

Risk Analysis Guidelines Annexes

To the Risk Analysis Guidelines

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Annex 1: A glossary of terms

Hazard:

A *potentially* damaging physical event, phenomena or human activity which may cause any or all of the following: the loss of life, injury, physical damage, environmental degradation, and social and economic disruption.

Disaster:

A damaging physical event, phenomena or human activity which has occurred and caused any or all of the following: the loss of life, injury, physical damage, environmental degradation, and social and economic disruption. A disaster occurs when the capacity of a community to withstand, respond and recover from the impact of an event is overwhelmed.

Emergency:

Concern defines an emergency as a disaster that has affected sufficient numbers of people to warrant a response from the organisation. This number in effect differs between communities and locations depending on the prior relationship between the affected communities and Concern or our implementing partners¹.

Risk:

The probability of an event happening in a given time span and the magnitude of its effects when it does occur. The magnitude of the effects are related to the individual or community's vulnerability to that hazard. Often expressed thus: **risk = impact x probability**.

Vulnerability:

People's susceptibility to a given hazard which is determined by the extent to which they are exposed to and can anticipate, cope with, respond to and recover from its effects. Vulnerability is a set of conditions and processes resulting from physical, social, economic and environmental factors which increase the susceptibility of a household or a community to the impacts of a hazard.

Capacity:

The combination of all the strengths, attributes and resources available within a community, society or organisation that can be used to achieve agreed goals (ISDR 2009).

Resilience:

The ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses, without compromising their long-term prospects.

Intensive risk:

High intensity events happening in areas of dense population and economic activity.

Extensive risk:

Small, highly localised but frequent events that can disproportionately impact on the assets of poor families. In Concern extensive risk MUST also be addressed

¹ Concern's Approaches to Emergencies (Emergency Unit 2002)

Annex 2: Aspects of Concern's position on DRR

Concern's classification of hazards

As shown below, Concern takes a more 'holistic' view of hazards than many organisations, not limiting ourselves to just 'natural' hazards:

Natural hazards:

- Geological – earthquakes, tsunami, volcanic activity, any kind of landslide, etc.
- Hydro-meteorological (water and weather) – floods, droughts, extreme temperatures, storms and cyclones, any kind of landslide, some wildfires, etc.
- Biological – diseases and pests. Includes crop, animal and human diseases, and HIV MUST be included in an analysis of biological risk even if the incidence is low. Many diseases can be disasters in their own right, or consequences of other disasters (for example cholera in displacement camps).

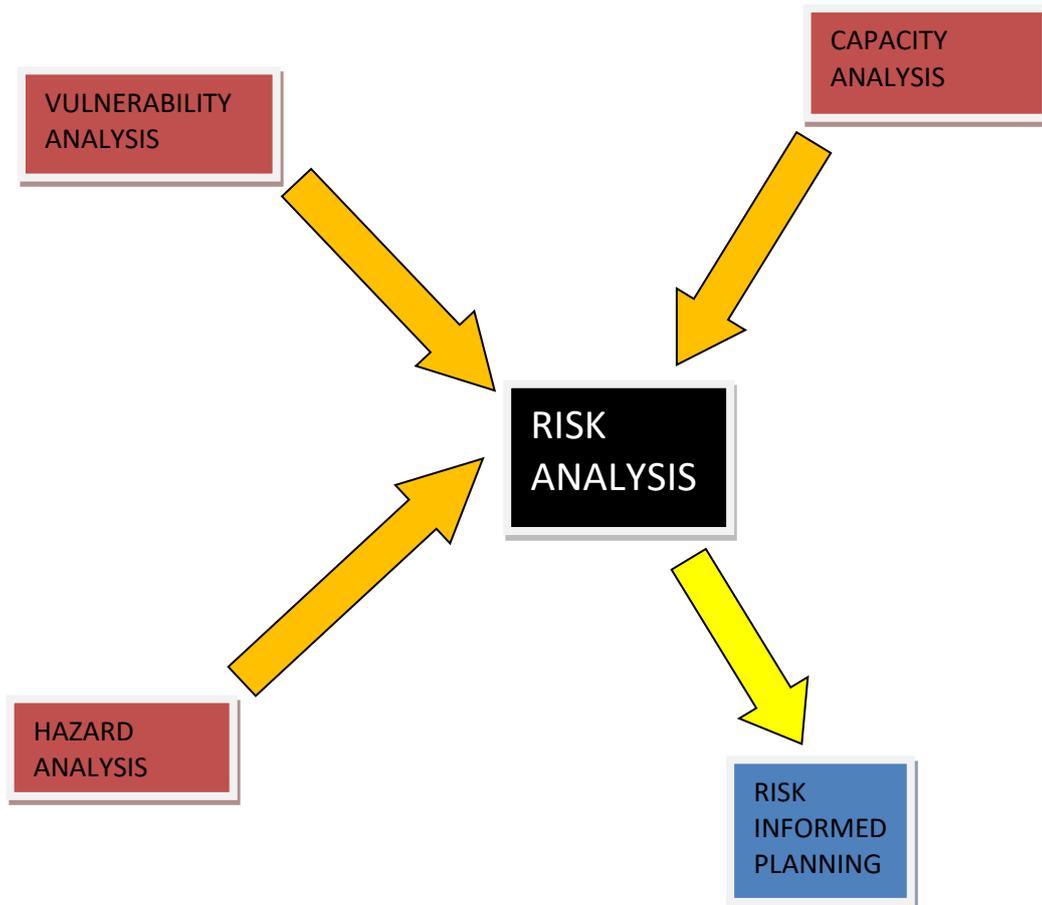
Human-derived hazards:

