2015*. Ministerio de Agricultura, Ganadería y Alimentación.

Government of Guatemala. 2009. *Programa Nacional de Prevención y Mitigación ante Desastres 2009-2011*. Gobierno de Guatemala, Vicepresidencia de la República, Consejo Nacional y Secretaría Ejecutiva de la Coordinadora Nacional para la Reducción de Desastres.

Government of Guatemala. 2007. *Guatemala: Informe de avance en la implementación del Marco de Acción de Hyogo: Midiendo el progreso alcanzado en la reducción del riesgo de desastres*. Coordinadora Nacional para la Reducción de Desastres (CONRED), Secretaría Ejecutiva.

Government of Guatemala. No date. *Plan Nacional de Respuesta – PNR*. Coordinadora Nacional para la Reducción de Desastres (CONRED), Secretaría Ejecutiva.

Government of Guinea. 2012. *République de Guinée: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo (2011-2013) – intermédiaire*. Service National de Gestion des Catastrophes et des Urgences Environnementales.

Government of Guinea. 2010. *Plan d'Investissement Agricole 2010-2015*. Ministère de l'Agriculture.

Government of Guinea. 2007. *Politique Nationale de Développement Agricole – Vision 2015*. Reduction. Ministère de l'Agriculture, de l'Élevage, de l'Environnement et des Eaux et Forêts.

Government of Jamaica and FAO. 2010. *Agricultural Disaster Risk Management Plan – Jamaica*. Ministry of Agriculture and Fisheries.

Government of Lao People's Democratic Republic. 2012. *Lao People's Democratic Republic: National Progress Report on the Implementation of Hyogo Framework for Action (2011-2013) - interim*. National Disaster Management Office.

Government of Lao People's Democratic Republic. 2011. *Lao People's Democratic Republic: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. National Disaster Management Office.

Government of Lao People's Democratic Republic. 2010. *Agricultural Master Plan 2011 to 2015. Program Approach, Roadmap Agriculture and Forestry for Sustainable Development, Food and Income Security*. Final Draft. Ministry of Agriculture and Forestry.

Government of Lao People's Democratic Republic. 2010. *Strategy for Agricultural Development 2011 to 2020*. Ministry of Agriculture and Forestry. Vientiane, Lao PDR.

Government of Lao People's Democratic Republic. 2009. *Lao People's Democratic Republic: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. National Disaster Management Office.

Government of Lao People's Democratic Republic. 2003. *Strategic Plan on Disaster Risk Management in Lao PDR 2000, 2010 and action plan (2003-2005)*. National Disaster Management Committee and Ministry of Labor and Social Welfare.

Government of Lao People's Democratic Republic and UNDP. 2012. *Disaster Management Plan 2012-2015 (Draft)*. National Disaster Management Office of the Ministry of Labor and Social Welfare.

Government of Liberia. 2012. *National Disaster Management Policy*. National Disaster Management Agency. Monrovia, Liberia.

Government of Liberia. 2010. *Liberia Agriculture Sector Investment Program (LASIP) Report*. Monrovia, Liberia.

Government of Liberia. 2008. *Food and Agriculture Policy and Strategy. From Subsistence to Sufficiency*. Ministry of Agriculture. Monrovia, Liberia.

Government of Liberia. 2007. *Comprehensive Assessment of the Agriculture Sector of Liberia (CAAS-Lib)*. Ministry of Agriculture. FAO, IFAD, the World Bank. Liberia.

Government of Liberia and UNDP. 2009. *Capacity Needs Assessment in Disaster Risk Reduction. County, District and Community Assessment*. National Disaster Management Commission, Ministry of Internal Affairs. Monrovia, Liberia.

Government of Madagascar. 2011. *Madagascar: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo (2009-2011)*. Bureau National de Gestion des Risques et des Catastrophes, Ministère de l'Intérieur et de la Réforme Administrative (BNGRC).

Government of Madagascar. 2009. *Madagascar: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo. 2007-2009*. Bureau National de Gestion des Risques et des Catastrophes, Ministère de l'Intérieur et de la Réforme Administrative (BNGRC).

