Food and Agriculture Organization of the United Nations

STEP 1

Disaster risk prioritization

Guidance note series on Anticipatory Action

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Introduction

This publication is part of a series of four core guidance notes providing direction on how to identify and prioritize risks (Step 1 – disaster risk prioritization), and accordingly establish an early warning system for Anticipatory Action (Step 2 – early warning systems), design and implement Anticipatory Action programmes (Step 3 – Anticipatory Action programming), and finally assess the impact of such programmes (Step 4 – impact analysis). The four guidance notes reflect the four key steps to be followed in establishing an Anticipatory Action system.

Disaster risk prioritization is the first step as it provides the basis for the identification of early warning indicators, thresholds and triggers, as well as of appropriate anticipatory actions that can mitigate the impact of the prioritized risks on vulnerable populations. The identification, understanding and, on such basis, the prioritization of disaster risks in a specific context is critical for the design of risk management policies and programmes, including disaster risk reduction, preparedness, Anticipatory Action and response interventions. Clarity on "priority" risks is particularly useful for anticipatory actions as it allows prioritizing the most appropriate actions to protect lives and livelihoods and allocate resources and efforts accordingly.

Box 1. Definitions

Disaster risk: The potential loss of life, injury or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

Hazard: A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

Disaster: A disaster is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

Source: UNDRR (United Nations Office for Disaster Risk Reduction). 2017. Terminology. In: *UNDRR*. Cited 21 December 2022. undrr.org/terminology

The objective of this disaster risk prioritization guidance note is to support Anticipatory Action practitioners in identifying and prioritizing the main risks for agriculture and food security, including their frequency and seasonality as well as the livelihoods, locations and agricultural sectors[1] they affect the most. This guidance note is not intended to replace a complete and detailed disaster risk assessment, but rather to present a tailored approach to evaluating and ranking risks as a key element of establishing an appropriate and time-sensitive Anticipatory Action system. This includes situations where a full disaster risk assessment is not available, feasible or, if already undertaken, sufficiently context-sensitive.

[1] Agricultural sectors include crops, livestock, forestry, fisheries and aquaculture.

This approach uses available data to create a synthetic and succinct snapshot of the risks of highest concern as it relates to their potential in affecting lives and livelihoods, and that are of major concern to the at-risk population.

This guidance note is considered a living document that will be regularly updated to reflect learning and improve coherence with related guidance notes that will be developed. This guidance note is also accompanied by a related module in the FAO e-learning course on Anticipatory Action (refer to Annex III).

The disaster risk prioritization process

The disaster risk prioritization process consists of the collection and prioritization of information on the hazards negatively affecting agriculture and food security in any given location. It compiles information on the location, frequency and seasonality of each hazard, the characteristics of the various population groups and assets that are likely to be impacted. Each identified hazard is then ranked based on likelihood to occur and impact in terms of number of people, livelihood groups and agricultural sector/activity to be adversely affected.

Disaster risk prioritization foresees five steps:

1. **Defining the scope:** identifying the focus of the exercise and collecting recent and historical disaster risk information to inform the analysis;

2. **Hazard identification:** identifying the main hazards that have significantly affected agriculture and food security in the past and/or are likely to occur in the future;

3. **Likelihood assessment:** determining the time of year and frequency at which each major hazard is likely to occur;

4. **Impact assessment:** estimating the likely impact of each type of hazard by identifying areas and agro-climatic zones most likely to suffer significant impact based on historical events, and for each area, defining the number of people, livelihood groups and agricultural sectors/activities that are likely to be negatively affected; and

5. **Disaster risk ranking:** bringing together the information collected during steps three and four (likelihood and impact assessments) and quantifying the seriousness of the selected identified risk(s) in each location(s). This helps determine the top priorities that the Anticipatory Action system will focus on.

Box 2. Targeting

Targeting (i.e. selecting the beneficiaries of the interventions) is not part of the prioritization process but it is undertaken in a more detailed way during the programming phase. However, information on the vulnerabilities of at-risk populations remains essential for the prioritization process as it helps to validate which hazards should be prioritized, and which locations and livelihood types the Anticipatory Action system should focus on to protect the most vulnerable.