- Political – absent, non-enforced or bad policies; wrong development choices, some kinds of conflict (civil, inter-state, etc.)
- Economic – food and fuel prices, inflation, market forces, etc.
- Technological – infrastructure failure (building collapse, etc.), toxic spills and industrial accidents, etc.
- Social – marginalisation, traditional practices like female genital mutilation (FGM), gender based violence (GBV), some kinds of conflict (tribal conflicts, resource conflicts, criminality), etc. This links very clearly to the inequality context.

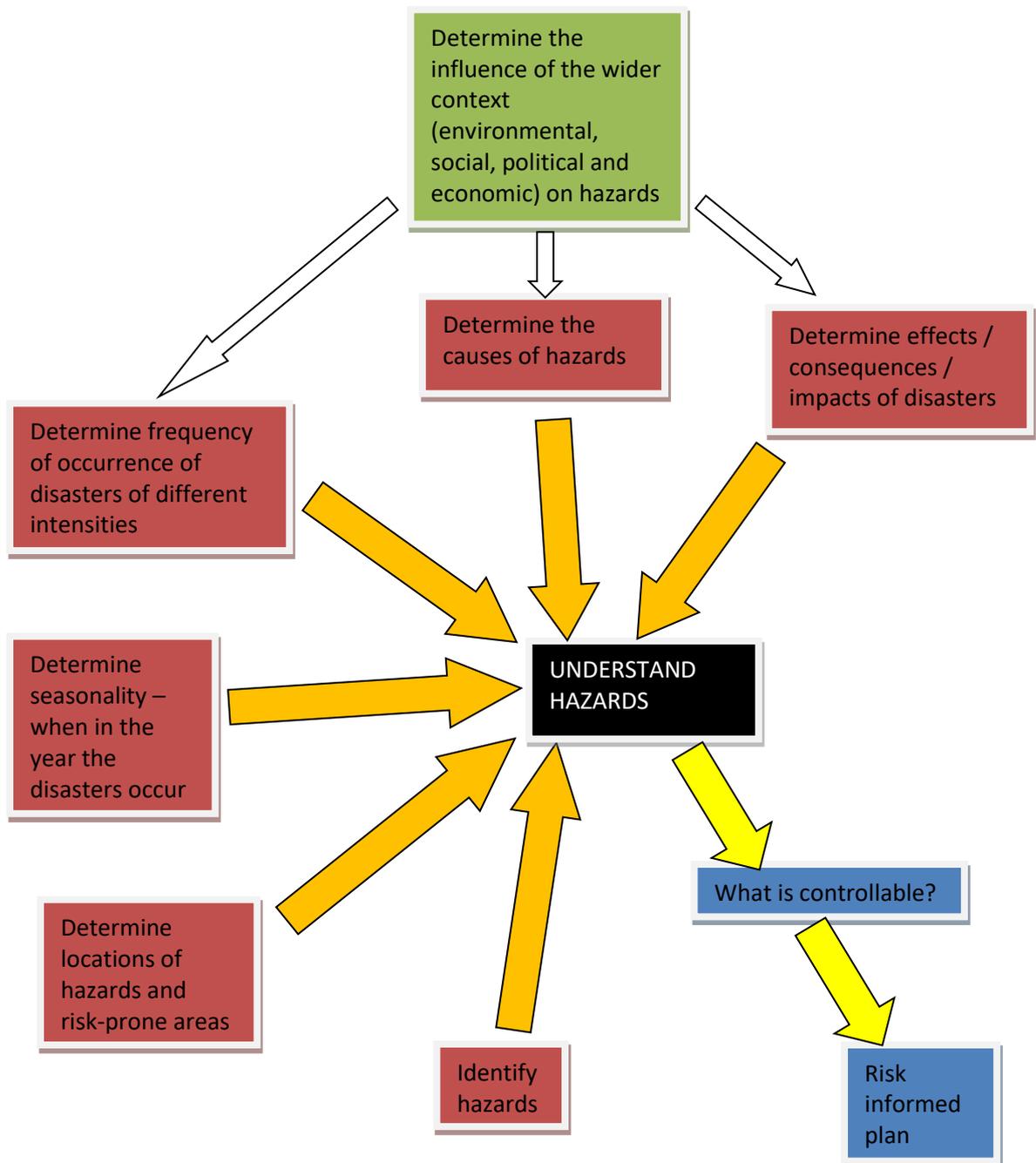
Some classifications include climatological hazards, which are events that are a significant departure from 'normal' weather patterns, and that can be attributed to climate change.