Government of Madagascar. 2008. *Programme Sectoriel Agricole*. Ministère de l'Agriculture, de l'Élevage & de la Pêche (MAEP).

Government of Madagascar. 2006. *Programme d'Action National d'Adaptation au Changement Climatique*. Ministère de l'Environnement, des Eaux et Forêts, Direction Générale de l'Environnement.

Government of Mali. 2013. *Politique de Développement Agricole du Mali (PDA)*. Document provisoire, May 2013.

Government of Mali. 2011. *Mali: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo (2009-2011) – intermédiaire*. Ministry of Internal Security and Civil Protection.

Government of Mali. 2006. *Portant Loi d'Orientation Agricole*. Loi No.05. Assemblée Nationale. Mali.

Government of Mozambique. 2013. *Mozambique: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*. National Institute for Disaster Management.

Government of Mozambique. 2011. *Mozambique: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. National Institute for Disaster Management.

Government of Mozambique. 2009. *Mozambique: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. National Institute for Disaster Management.

Government of Mozambique. 2007. *Estrategia de Segurança Alimentar e Plano de Acção 2008-2015. Segurança Alimentar e Nutricional, um Direito para um Moçambique Sem Fome e Saudável*. Secretariado Técnico de Segurança Alimentar e Nutricional.

Government of Mozambique. 2006. *Master plan for prevention and mitigation of natural disasters*. Council of Ministers.

Government of Myanmar. 2010. *Myanmar: National progress report on the implementation of the Hyogo Framework for Action (2009-2011) – interim*. Ministry of Social Welfare, Relief and Resettlement.

Government of Nepal. 2011. *Climate Change Adaptation and Disaster Risk Management in Agriculture: Priority Framework for Action 2011-2020*. Ministry of Agriculture and Cooperatives.

Government of Nepal. 2011. *Nepal: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Ministry of Home Affairs, Disaster Management Section.

Government of Nepal. 2010. *National Agriculture Sector Development Priority (NASDP) for the Medium-Term (2010/11-2014/15)*. Ministry of Agriculture and Cooperatives. Kathmandu, Nepal.

Government of Nepal. 2010. *Nepal: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. Ministry of Home Affairs, Disaster Management Section.

Government of Nepal. 2009. *Plan of Action For Disaster Risk Reduction For Agriculture*. Ministry of Agriculture and Cooperatives.

Government of Nepal. 2008. *National Strategy for Disaster Risk Management (NSDRM)*. Final Draft. Ministry of Home Affairs.

Government of Nepal. 2004. *National Agricultural Policy*.

Government of Nepal. 1996. *National Action Plan on Disaster Management in Nepal*. Ministry of Home Affairs. Kathmandu, Nepal.

Government of Nicaragua. 2013. *Plan de Adaptación a la variabilidad y el Cambio Climático en el Sector Agropecuario, Forestal y Pesca en Nicaragua*. Ministerio Agropecuario y Forestal.

Government of Nicaragua. 2012. *Plan Operativo Prorural Incluyente*. Gobierno de Reconciliación y Unidad Nacional (GRUN).

Government of Nicaragua. 2011. *Nicaragua: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo (2009-2011)*. Secretaría Ejecutiva del SINAPRED.

Government of Nicaragua. 2008. *Plan Nacional de Respuesta (PNR) del SINAPRED*. SINAPRED.

Government of Nicaragua. 2004. *Plan Nacional de Gestión de Riesgo*. SINAPRED.

Government of Nigeria. 2010. *ECOWAP/CAADP PROCESS. National Agriculture Investment Plan (NAIP) 2011-2014*. Federal Ministry of Agriculture and Rural Development.

Government of Nigeria. 2010. *National Disaster Framework*.

Government of Nigeria. 2010. *Nigeria: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. National Emergency Management Agency (NEMA).

Government of Nigeria. 1993. *Nigerian Agricultural Insurance Corporation Decree No 37 of 1993*. Laws of the Federation of Nigeria.

