

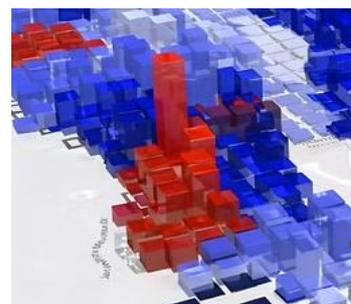
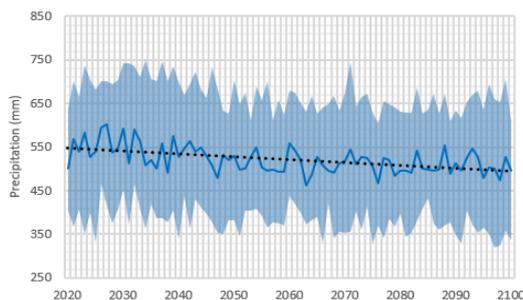
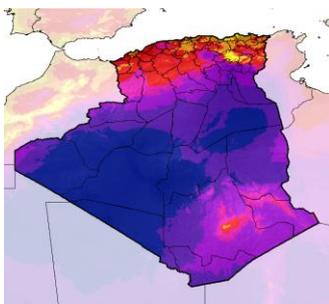
Understanding climate assessment types

Climate change, risk and vulnerability terms are used inconsistently across donors, consultants, and guidance documents, even though the underlying science is largely the same. This has led to confusion about assessment types, methods, and expected outputs for both clients and practitioners. Clarifying these distinctions helps align expectations during tendering and delivery. Different assessment types emphasise risk, vulnerability, or both, and each requires different inputs, levels of effort, and produces different types of outputs. Selecting the correct assessment depends on local context, key uncertainties, and project priorities. Understanding the limits of each approach is essential to avoid misuse and overinterpretation. Below are the four main types of climate change, risk/vulnerability assessments and their makeup.

1. **Climate Change Assessment (CCA)** looks primarily at the climate data and the changes in climate magnitudes. It does consider the exposure and vulnerability of areas, but more consequences of the physical climate changes through simple impact chains or through a secondary impact modelling exercise. CCAs are the basis for all climate rationales.
2. **Climate Risk Assessment (CRA)** evaluates current and future climate hazards and the impacts on exposed elements, with a strong focus on likelihood and consequences. It examines what climate hazards exist, how they may change, and who or what is exposed. Impacts are assessed qualitatively using likelihood and consequence scales from very low to very high, with vulnerability usually embedded within consequence assumptions. Risk is estimated by combining hazard and exposure to identify priority areas. This approach is best suited to decisions where risk thresholds matter more than local context. It simplifies vulnerability, assumes equal sensitivity, relies mainly on climate and exposure data, and is relatively straightforward to develop.
3. **Climate Vulnerability Assessment (CVA)** focuses on vulnerability rather than explicit climate hazards or impacts. It analyses the sensitivity and adaptive capacity of exposed systems, using climate trends mainly as indicators of stress rather than using hazard magnitudes. Exposure identifies who or what is at risk, while sensitivity describes factors that increase impact severity, and adaptive capacity reflects the ability to cope and recover. This approach is best suited to general adaptation planning where future impacts are uncertain and where addressing underlying vulnerability drivers is the priority. It relies heavily on socio-economic and contextual data, but provides limited distinction between current and future climate change, and may underrepresent future hazard severity.
4. **Climate Risk and Vulnerability Assessment (CRVA)** integrates detailed current and future climate hazards with exposure and vulnerability to assess hazard-specific risks. Hazards describe how damaging climate conditions may change, exposure identifies populations, livelihoods, or ecosystems at risk, and vulnerability is defined through sensitivity and adaptive capacity. Impacts are derived from hazard likelihood and consequences informed by vulnerability. Risk is calculated by combining hazard, exposure, and vulnerability layers. This approach is used for hazard-specific planning, such as separate drought and flood assessments. It is data-intensive, time-consuming, and complex, but provides the most comprehensive and practical basis for targeted adaptation planning.

1. Climate Change Assessment (CCA)

Intention	<p>The CCA seeks to build the climate rationale and to assess the current and future climate changes and the magnitudes of baseline and extreme events. These magnitude changes can then be used in further impact modelling or to infer how these will be detrimental to various sectors or exposed elements. The projected peak 1-day rainfall will increase to 32mm. This will be used in the hydrological modelling, but we can assume that there will be significant riverine and overland flow impacts.</p>	
Climate hazard	<p>The development of the climate rationale needs to show historical changes over time as well as future trends. The anomaly or the additionality of climate change is the difference between the current and the future climate magnitudes or rate of change. The peak 1-day rainfall is projected to increase by +6mm/day from 25mm to 31mm/day from 2020 to 2040 for SSP2-45.</p>	
Impact (qualitative)	<p>Impacts are inferred based on known impact chains and negative feedback. The increase in extreme 1-day rainfall will increase overland flow and increase flood discharge. This will have negative impacts on riverine communities, urban areas and likely damage agricultural areas.</p>	
Components	Exposure (qualitative)	<p>The impacted people, assets, livelihoods, ecosystems or sectors need to be presented through simple established impact chains. Riverine communities will be impacted by the severe increase in extreme rainfall events due to their proximity to the river.</p>
	Impact (quantitative)	<p>The current and future magnitude of climatic events are used as inputs into other analyses to quantify the impacts and damages. The peak 1-day rainfall was 25mm, and when run through the hydrological model, there was a peak discharge of 31m³/s and an inundation area of 22km² after 5 hours. The projected future peak 1-day volume was 32mm resulted in a peak discharge of 37m³/s and an inundation area of 29km² after 3.5 hours.</p>
	Exposure (quantitative)	<p>The impacted people, assets, livelihoods, ecosystems or sectors need to be presented through modelling outputs from the quantitative impact assessment. The flood lines will move by 10m towards the village, and floods will impact the 17 houses within this new inundation area under the future scenario.</p>
Uses	<p>Best used for building a climate rationale and knowing what is likely to change and what the possible impacts could be. It could also go a lot deeper into the modelling of these impacts, where needed. The future extreme rainfall might impact the riverine communities more in the future.</p>	
Weakness	<p>It simplifies exposure and vulnerability and focuses only on the physical climate and impacts. Local early warning capacity isn't considered in the assessment.</p>	
Conclusion	<p>This relies solely on climate magnitude data and deals with impacts either through impact chain assumptions or further modelling outputs. This assessment is the baseline of all climate rationales.</p>	