Some classification systems include environmental degradation as a hazard, whereas others see it as a driver of increased disaster frequency, or as a cause of hazards. Ultimately it does not matter; what matters is that the phenomenon is understood and analysed, and that the effects of environmental degradation on hazards and, ultimately, the lives of the extreme poor (our target group) are addressed.

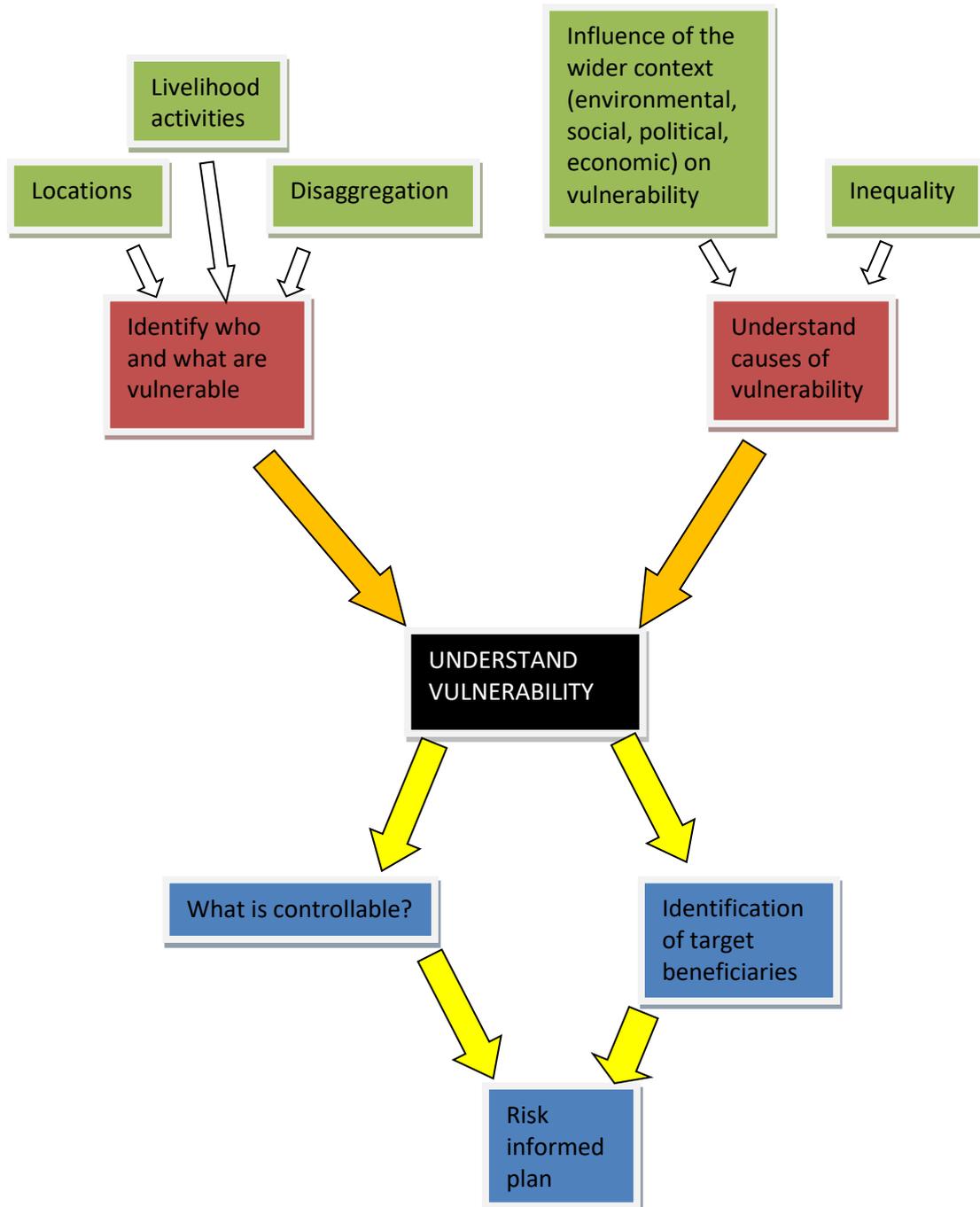
Annex 3: Risk analysis in mind maps



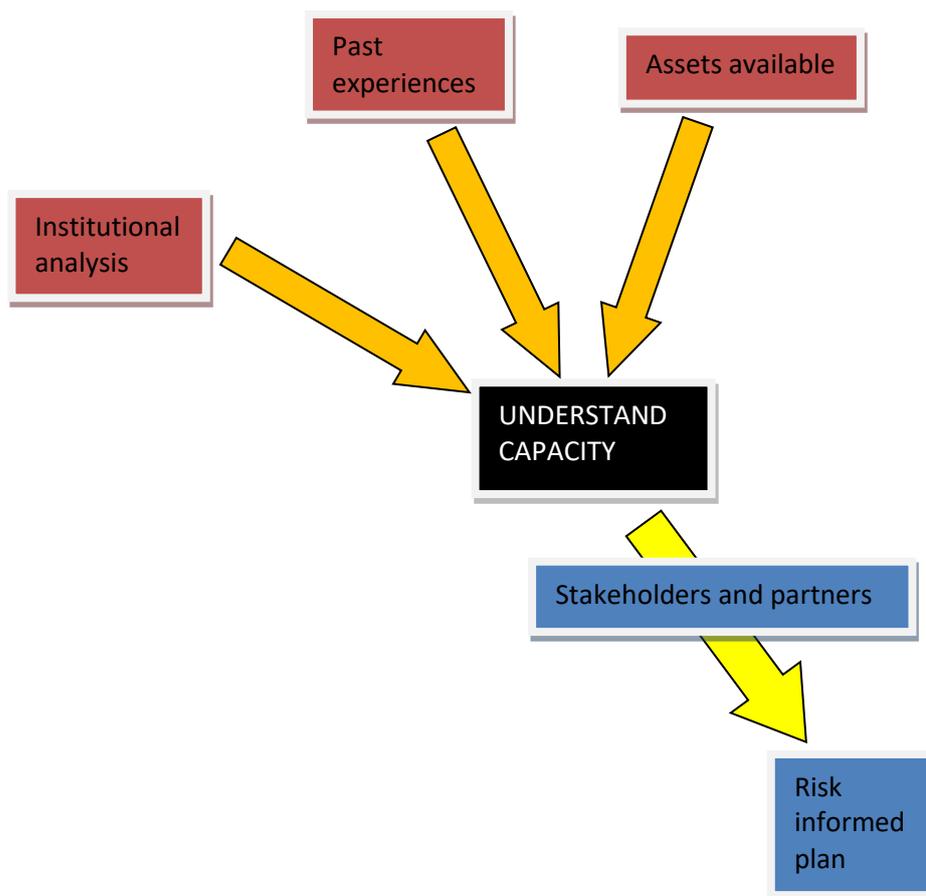
Hazard Analysis



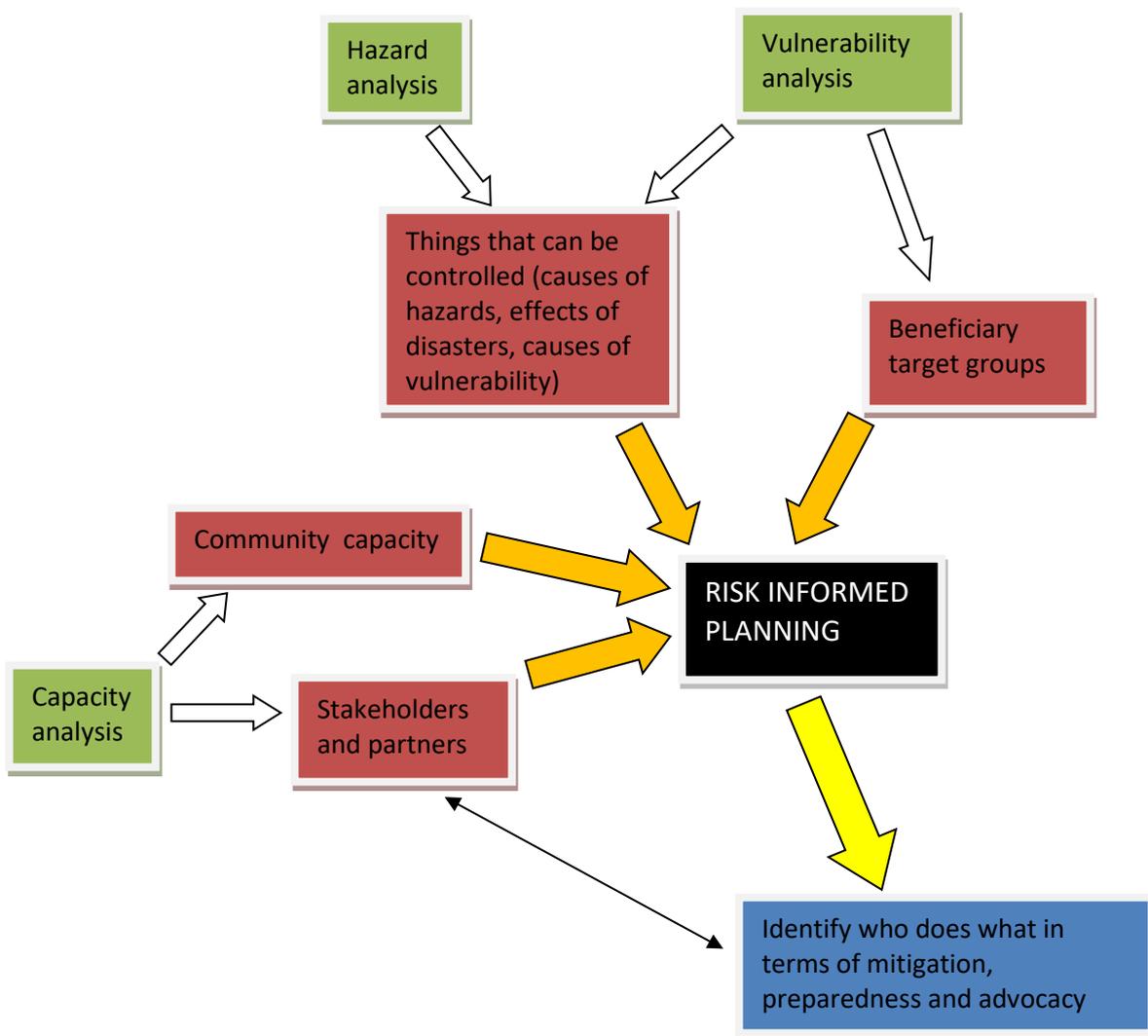
Vulnerability analysis



Capacity Analysis



Risk informed planning



Annex 4: The use of PRA in risk analysis

Doing risk analysis with community groups requires the use of participatory rural appraisal (PRA) techniques. PRA is a set of tools and techniques designed to help facilitate research and planning with community groups, which are:

- **Participatory and empowering** – PRA techniques are designed so that all members of the community can participate in the sharing of information, offer their points of view and engage in the decision making process. The tools and techniques of PRA help marginalised people become included, whilst reducing the input from the most talkative and empowered. The participatory nature of PRA is essential in enabling excluded or discriminated against people have a voice
- **A learning process** – PRA encourages public sharing of points of view, perspectives and knowledge, for the educative benefit of all. A common misconception is that communities already know everything about their local situation, and so any discussion about it will be useful for the researchers, but not really for the community members, and that research is therefore extractive. PRA seeks to turn this myth around by participatory sharing and analysis of community knowledge. It rapidly becomes apparent that there are some people who know things that others do not, that people rarely analyse their knowledge together, and that the process of summarising and prioritising makes what they know clearer