(For more information on targeting, refer to the forthcoming guidance note on Anticipatory Action programming)

The five steps above should be undertaken in collaboration with relevant government entities, the local community and other partners, such as local and international non-governmental organizations, private sectors, United Nations agencies or academia to the extent possible. Gender and diversity considerations as well as a conflict sensitivity approach should be considered throughout the process. The information collected can be systematized in the disaster risk prioritization template (see Annex I) that complements this guidance note.

Step 1. Defining the scope and stakeholders

The first step is to decide upon the parameters of the disaster risk prioritization exercise related to where the focus is and who is involved.

Key questions

- What is the geographical scope of the exercise?
- Who are the stakeholders to be involved in the exercise, and whom might we have overlooked?
- What disaster risk information is available? What are the gaps in information?

Box 3. Definitions

Agroecological zones (agroclimatic zones): Land resource mapping unit, defined in terms of climate, landform and soils, and/or land cover, and having a specific range of potentials and constraints for land use (FAO, 1996). These small units have similar characteristics related to land sustainability, potential production and environmental impact.

Livelihood zone: a geographical area where people generally share similar options for obtaining food and income. Factors considered in the delineation of the livelihood zones include not only socio-economic parameters, such as market accessibility, farming systems and major economic activities, but also agro-climatic characteristics, soil patterns, elevation and land cover.

Sources: FAO. 1996. *Agro-ecological zoning guidelines.* FAO Soils Bulletin No. 73. Rome, Soil Resources, Management and Conservation Service. Cited 21 December 2022. fao.org/3/w2962e/w2962e00.htm#P-2; FAO. 2020. *Biodiversity and the livestock sector – Guidelines for quantitative assessment – Version 1.* Rome, Livestock Environmental Assessment and Performance Partnership (FAO LEAP). Cited 21 December 2022. https://doi.org/10.4060/ca9295en; FAO. 2022. Livelihood Zones. In: *FAO*. Cited 21 December 2022. fao.org/land-water/land/land-governance/land-resources-planning-toolbox/category/details/en/c/1236452

Geographic location

It determines the area(s) of focus for the Anticipatory Action systems and thus where disaster risks are to be identified. For countries covering a number of diverse areas, it can be useful to prioritize risks for different geographic locations (i.e. administrative, agro-climatic zones or livelihood zones). It is also recommended to identify the major risks at national level in order to have a more comprehensive understanding of all critical hazards beyond the target area.

Stakeholder analysis

A stakeholder is an individual, association or entity with positions and interests capable of influencing, positively or negatively, the context within a given area. Stakeholder analysis refers to the systematic identification of the actors, whether groups or people, communities, institutions or organizations, who have a stake in a specific location, intervention and/or at a specific scale of relevance to Anticipatory Action.

Stakeholders should be represented and characterized according to their needs, interests, relevance and relations vis-à-vis a pursued objective. As such, a stakeholder analysis constitutes a key step to ensure the inclusion and participation of all key actors in the disaster risk prioritization, including government counterparts, at-risk communities, people with

specific vulnerabilities and needs, and relevant national and international organizations. A stakeholder analysis could be supplemented by a community profiling exercise to better understand which community actors should be involved. A stakeholder analysis brings several positive results:

- it helps to map out existing capacities, roles and responsibilities and thus, factor these into the Anticipatory Action system;
- it supports access to and exchange of information and knowledge – including traditional knowledge through community engagement;
- it ensures, by involving the at-risk population, a more in-depth understanding of the impacts of a hazard on their lives and livelihoods thus allowing to better tailor the required interventions and facilitating accountability to affected populations, including children, young people, the elderly and people with disabilities; and
- it facilitates inclusive Anticipatory Action in line with human rights-based commitments to ensure that everyone, including vulnerable individuals and people with specific needs, participates in decision-making and benefits from Anticipatory Action on an equal basis.

Information available

The identification of existing reliable and up-to date information can be used to inform disaster risk prioritization. This includes:

- existing in-depth risk and vulnerability assessments and livelihood profiles;
- existing gender and context analyses;
- historical data on hazard occurrence trends, including any seasonally concurrent conflicts and impact on agriculture and food security;
- information such as seasonal cropping, livestock, and fishing calendar(s), seasonal hazard calendar(s), human and animal migration calendars, etc.;
- information regarding the most at-risk livelihoods, demographic compositions and food security status and previous disaster impacts, including maps with graphical presentations of the at-risk populations' demographic characteristics (size, diversity dimensions such as gender, ethnicity, displacement status etc., population density by administrative area, disaggregation and location of identified vulnerable groups, common food and income sources, etc.), agroecological zones, livelihood zones, livestock migration routes, etc.; and
- information regarding households' resilience capacity, as well as the capacity of a national government and non-state actors to manage risk and respond to crises.