Government of Peru. 2013. *Perú: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo (2011-2013)*. Centro Nacional de Estimación, Prevención y Reducción del Riesgo de Desastres (CENEPRED).

Government of Peru. 2012. *Plan de Gestión de Riesgo y Adaptación al Cambio Climático en el Sector Agrario, periodo 2012-2021*. Ministerio de Agricultura.

Government of Peru. 2012. *Plan Estratégico Sectorial Multianual del Ministerio de Agricultura para el período 2012 – 2016*. Ministerio de Agricultura.

Government of Peru. 2010. *Perú: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo 2009-2011*. Instituto Nacional de Defensa Civil (INDECI).

Government of Peru. 2010. *Plan Estratégico Sectorial Multianual Actualizado 2007-2011*. Ministerio de Agricultura. Lima, Peru.

Government of Peru. 2009. *Perú: Informe Nacional del Progreso en la Implementación del Marco de Acción de Hyogo 2007-2009*. Instituto Nacional de Defensa Civil (INDECI).

Government of Peru and FAO. 2012. *Plan De Gestión de Riesgo y Adaptación al Cambio Climático en el Sector Agrario, Período 2012-2021*. Ministerio de Agricultura.

Government of Saint Lucia and FAO. 2011. *Strategic Framework for the Ministry of Agriculture, Lands Forestry And Fisheries -For Disaster Risk Reduction in Agriculture, Forestry And Fisheries*. Ministry of Agriculture, Lands, Forestry and Fisheries.

Government of Sierra Leone. 2011. *Sierra Leone: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Disaster Management Department, Office of National Security.

Government of Sierra Leone. 2010. *Sierra Leone: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Disaster Management Department, Office of National Security (DMD/ONS).

Government of Sierra Leone. 2009. *National Sustainable Agriculture Development Plan 2010-2030. Sierra Leone's Comprehensive African Agriculture Development Programme*. Version adapted by CAADP Compact 18th September 2009, Freetown, Sierra Leone.

Government of Sierra Leone. 2009. *Sierra Leone: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. Disaster Management Department, Office of National Security (DMD/ONS).

Government of Sierra Leone. 2006. *National Disaster Management Preparedness Plan*. Volume One.

Government of Sierra Leone. 2006. *Sierra Leone Disaster Management Policy (Final Draft Copy)*.

Government of the Islamic Republic of Afghanistan. 2013. *Afghanistan: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*.

Government of the Islamic Republic of Afghanistan. 2012. *Afghanistan Statistical Yearbook 2011-12*, Agriculture Development Central Statistics Organization (CSO).

Government of the Islamic Republic of Afghanistan. 2011. *Afghanistan Strategic National Action Plan (SNAP) for Disaster Risk Reduction: Towards Peace and Stable development*.

Government of the Islamic Republic of Afghanistan. 2008. *Afghanistan National Development Strategy (ANDS). 1387-1391 (2008-2013). A Strategy for Security, Governance, Economic Growth and Poverty Reduction*. Kabul, Afghanistan.

Government of the Islamic Republic of Afghanistan. 2008. *Agriculture and Rural Development Sector Strategy, 2007/2008-2012/2013*. Volume II. Pillar IV, Agriculture & Rural Development. Kabul, Afghanistan.

Government of the Islamic Republic of Pakistan. 2013. *National Disaster Risk Reduction Policy*. Ministry of Climate Change, National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. 2012. *Pakistan: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*. National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. 2012. *Pakistan Millennium Development Goals: Report 2013*.

Government of the Islamic Republic of Pakistan. 2011. *Pakistan: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. 2009. *Pakistan: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. 2007. *National Capacity Building for Disaster Risk Management*. National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. 2007. *National Disaster Risk Management Framework Pakistan*. National Disaster Management Authority.

Government of the Islamic Republic of Pakistan. No date. *Agriculture and Food Security Policy*. Draft. Ministry of National Food Security and Research.

Government of the Islamic Republic of Pakistan. ADB and WB. 2011. *2011 Pakistan Floods: Preliminary Damage and Needs Assessment*.