There are many tools and techniques that make up PRA. They are all flexible and easily adapted to suit the research topic or the situation, and the more skilled the PRA facilitators are, the more valuable the process will be for all.

Practitioners of PRA will be familiar with the fact that PRA takes a lot of time; time that the extremely poor rarely have as they need to be engaged in their daily survival, and time that Concern staff rarely have as they are expected to do so much else. This factor, more than any other, contributes to the watering-down of the benefits of the participatory process, and so it is important to streamline the participatory risk analysis process while not losing the benefits of participation.

Whichever tools are chosen to use for risk analysis, there are some fundamental ‘rules’ that should never be broken:

- Respect every opinion, even if you do not agree with it, and never forget that your participants have perspectives and knowledge that is valuable and necessary
- Always ensure everyone is participating equally, so reducing the input of the noisy or powerful and encourage the shy or marginalised
- Use interactive tools wherever possible – these are much better at getting equal participation than discussions where it can be impossible to get shy people to speak out or powerful people to allow others to talk
- Make sure the tools are fun and that participants do not have to wait for a long time while you prepare – one of the easiest ways to ‘kill’ participation is to bore the participants
- Always ‘hand over the stick’ – get participants to do as much as possible themselves, which includes note taking, drawing, writing, making decisions, etc.
- Always end a PRA session with a group discussion where you guide an analysis of the information that has been gathered. This is when community (and Concern facilitators) learn the most

Annex 5: A checklist of materials and preparations prior to doing PRA

Materials you may need:

- Compilation of the secondary information that has been collected (for reference)
- Documents that help describe or explain things – like climate change or global economics
- Flip chart paper
- Marker pens
- A digital camera
- Coloured pieces of card or paper
- A pair of scissors
- Some sticky tape
- A flip chart stand for taking notes in public
- Some stones, beans or other items that can be used for proportional piling (these can also be found in the community)
- Materials that could be useful for mapping – some string, sticks, leaves, stones, nuts, etc. All of these items can be sourced in the community if needed.

Considerations regarding your facilitation team:

- Do you have enough facilitators in your team (you need at least 3)?
- Are at least one of these facilitators a woman?
- Do you have a translator (if needed)?

Pre-PRA preparations:

- Are you clear what tools you want to use?
- Have you gone through how you will run the tools with your team?
- Are their roles and responsibilities clear?
- Do you have the key questions with you?
- Have you informed the community of when you are coming, and have you received permission from the community leader(s)?
- Have you been clear about who you want to meet, and invited them (this can be done through the community leadership)?
- Do you know where you will run the workshop?
- Are you satisfied that the workshop location is clean, dry, safe, comfortable and big enough?