Ad hoc information can also be collected, particularly if gaps are identified in existing information. This can be done via key informant interviews, satellite images, or running spatial and statistical analysis, for instance.

Step 2. Hazard identification

This step helps identify the main hazards that have significantly affected agriculture and food security in the past or that are likely to do so in the future.

Key questions

- What are the main kinds of hazards that commonly occur in the country/region and negatively impact agriculture and food security?
- What hazards have occurred in the past and affected agriculture and food security? With which frequency?
- What areas have been most frequently or significantly exposed to these hazards?

Hazard

Identify the two/three hazards (e.g. hydro-meteorological hazards, or plant and zoonotic pests and diseases, etc.) that are most likely to occur and have a great impact on agriculture and food security. Use historical knowledge of disasters that have occurred in the past to identify the hazards that caused them and if these overlapped. Use the understanding of the current situation that may suggest re-occurrence of such hazards or intensification/outbreaks of violence/conflict (e.g. intercommunal tension, competition of natural resources, cattle rustling, etc.). Focus group discussions and participatory rapid appraisal tools, e.g. community mapping and daily calendars, with food security partners and communities previously exposed may also be useful.

Location

Identify the areas that are most likely to be impacted by the most likely hazards to affect the determined area of analysis. Areas can be identified by administrative areas, agro-climatic zones or livelihood zones depending on available data. One approach is to break down a high-risk location into the different agro-climatic zones and identify the different types of livelihoods that are hosted as these would therefore require different types of interventions. In the final stage of disaster risk prioritization, each of the identified locations will be ranked based on the likelihood and frequency of occurrence and potential impact to facilitate the identification of priority areas for anticipatory actions.

Step 3. Likelihood assessment

This step supports determining the time of the year (seasonality) and the frequency at which the identified hazards occur.

Key questions

- What is the frequency of occurrence of each hazard?
- When is each hazard likely to occur during the year?
- What are the seasonal trends for the country/province/community?
- What is the agricultural calendar?
- Likelihood

Likelihood describes the potential for the event to occur in the future. To assess the likelihood we need to assess the frequency and seasonality.

Frequency

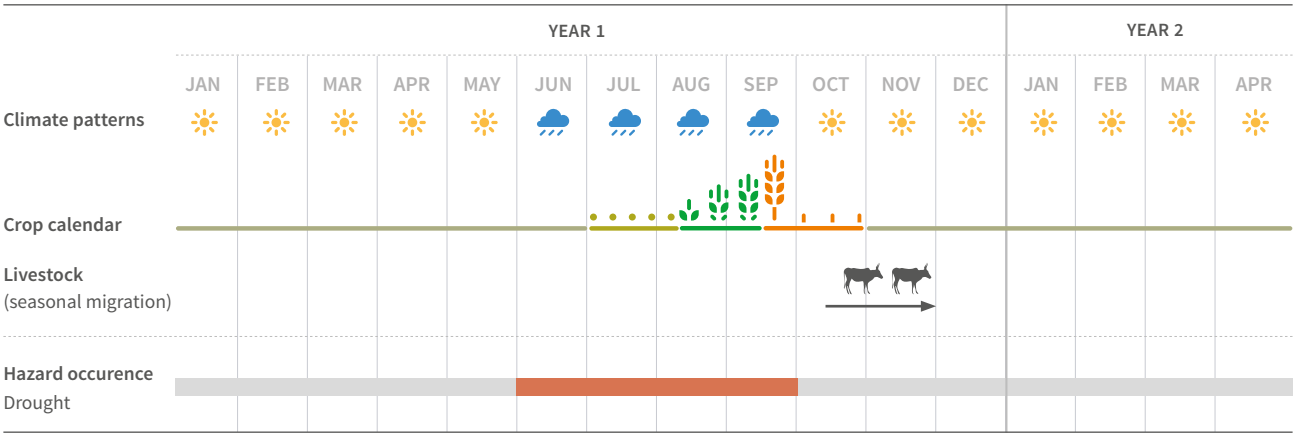
Based on the historical data, what is the frequency of the hazard(s)? Recognize that some may be occurring for the first time (e.g. conflict). Examples of frequency include:

- twice a year
- every year
- every three years
- once in the past 10 years

Seasonality

Identify the time of year in which the hazard commonly occurs (e.g. in a specific country, flooding occurs during the three last months of the rainy season). This information can be complemented by a seasonal calendar. A seasonal calendar visually represents the interaction between agricultural activities (planting, harvesting, employment migration, livestock migration, lean season, etc.) and the time of year different hazards are likely to occur.

Figure 1. Seasonal calendar



Source: Author's own elaboration.

Step 4. Impact assessment

This step is to understand, for each major hazard and location, the type of impact on vulnerable groups in the identified locations.

Key questions

- Based on the seasonal calendar and areas likely affected, what are the key livelihood groups (disaggregated by gender and diversity[2] as relevant to vulnerability assessment) that are commonly/likely to be affected by each hazard?
- Approximately how many people/households in each livelihood group are going to be affected?
- For each livelihood group, how are the main agricultural sectors likely to be affected by the specific hazard (e.g. which crops, which livestock)?
- How is the hazard likely to affect food and income sources?
- What other important assets, including access to assets (e.g. infrastructure, tools and other productive assets, markets/trade) are likely to be affected?
- How is each livelihood group (disaggregated by gender and diversity as relevant) likely to be affected?

Livelihoods groups

Within each of the prioritized locations and agroclimatic zones, identify the different livelihood groups that are likely to be significantly affected by the identified hazard(s). Describe how each group will be affected, including assets lost, disruption to access to food, income lost, etc. If data is available, provide a rough estimate of the number of people or households likely to be affected in each livelihoods group. When identifying livelihoods groups, it is critical to consider factors of vulnerability – poverty, food security status, gender, age, diversity, disability, capabilities, etc. – since these will influence an individual's and community's ability to cope with the identified potential disaster. This information is critical not only to define the livelihood groups in this step, but also to guide the selection and targeting of vulnerable households, including determining which actions are likely to be effective and relevant in addressing the needs of those most at-risk (for more information on targeting, refer to the forthcoming guidance note on Anticipatory Action programming).

Impact

Impact includes potential damage, production loss, and the environmental and economic impacts on agriculture. In addition to the direct impact on individual livelihoods and the food security of vulnerable individuals, households may also be indirectly affected (as secondary impact) by the impact suffered by the overall agriculture sector (for instance, destruction of communal resources – i.e. infrastructure, markets – might reduce availability and access to food).

[2] For instance: ethnicity, religion, sexual orientation, marital status, age, and disability

Step 5. Disaster risk ranking

This step brings together the information collected during the likelihood and impact assessments to enable quantifying the level of risks and prioritize them accordingly. For each identified hazard and location, the likelihood and impact should be quantified in order to determine the seriousness of the event, which is the final value used to prioritize the risks.

Key questions

- Based on the frequency and potential impact of identified hazards, what is the seriousness of such hazards?
- What are the most at-risk locations and the most at-risk population groups (considering gender, age, diversity, etc.) per identified hazard and potential disaster?

Likelihood

This can be ranked by how likely the event is to occur in the future.
A suggested approach is to look at the seasonality of the event (i.e. indicate the months during which it happens) across the next 12 months.

On a scale of 1–5, classify as follows:

- very unlikely (1): 0–5 percent chance of occurring in the next 12 months
- unlikely (2): 5–15 percent chance of occurring in the next 12 months
- moderately likely (3): 15–30 percent chance of occurring in the next 12 months
- likely (4): 30–50 percent chance of occurring in the next 12 months
- very likely (5): > 50 percent chance of occurring in the 12 months

Impact

This can be classified on a scale from Negligible (1) to Critical (5)[3] along two key dimensions:

- **Magnitude:** the relative number of potentially affected people and/or geographical extent of the impact on agriculture and people's livelihoods and food security; and
- **Severity:** the gravity of the impact on agriculture and people/households' livelihoods and food security especially in relation to pre-existing vulnerability and food insecurity.