Government of the Islamic Republic of Pakistan and United Nations. 2012. *Pakistan Floods 2011: Early Recovery Framework*.

Government of the Islamic Republic of Pakistan and United Nations. 2012. *Early Recovery – Floods 2010: Final Report*.

Government of the Islamic Republic of Pakistan and United Nations. 2011. *The National Flood Reconstruction Plan 2010*.

Government of the Islamic Republic of Pakistan and UNDP. 2012. *Report on the Status of the Millennium Development Goals: Sindh*.

Government of the Republic of Haiti. 2013. *Haiti: Rapport national de suivi sur la mise en œuvre du Cadre d'action de Hyogo (2011-2013)*. Ministère de l'Intérieure, des Collectivités Territoriales et de la Sécurité.

Government of the Republic of Haiti. 2011. *Bilan de la mise en œuvre du Cadre d'Action de Hyogo (2005-2010)*. Ministère de l'Intérieure, des Collectivités Territoriales et de la Sécurité.

Government of the Republic of Haiti. 2011. *Plan directeur de vulgarisation agricole (2011-2016)*. Version préliminaire Mars 2011. Ministère de l'Agriculture, des Ressources Naturelles & du Développement Rural MARNDR.

Government of the Republic of Haiti. 2011. *Politique de développement agricole 2010-2025*. Ministère de l'Agriculture, des Ressources Naturelles & du Développement Rural MARNDR.

Government of the Republic of Haiti. 2010. *Haiti. National Agricultural Investment Plan 2010-2016*. Ministry of Agriculture, Natural Resources, and Rural Development.

Government of the Republic of Haiti. 2006. *Plan d'Action National d'Adaptation (PANA)*. Ministère de l'Environnement, Programme Changements Climatiques.

Government of the Republic of Haiti. 2001. *Plan National de Gestion des Risques et des Désastres*. Ministère de l'Intérieure et des Collectives Territoriales, Direction de la Protection Civil.

Government of the Republic of South Africa. 2012. *Sectoral Disaster Risk Management Plan (SDRMP) 2012*. Department of Agriculture, Forestry and Fisheries.

Government of the Republic of South Africa. 2012. *Strategic Plan for the Department of Agriculture, Forestry and Fisheries 2012/13 to 2016/17*. Department of Agriculture, Forestry and Fisheries.

Government of the Republic of South Africa. 2008. *Strategic Plan for the Department of Agriculture, 2008/09-2010/2011*. Department of Agriculture, Forestry and Fisheries.

Government of the Republic of South Africa. 2007. *Strategic Plan for the Department of Agriculture 2007*. Department of Agriculture, Forestry and Fisheries.

Government of the Republic of South Africa. 2005. *Drought Management Plan (DMP)*. A discussion document for public comment. Department of Agriculture.

Government of the Republic of South Africa. 2003. *Disaster Management Act No.57 of 2002*.

Government of the Republic of the Philippines. 2012. *Update on SPJA's 10 Action points on Climate Change*. Climate Change Program. Department of Agriculture.

Government of the Republic of the Philippines. 2011. Competitive and Sustainable Agriculture and Fisheries Sector. Chapter 4. In: *Philippine's Development Plan 2011-2016*. National Economic and Development Authority. Philippines.

Government of the Republic of the Philippines. 2011. *National Climate Change Action Plan (NCCAP)*. Executive Summary. Climate Change Commission, Office of the President of the Philippines.

Government of the Republic of the Philippines. 2011. *Philippines: National progress report on the implementation of the Hyogo Framework for Action (2009-2011) – interim*. Office of Civil Defense, National Disaster Coordinating Council.

Government of the Republic of the Philippines. 2011. *The National Disaster Risk Reduction and Management Plan NDRRMP 2011 to 2028*. Final Version December 2011.

Government of the Republic of the Philippines. 2010. *National Framework Strategy on Climate Change 2010-2022*. Climate Change Commission, Office of the President of the Philippines.