Annex 6: Risk analysis key questions

Hazards and risk:

- What are the hazards?
- What are the causes of each hazard?
- What are the effects or impacts of each hazard? (Bear in mind the different intensities of disaster events, and the interconnected nature of hazards, where one can lead to another)
- Which of the causes and effects are controllable? (This information will be used in planning for addressing hazards)
- What are the locations of these hazards (origins and areas that can be affected to varying degrees)?
- What is the seasonality per hazard?
- What are the frequencies of each hazard? (Bear in mind the frequency of different intensity disaster events as well)
- What are the trends or the way the patterns of disasters are changing?
- What are the predicted future trends? (This includes the impact of climate change, population growth, environmental degradation and urbanisation on hazards, habitats and ecosystems, the economy and human health)
- What are the risks? (Risk = magnitude of effects x probability of the event occurring within a given time frame)

Vulnerability:

- Who is vulnerable? (be specific and disaggregate as much as possible according to different social groups, locations, economic status, etc.)
- What is vulnerable? (the assets of the people)
- Why are they vulnerable?
- What (of the causes of vulnerability) is controllable? (This information will be used in planning for addressing vulnerability)

Capacity:

- Which hazards can be anticipated? How much lead time is there? Does the information reach the vulnerable people? Do they know what to do in the event of a warning?
- Who are the actors and institutions for DRR? (including early warning systems and monitoring systems, research bodies, government, NGOs, CSOs, donors, etc.)
- What are the policies that influence risk? (includes natural disasters policies, PRSPs, civil security, health, gender, environment, etc.)
- What resources are available for addressing risk and vulnerability? (at the various different levels, including what is not currently being used - opportunities)
- What are the coping strategies of the vulnerable people?
- What are the past experiences in dealing with disasters? (both institutions and communities)
- What are the capacity gaps? (What are the gaps in skills and ability, resources, geographical coverage or intervention coverage?)
- What are the institutions doing and where are they doing it?
- What is their progress?
- What are the future plans for addressing risk and vulnerability (governments, donors, NGOs, others)?

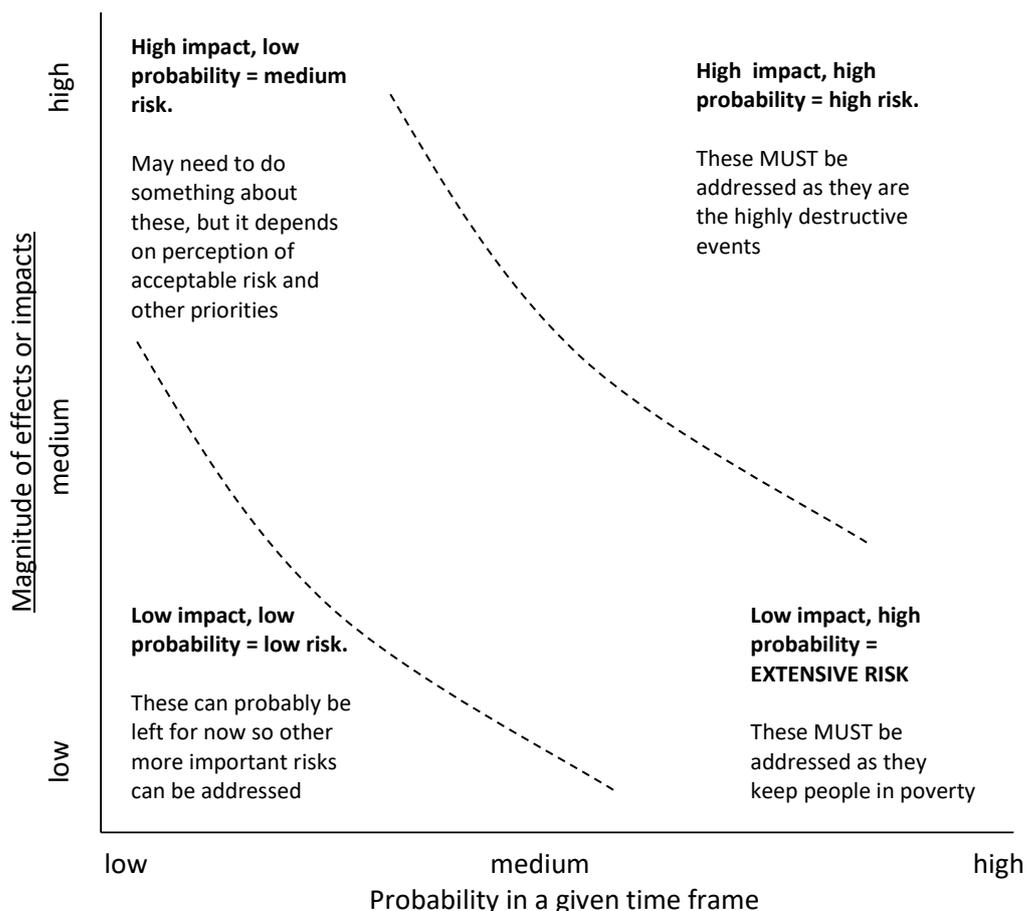
Annex 7: Risk analysis analytical frameworks

Hazard analysis framework and risk assessment chart

All of the steps in a hazard analysis generate information for the **hazard analysis framework**, shown below. This framework contains a summary of all the information gathered in the hazard analysis, and must be in the final report on the risk analysis.

Hazard (name and type)	Location(s)	Seasonality	History and trends, including predicted trends	Causes	Controllability	Effects	Controllability
1							
2							

The information in the framework above is important for being able to accurately estimate impacts and probability, so that this **risk assessment chart** can be used:



The curvy lines indicate the boundaries between low, medium and high risk, and are put into the graph above to illustrate how risk changes with impacts/effects and probability.