This process is subjective and will vary according to the context. However, this ranking does not have to be exact as it is intended to simply compare and rank the identified disaster risks in the various at-risk areas. Ensuring that all relevant stakeholders are engaged in the process is a way to ensure that the results of it are shared and owned and that they reflect the reality as much as possible.

[3] See Annex 2 for more details on impact classification.

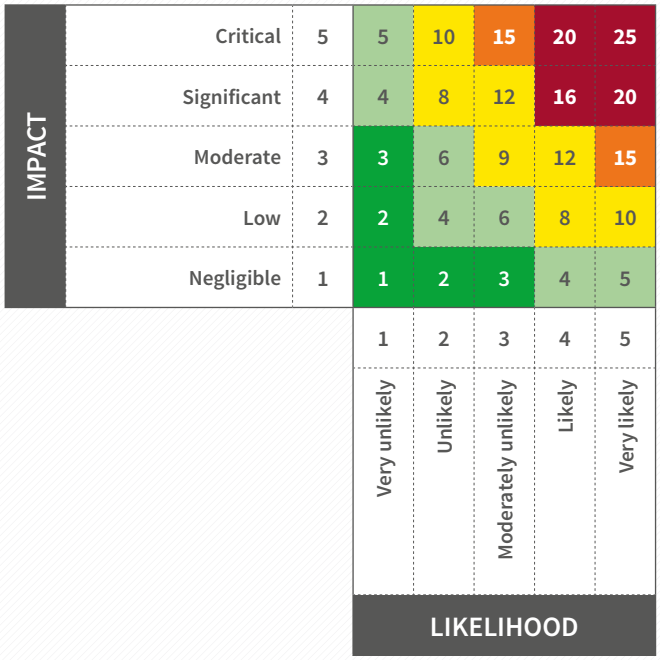
Seriousness (final score)

It results from the multiplication of the values obtained for likelihood and impact of each hazard, using the following scale (Figure 1). On a scale of 1–25, the classification is as follows:

- low seriousness: 1–7 (green)
- medium seriousness: 8–14 (yellow)
- high seriousness: 15–25 (rose to red)

Figure 2. Risk-rating matrix (heat-map)

The ranking and resulting values are demonstarted in this risk-rating matrix:



Source: FAO. 2022. *Risk-rating matrix (heat-map).* [Internal document.] Rome.

The prioritization process is meant to provide an indication of the priority risks to guide the focus of the Anticipatory Action system. However, it is important to keep in mind that the final decision on the specific focus of the Anticipatory Action system should also be complemented by the opinion of relevant stakeholders involved in the process as experts, government and community members and it should always be contextualized. For instance, a medium/high-frequency event that has a low or moderate impact might be nonetheless prioritized given that its cumulated impact over time may be more significant than the one of a low frequency but high impact event. Alternatively, for a low frequency event, this might be prioritized if climate projections show that there is a potential increase in frequency and intensity due to climate variability. Similarly, an infrequent hazard might be prioritized if its impact is expected to be very large.

Takeaway points

- Identifying and understanding the risks to which an area and a community are exposed is a critical element of an Anticipatory Action system. This process allows identifying what actions need to be taken to protect agricultural livelihoods and food security in advance of a potential disaster.

- Prioritizing risks is essential as it ensures that actions are directed towards those risks that represent the greatest threat to agricultural livelihoods and food security, thus allowing an effective and efficient use of resources (human, technical, financial, etc.) invested in Anticipatory Action.

- Engaging national authorities, at-risk communities and other relevant actors in identifying and prioritizing risks is essential to generate ownership and, more importantly, to ensure that the identified risks and related actions are those most needed and relevant to the at-risk individuals and groups.

Annexes

Annex I. Template – Disaster risk profile

1. Context		**Geographic location:**						
		Partners:						
		Office:						
		Responsible Officer:						
		Date of last revision:						
2. Disaster risk		**3. Likelihood**		**4. Impact**		**5. Disaster risk ranking by location**		
Hazard	**Location**	**Seasonality**	**Frequency**	**Agriculture sector/livelihood groups**		**Likelihood (1–5)**	**Impact[4] (1–5)**	**Total score[5] (1–25)**
				Specify the agriculture sector/ livelihood group here	1. Number of potentially affected (number of people and households/percentage of total) 2. Assets at risk (crops, livestock, forestry, fisheries, aquaculture) expressed in absolute numbers and percentage of total 3. Infrastructure at risk (markets, food storage facilities, livestock shelters)			
Annex: List of main resources used								

[4] This is the combined score of the severity and magnitude of the impact (see page 6).
[5] This corresponds to seriousness (page 6) and it combines likelihood and impact.