Government of the Republic of the Philippines. 2010. *Strengthening Disaster Risk Reduction in the Philippines: Strategic National Action Plan 2009-2019*. National Disaster Coordinating Council.

Government of the Republic of the Philippines. 2009. *Philippines: National progress report on the implementation of the Hyogo Framework for Action. 2007-2009*. Office of Civil Defense, National Disaster Coordinating Council.

Government of the Republic of the Philippines. No date. *Policy and Implementation Program on Climate Change*. Department of Agriculture.

Government of the Union of Myanmar. 2009. *Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2009-2015*. Ministry of Social Welfare, Relief and Resettlement.

Government of the United Republic of Tanzania. 2013. *Tanzania, United Rep of: National progress report on the implementation of the Hyogo Framework for Action (2011-2013)*. Prime Minister's Office.

Government of the United Republic of Tanzania. 2011. *Tanzania Agriculture and Food Security Investment Plan (TAFSIP). 2011-12 to 2020-21*. Main Document, 18<sup>th</sup> October 2011.



Government of Tanzania. 2011. Annex 1a. Working Paper No.9: Disaster Management, Climate Change Mitigation and Adaptation. In: *Tanzania Agriculture and Food Security Investment Plan (TAFSIP). 2011-12 to 2020-21*.

Government of the United Republic of Tanzania. 2010. *Tanzania, United Rep of: National progress report on the implementation of the Hyogo Framework for Action (2009-2011)*. Prime Minister's Office.

Government of the United Republic of Tanzania. 2009. *Tanzania, United Rep of: National progress report on the implementation of the Hyogo Framework for Action (2007-2009)*. Prime Minister's Office.

Government of the Republic of the Sudan. 2008. *Agriculture and Articulate a Future Vision and Action Plan for Agricultural Revival, Executive Programme for Agricultural Revival*. Council of Ministers, General Secretariat.

Government of Uganda. 2010. *Agriculture for Food and Income Security. Agriculture Sector Development Strategy and Investment Plan 2010/11-2014/15*. Ministry of Agriculture, Animal Industry and Fisheries.

Government of Uganda. 2010. *National Policy for Disaster Preparedness and Management*. Directorate of Relief, Disaster Preparedness and Refugees, Office of the Prime Minister.

High Level Panel on the Post-2015 Development Agenda. 2013. *A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development*.

Huq, S., and Ayers, J. 2007. Critical list: the 100 nations most vulnerable to climate change. In: *Sustainable Development Opinion*. International Institute for Environment and Development.

IGAD. 2013. *The IDDRSI Strategy: IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI)*.

Longley Catherine and Wekesa Mike. No date. *Improving Drought Response In Pastoral Areas of Kenya: Lessons and recommendations*. Overseas Development Institute and CARE.

Maybeck, Alexander. 2013. Why Climate-Smart Agriculture, Forestry and Fisheries. In: *Climate-Smart Agriculture Sourcebook*. FAO. Rome, Italy.

Nigel Nicholson, Nisar Majid, Olivier Cossée, Hadera Gebru, Michael Mutale, Narathius Asingwire. 2007. *Evaluation of FAO's Emergency & Rehabilitation Assistance in the Greater Horn of Africa 2004-2007: Evaluation Report*.

ODI. 2014. *Dare to Prepare: Taking Risk Seriously –Summary*. London. UK.

ODI. 2012. *Disaster Risk Management in post-2015 Policy Frameworks*. Briefing Paper. London. UK.

Pakistan Humanitarian Country Team. 2012. *Monsoon 2012: Revised Humanitarian Operations Plan (MHOP)*

Schneir, Eric Rendón. 2012. *Informe de Consultoría: Consultoría Para la Elaboración de un Mecanismo de Integración de Políticas de Gestión de Riesgo y de Cambio Climático en el Ministerio de Agricultura (MINAG) del Perú.*

Trujillo, Monica. 2013. Disaster Risk Reduction: Strengthening Livelihood Resilience. In: *Climate Smart Agriculture Sourcebook*. FAO. Rome, Italy.