In practise, we rarely, if ever, get enough time. We have to prioritise, so that we only do the detailed analysis on the hazards considered most important. The risk assessment chart can be used for this purpose.

Concern places emphasis on both intensive and extensive events, so we must be prepared to do detailed analysis for high and medium risk events, and balance the community’s understanding of acceptable risk with our knowledge of the importance of extensive risk (and other scientific information we may have).

Causes of vulnerability matrix and vulnerability analysis framework

The **causes of vulnerability matrix** below is used to help in the analysis of the underlying reasons for vulnerability. It forces the researchers to understand vulnerability in terms of the six livelihoods assets. Not every square needs to be filled in, but thinking about why people are vulnerable from six different perspectives drives a more complete and holistic understanding. It is necessary to use this matrix in your analysis of information gathered from your risk analysis process, but it is not needed in a report.

Area:						
Vulnerable elements (who or what)	Natural (environmental factors)	Physical (community buildings, roads, etc.)	Financial (money, credit, productive assets, belongings, etc.)	Human (skills, knowledge, attitudes, motivations, health, etc.)	Social (institutions, groups, culture, community dynamics, etc.)	Political (networks, connections, influence, etc.)
1						
2						
Etc...						

The analysis of the causes of vulnerability is then summarised into the **vulnerability analysis framework** below, in the ‘why’ column, with ‘where’ and ‘when’ information added. The reasons for vulnerability (‘why’) are then analysed for whether they are controllable or not. The controllable causes of vulnerability will then be addressed in the planning phase. This framework should contain the main conclusions from the analysis of vulnerability; and is the final product from the analysis of vulnerability. It must be part of the report of the risk analysis.

Country or area:					
Hazard	Vulnerable elements (who or what, be specific)	Why (per element)	Where	When	Controllability
1					
2					

Capacity analysis framework

The **capacity analysis framework** is very similar to the vulnerability analysis framework in that it looks at capacity from the perspective of the six livelihoods assets.

In capacity analysis we look at the availability of the six assets from the perspective of institutions (which includes various groups in the community, and can even include groups of vulnerable people) as risk reduction is more often than not handled by institutions and groups (of course, individuals manage the risk of themselves and their family, but for our purposes institutions and groups can have a greater impact on reducing risk).

This framework must be included in a report on risk analysis.

Institutions / groups	Natural (environmental factors)	Physical (community buildings, roads, etc.)	Financial (money, credit, productive assets, belongings, etc.)	Human (skills, knowledge, attitudes, motivations, etc.)	Social (institutions, groups, culture, community dynamics, etc.)	Political (networks, connections, influence, etc.)
Internal to the community:						
External to the community:						

Risk Informed Planning

Invariably there are several ways to ‘fix’ the issues that are raised in the risk analysis process. The management solutions matrix below is a tool to simplify and structure the information so that community participants can easily select the best solutions for their issues.

The left hand column of the **management solutions matrix** is for listing all of the controllable causes of hazards, the effects of hazards or the causes of vulnerability – these are the things we can influence and change, thus reducing the risk of disasters.

For each controllable issue there may be more than one solution – these need to be ranked in terms of effectiveness and easiness, so only the best solutions are worked through in detail. Any solution that is deemed ineffective can immediately be discarded – there is no point wasting time on something that will probably not work. Those solutions deemed both easy and effective are obvious candidates for further work. Finally, solutions that are effective but not so easy need to be considered and matched to the capacity that is available. Are they too difficult for our capacity? Are they so effective that, even though they are difficult, they are worth trying? Do we have the time and the energy to try them? Is there something better we can do?

Hazard:

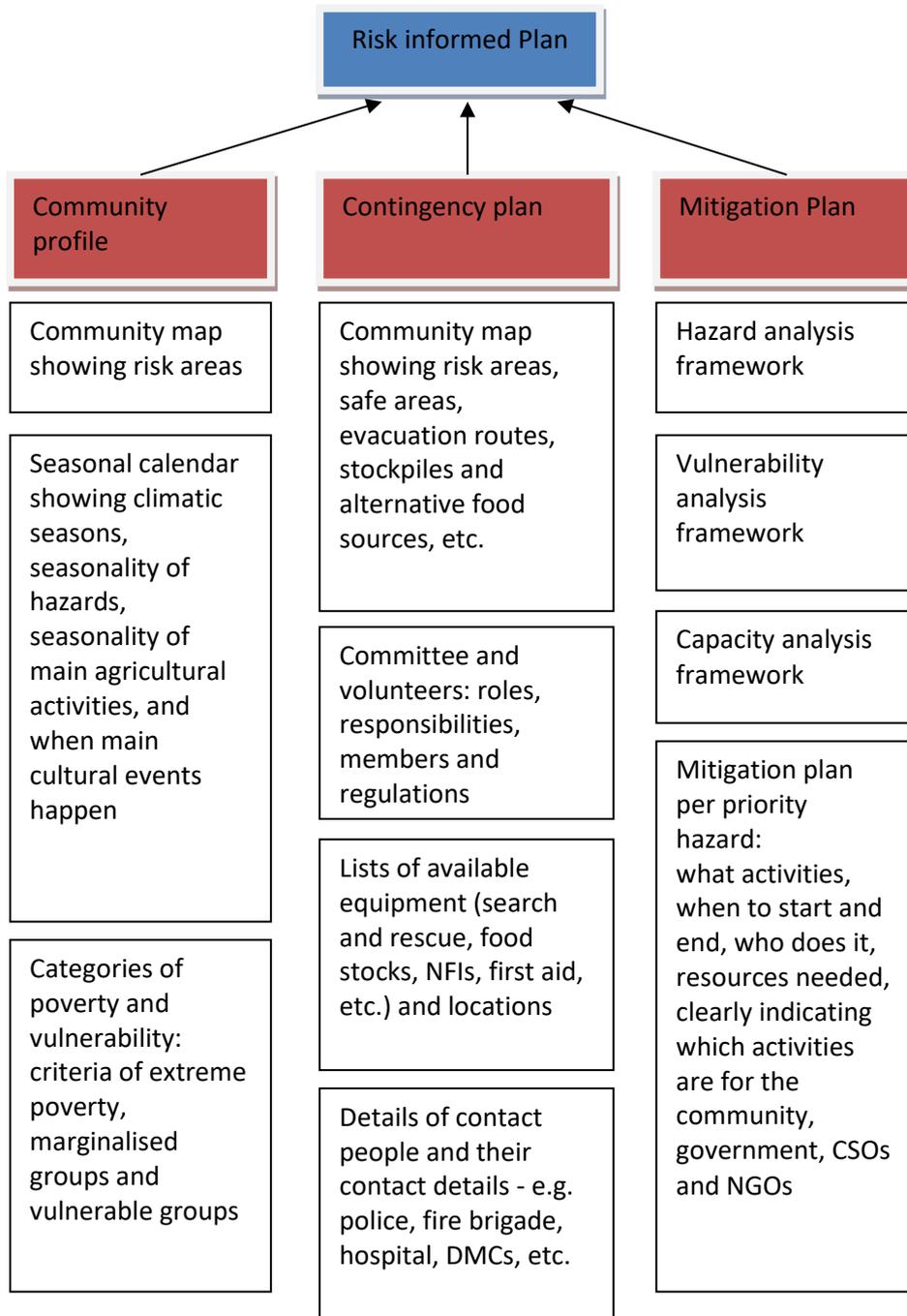
Controllable issues (causes, effects, vulnerabilities)	Possible solutions	Effectiveness	Easiness	Final decision

Once the solutions have been agreed to, it is necessary to decide what to do, and to determine who will do what – so the **risk informed planning framework** below is used.

On the left hand side, the stakeholders and actors for DRR are listed. This information comes from the institutional analysis (part of capacity analysis). The solutions that have been selected can now be broken up into their component tasks and allocated to the stakeholders. To help with this process the columns are separated into ‘mitigation’, ‘preparedness’ and ‘advocacy’. It is not actually necessary to identify what mitigation, preparedness or advocacy are. Indeed, to do so may be a distraction in a community – what is important is that the necessary activities are identified and allocated to the correct stakeholder. However, defining the type of activity can make writing a proposal much easier.

Hazard:			
	Mitigation	Preparedness	Advocacy
Community groups:			
Government bodies:			
Others (NGOs, donors, etc.):			

Annex 8: Proposed format for a risk informed plan for a community



Annex 9: References and further reading

Please also refer to the section in the main document entitled ‘Secondary Data Collection’ (page 5) for more information sources.

Risk analysis

From Vulnerability to Resilience (V2R) – Katherine Pasteur, Practical Action 2011
<http://practicalaction.org/from-vulnerability-to-resilience>

Community-based disaster risk management, a practitioners’ handbook - Imelda Abarquez and Zubair Murshed, ADPC 2004
www.adpc.net/v2007/Programs/CBDRM/Publications/Downloads/Publications/12Handbk.pdf

VCA toolbox with reference sheets – International Federation of Red Cross and Red Crescent Societies 2007
www.ifrc.org/Global/Publications/disasters/vca/vca-toolbox-en.pdf

Provention Consortium online Community Risk Assessment toolkit
<http://www.proventionconsortium.org/?pageid=39>

Reducing Risk of Disasters in our Communities 2nd edition – Bob Hansford, Tearfund 2011
<http://tilz.tearfund.org/Publications/ROOTS/Reducing+risk+of+disaster+in+our+communities.htm>

Disaster risk reduction

“Approaches to DRR” (2005, Emergency Unit).

Intranet>programmes>approaches>disaster risk reduction>documents

“The centrality of risk management to Concern’s work” (2007, Emergency Unit)

Intranet>directorates >overseas>emergency unit

Emergency response

“Concern’s approach to emergencies” (2002, Emergency Unit)

Intranet>directorates >overseas>emergency unit