Example

1. Context	**Geographic location:**	Country name
	Partners:	N/A
	Office:	FAO Country Office
	Responsible Officer:	
	Date of last revision:	May 2021

2. Disaster risk		**3. Likelihood**		**4. Impact**		**5. Disaster risk ranking by location**		
Hazard	**Location**	**Seasonality**	**Frequency**	**Agriculture sector/livelihood groups**		**Likelihood (1–5)**	**Impact (1–5)**	**Total score (1–25)**
Drought	North District and South District	June–October (during main rainy season)	Every five years (average)	**Cross-sector**	• potentially 700 000 at risk (100 000 households)	**4**	**5**	**20**
				Agriculture	• 12 million ha of rainfed cropland at risk • reduced harvest in November–December resulting in early February–March lean season • increased food prices	**4**	**4**	**16**
				Livestock	• reduced pasture generation and fodder production • herders who rear sheep, cattle or goats for personal consumption and income • increased spread of livestock disease • increased water and fodder prices • decreased sale price of livestock	**4**	**4**	**16**
Annex: List of main resources used								

Annex II. Ranking impact by severity and magnitude

Impact	Negligible	Minor	Moderate	Severe	Critical
Magnitude	Qualitative				
	A negligible amount of the population and no particular vulnerable groups affected.	A minor amount of the population and no particular vulnerable groups affected.	A moderate amount of the population and/or some vulnerable groups will be affected.	Significant parts of the population and/or particularly vulnerable group are especially affected.	Large parts of the population are affected and/or the vast majority of vulnerable groups.
	Quantitative[6]				
	1. absolute increase in number of food insecure 2. relative number of food insecure 3. number of people shifting to Integrated Food Security Phase Classification (IPC) Phase 3 or above 4. number of households whose livelihoods are potentially affected				
Severity	Negligible (additional) negative impact on livelihoods, agriculture and food security.	Minor (additional) negative impact on livelihoods, agriculture and food security.	Moderate (additional) negative impact on livelihoods, agriculture and food security.	Substantive additional negative impact on livelihoods, agriculture and food security.	Massive additional negative impact on livelihoods, agriculture and food security.
	No disruption and agricultural activities resume unaltered.	Agricultural activities resume with minor changes.	Agricultural activities will partly resume, but sector damage will be consistent, particularly in localized areas.	The impact is affecting sector/ aggregate performance and is widespread in the country.	The impact is severely affecting sector/aggregate performance, is widespread in the country and requires external intervention.
	Households are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income. No reliance on humanitarian assistance.	Even with any humanitarian assistance, households have minimally adequate food consumption, but are unable to afford some essential non-food expenditures without engaging in irreversible coping strategies.	Even with any humanitarian assistance: • households have food consumption gaps with high or above usual acute malnutrition; or • households are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps.	Even with any humanitarian assistance: • household have large food consumption gaps resulting in very high, acute malnutrition and excess mortality; or • households have extreme loss of livelihood assets that will lead to large food consumption gaps in the short term.	Even with any humanitarian assistance: • households have an extreme lack of food and/or other basic needs even with full employment of coping strategies. Starvation, death, and destitution are evident.

[6] Suggested quantitative indicators that help to gather information that is more precise on the impact on agricultural livelihoods/food security.

Annex III. Selected resources

Baas, S., Ramasamy, S., Dey de Pryck, J., & Battista, F. 2008. *Disaster risk management systems analysis: A guide book.* FAO Environment and Natural Resources Service Series No. 13. Rome, FAO. fao.org/3/i0304e/i0304e.pdf

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FAO & WFP (World Food Programme). 2008. *Socio-Economic and Gender Analysis (SEAGA) for Emergency and Rehabilitation Programmes.* Rome. Cited 21 December 2022. fao.org/3/y5702e/y5702e00.htm

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FAO's Anticipatory Action uses risk analysis and forecasts to trigger interventions before a crisis escalates into a humanitarian emergency.

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