UN. 2013. *The UN Plan of Action on Disaster Risk Reduction for Resilience.*

UN. 2012. *Kenya 2012 Emergency Humanitarian Response Plan.*

UN. 2010. *Pakistan Floods Relief and Early Recovery Response Plan: Revision 2010.*

UN. 2009. *Kenya Emergency Humanitarian Response Plan: Revision.*

UN. 2005. *Pakistan 2005 Earthquake Early Recovery Framework.*

UNCT Angola. 2009. *United Nations Development Assistance Framework (UNDAF) in Angola. 2009-2013.*

UNDP, UNICEF and WFP. 2013. *UN Inter-Agency Cooperation on Disaster Risk Reduction.*

UNDP. 2010. *Stratégie Nationale de Gestion des Risques et des Catastrophes*. Project MAG/99/005/A/07/31-05/31, UNDP/CNS. Antananarivo, Madagascar.

UNISDR. 2013. *From Shared Risk to Shared Value –The Business Case for Disaster Risk Reduction. Global Assessment Report on Disaster Risk Reduction*. Geneva, Switzerland.

UNISDR. 2013. *Mission D'évaluation de la mise en œuvre du Cadre d'Action de Hyōgo 2005-2015 de revue des plates-formes nationales de réduction des risques de catastrophes de consultations post Hyōgo 2015.*

UNISDR. 2013. *Options for Developing Risk Sensitive Sustainable Development Goals.*

UNISDR. 2013. *Proposed Elements for Consideration in the Post 2015 Framework for Disaster Risk Reduction*. UN Special Representative of the Secretary General for Disaster Risk Reduction.

UNISDR. 2013. *Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2).*

UNISDR. 2012. *Towards a Post-2015 Framework for Disaster Risk Reduction.*

UNISDR. 2012. *Drought Contingency Plans and Planning in the Greater Horn of Africa: A desktop review of the effectiveness of drought contingency plans and planning in Kenya, Uganda and Ethiopia.*

UNISDR. 2011. *Global Assessment Report on Disaster Risk Reduction 2011: revealing risk, redefining development*. Geneva, Switzerland.

UNISDR. 2009. *Global Assessment Report on Disaster Risk Reduction: Risk and poverty in a changing climate, invest today for a safer tomorrow*. Geneva, Switzerland.

UNISDR. 2005. *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*.

UNOCHA. 2013. *2013 Global Focus Model*.

Vaqar Ahmed, Amin Aslam Khan Malik, Shakeel Ramay, Zuhair Munawwar and Amir Pervaiz. 2011. *National Economic and Environmental Development Study: the Case of Pakistan*. Planning Commission of Pakistan, Sustainable Development Policy Institute. Islamabad, Pakistan.

World Bank. 2014. *The World Development Report 2014: Risk and Opportunity -managing risk for development*. Washington D.C., USA.

## Annex 1: Ranking of countries based on 10 indexes

		Indexes on risk (natural hazard)						Indexes on risk (climate change)		Indexes on food security		
	Countries	1.Countries most exposed to multiple hazards	2.World Risk Index 2012	3.2013 Global Focus Model	4.Countries found in conditions of protracted crisis	5.Multiple hazards mortality risk	6.Global Needs Assessment Vulnerability Index 2011-2012	7.Critical List: The 100 nations most vulnerable to climate change by the IIED	8.Impacts of Climate Change by the Centre of Global Development	9.Prevalence of undernourishment (number)	10.Prevalence of undernourishment (%)	Accumulated number of indexes (out of 10)
1	Bangladesh	√	√	√		√	√	√	√	√	√	9
2	Haiti		√	√	√	√	√	√	√	√	√	9
3	Madagascar	√	√	√		√	√	√	√	√	√	9
4	Sierra Leone		√	√	√	√	√	√	√	√	√	9
5	Sudan		√	√	√	√	√	√	√	√	√	9
6	Ethiopia		√	√	√	√	√	√	√	√	√	9
7	Cambodia	√	√	√		√	√	√	√	√	√	8
8	Afghanistan	√	√	√	√	√	√	√	√	√	√	8
9	Burundi		√	√	√	√	√	√	√	√	√	8
10	Chad		√	√	√	√	√	√	√	√	√	8
11	Congo DR			√	√	√	√	√	√	√	√	8
12	Liberia		√	√	√	√	√	√	√	√	√	8
13	Myanmar	√	√	√		√	√	√	√	√	√	8
14	Nepal	√		√		√	√	√	√	√	√	8
15	Nigeria	√	√	√		√	√	√	√	√	√	8
16	Tanzania		√	√		√	√	√	√	√	√	8
17	Uganda		√	√	√	√	√	√	√	√	√	8
18	Guinea		√	√	√	√	√	√	√	√	√	8
19	Philippines	√	√	√		√	√	√	√	√	√	8
20	Benin		√	√		√	√	√	√	√	√	7
21	Burkina Faso		√	√		√	√	√	√	√	√	7
22	Central African Republic			√	√	√	√	√	√	√	√	7
23	Djibouti		√	√	√	√	√	√	√	√	√	7
24	Eritrea		√	√	√	√	√	√	√	√	√	7
25	India	√		√		√	√	√	√	√	√	7
26	Lao PDR	√		√		√	√	√	√	√	√	7
27	Mali		√	√		√	√	√	√	√	√	7
28	Mozambique		√	√		√	√	√	√	√	√	7
29	Niger		√	√		√	√	√	√	√	√	7
30	Pakistan	√		√		√	√	√	√	√	√	7

Below is a brief description of the indexes used to develop the above matrix.

Index	Description
<b>*1.Natural Disaster Hotspots<sup>103</sup></b>	The World Bank's list of the top 60 countries most exposed to multiple hazards (2 or more hazards) based on land area, including percentage of total area exposed and percentage of population exposed. The study was a joint collaboration between the World Bank and Columbia University in 2005.
<b>*2.World Risk Index 2012<sup>104</sup></b>	<p>The <i>World Risk Index</i> was developed jointly by scientists and development experts. The calculation of the Index, which the United Nations University Institute for Environment and Human Security, Bonn (UNU-EHS), has been commissioned to perform by Alliance Development Works, is carried out via the four components:</p> <ol style="list-style-type: none"> <li>1.Exposure towards natural hazards such as earthquakes, cyclones, flooding, drought and sea level rise.</li> <li>2.Susceptibility depending on infrastructure, nutrition, housing situation and economic framework conditions.</li> <li>3.Coping capacities depending on governance, disaster preparedness and early warning, medical services and social and material coverage.</li> <li>4.Adaptive capacities relating to forthcoming natural events, to climate change and to other challenges.</li> </ol>
<b>*3.Global Focus Model 2013<sup>105</sup></b>	<p>The <i>Global Focus Model (GFM)</i> is a humanitarian risk tool developed by OCHA. It is used by OCHA to identify geographic 'hotspots' that represent high humanitarian risk and to strategically analyze hazards, vulnerabilities and response capacities at the country level.</p> <p>The risk calculation is based on ISDR's terminology of risk. The 'Focus' category is introduced into the model in order to better reflect the mandate and priorities of OCHA. The 'Focus' rating represents a nuanced analysis of the data to identify not only those countries with the greatest risk, but also those in which OCHA can expect to play a more significant role.</p>
<b>*4.Countries with protracted crisis<sup>106</sup></b>	This is a 2010 FAO list of the 22 countries found in conditions of protracted crisis. All 22 protracted crises countries were included. This criterion allows for the inclusion of other social factors that determine vulnerability, including wars, political instability, food and pandemic crises.
<b>*5.Multiple hazards mortality risk index 2009<sup>107</sup></b>	The <i>UNISDR global multiple hazards mortality risk index</i> looks at the mortality risk and economic loss experienced in past disasters for multiple hazards, namely tropical cyclones, floods, earthquakes, landslides in both frequency and severity, human exposure and identification of their vulnerability. This index provides a score from 10 (high) to 1 (low) for mortality risk to these multiple hazards.
<b>*6.Global Needs Assessment 2011-2012<sup>108</sup></b>	<p>The European Commission's <i>Global Needs Assessment (GNA) index</i> identifies countries in need of assistance to define its priorities. The GNA identifies countries that require priority assistance through two indices: the <i>Vulnerability index</i> and the <i>Crisis index</i>.</p> <p><i>Vulnerability index</i> is based on nine indicators, divided into four categories all with equal weighting:</p> <p>Category 1: general situation in the country – indicator 1: Human Development Index and indicator 2:</p>

<sup>103</sup> Dilley, M., Chen, R.S., Deichmann, U., Lerner-Lam, A.L., and Arnold, M. with Agwe, J., Piet Buys, P., Kjekstad, O., Lyon, B., and Yetman, G. 2005. *Natural Disaster Hotspots. A Global Risk Analysis*. Disaster Risk Management Series No. 5. The World Bank. Washington D.C, USA.

<sup>104</sup> Alliance Development Works. 2012. *World Risk Report 2012*.

<sup>105</sup> UNOCHA. 2013. *2013 Global Focus Model*.

<sup>106</sup> FAO. 2010. *The State of Food Insecurity. Addressing food insecurity in protracted crises*. Rome, Italy.

<sup>107</sup> UNISDR. 2009. *Risk and poverty in a changing climate Invest today for a safer tomorrow. 2009 Global Assessment Report*.

<sup>108</sup> European Commission. 2011. *Methodology for the Identification of Priority Countries for the European Commission Humanitarian Aid "GNA and FCA"*. Technical Note. Brussels.

	<p>Human Poverty Index</p> <p>Category 2: uprooted people – indicator 3: Refugees, displaced persons and recent returnees</p> <p>Category 3: Health of children under five – indicator 4: Malnutrition, indicator 5: mortality</p> <p>Category 4: other vulnerability factors – indicator 6: access to health care, indicator 7: prevalence of HIV-AIDS, tuberculosis and malaria, indicator 8: Gender-specific human development index, indicator 9: Gini Index.</p>
<b>*7.Critical List: The 100 nations most vulnerable to climate change</b> <sup>109</sup>	The list of the 100 nations most vulnerable to climate change (though not ranked). Being an LDC was the critical filter that was deemed to determine the highest degree of vulnerability. Climate change was a critical factor in determining vulnerabilities of countries. Those that will be impacted the most will be in greatest need of assistance.
<b>*8. Mapping the Impacts of Climate Change Development</b> <sup>110</sup>	This index, called the <i>'Mapping the Impacts of Climate Change'</i> produced four rankings of 233 countries, looking at vulnerability to extreme weather events, sea level rise, agricultural productivity loss and finally, the 'overall' ranking. In this matrix the 'overall' country ranking was used to allow the inclusion of all the climate change impacts and how these affect a country's vulnerability.
<b>*9.Prevalence of undernourishment (number)</b> <sup>111</sup>	The countries with the highest prevalence of undernourishment, in terms of the number of undernourished people (in millions) in each country. The countries were sorted from largest to smallest in terms of millions undernourished. Inclusion of this criterion allows for the matrix to have a food security focus.
<b>*10.Prevalence of undernourishment (%)</b> <sup>112</sup>	The countries with the highest prevalence of undernourishment, in terms of the percentage of the country population suffering from undernourishment. This index adds a food security focus, and allows distinguishing between large countries and countries with high portions of their population suffering from hunger.

<sup>109</sup> Huq, S., and Ayers, J. 2007. *Critical list: the 100 nations most vulnerable to climate change*. Sustainable Development Opinion. International Institute for Environment and Development.

<sup>110</sup> <http://www.cgdev.org/page/mapping-impacts-climate-change> (accessed 20 Dec 2013)

<sup>111</sup> FAO. 2010. *The State of Food Insecurity. Addressing food insecurity in protracted crises*. Rome, Italy.

<sup>112</sup> Ibid