2. Climate Risk Assessment (CRA)

Intention	The CRA seeks to assess the current and future climate change hazards relative to the impacts they have on exposed elements. This assessment is more focused on the likelihood and consequences of climate hazards affecting a system. Where are the highest at-risk areas for agriculture based on known drought thresholds?	
Components	Climate hazard	What are the current climate hazards that will cause harm, and how will they change in the future? Changing rainfall, drought, increasing temperature, flood, heatwave, wildfire days, etc
	Exposure	Who or what is exposed to damage? Farmers and supported populations, agriculture, infrastructure, ecosystems, etc?
	Impact (qualitative)	Impacts are defined in terms of likelihood and consequences (vulnerability is often embedded within consequence assumptions). Impacts are high if there are high likelihood and severe consequences. Impacts are lower if there are low likelihood and negligible consequences. Both the likelihood and consequence scales are defined from very low to very high based on context. There are prolonged severe droughts that devastate the agriculture sector, and there is a high impact. Flooding is rare and results in little damage, so the impact is low.
	Risk	Highest risk areas are calculated by combining hazard and exposure layers. This will highlight areas of significant climate hazard and high exposure while muting areas with lower hazard and exposures. The overall risks associated with the outcomes of the impact assessment. The major farming areas are exposed to severe droughts, and this is nationally consequential, so this has a high impact and is where we want to build resilience. The flooding is minimal, and in isolated areas, so this is a lower priority.
Uses	Best used for decision-making where impact risk thresholds matter, such as infrastructure design, investment screening, insurance, or prioritisation of hotspots. The farmers can sustain yields for two drier seasons, but thereafter, this becomes a major crisis.	
Weakness	It simplifies vulnerability (adaptive capacity and sensitivity) into a consequence assumption, so it assumes the area is equally vulnerable. The area is a farming area with access to the same investments and irrigation infrastructure.	
Conclusion	This relies mostly on climate change and exposure data. Defining the impact thresholds will be based on the assessed sector or exposed element, but this assessment is simplified to highlight the most at-risk areas and is therefore easier to develop.	



3. Climate Vulnerability Assessment (CVA)

Intention	<p>The CVA focuses on climate vulnerability over climate risk or impact. This is done through the use of sensitivity and adaptive capacity indicators of exposed areas. It uses climate trends and hazards to indicate likely drivers of stress rather than focusing directly on the climate changes themselves. Climate change will have negative impacts on agriculture for this poor, rainfall-reliant subsistence community.</p>
Climate hazard (qualitative)	<p>This is the simplified expression of the current or future driver of stress or impact. It focuses rather on the trends than the actual magnitude of changes. It is noted that drought increases water stress for farmers, decreasing yields. This is based on literature or community experience.</p>
Exposure	<p>Who or what is exposed to damage? Subsistence population, agricultural communities, etc?</p>
Components	<p>Vulnerability: sensitivity What are the factors that will render an exposed element subject to a greater degree of impact from the climate hazard? The community relies on rainfall and has no irrigation, so they have high sensitivity to climate change.</p>
Vulnerability: adaptive capacity	<p>What are the factors that will limit or enhance their recovery from climate hazards? The community is poor and can't afford alternative water, or doesn't have support services. They have a lower adaptive capacity to climate change.</p>
Uses	<p>This is best used for general adaptation planning where the likely climate impacts are unknown. It focuses on addressing the underlying cause of risks, such as lower capacity, higher sensitivity or higher vulnerability. We know these rural communities have very limited access to services and can see the impact chains of climate stress are making the situation worse. We want to address their poor capacity to lower their risks.</p>
Weakness	<p>This method doesn't clearly distinguish between current and future climate changes and doesn't include a detailed assessment of changes in climate magnitudes. It rather focuses on climate change as a driver of stress rather than integrating it into the detailed assessment. We know that we need to adapt to future droughts, but we are only estimating how severe these will be and are estimating water storage based on current dry period needs.</p>
Conclusion	<p>This relies mostly on the exposure and contextual stress feedback. What are the major drivers of vulnerability in a community, and how is this expressed through local sensitivities and adaptive capacities? Not including in depth hazard assessment will serve to address problems as they are assumed now, but may be insufficient to address problems in the future.</p>



4. Climate Risk and Vulnerability Assessment (CRVA)

Intention	<p>The CRVA brings together the detailed current and future climate information and assesses how these will impact the exposed elements using vulnerability (adaptive capacity and sensitivity). Using spatial climate parameters for the hazards, exposures are populations/livelihoods/ecosystems, and vulnerabilities are made up of sensitivity and adaptive capacities. Where are the highest at-risk areas for poor, rainfall-reliant subsistence agriculture based on known drought thresholds?</p>
Components	<p>Climate hazard What are the current climate hazards that will cause harm, and how will they change in the future? Changing rainfall, drought, increasing temperature, flood, heatwave, wildfire days, etc</p>
	<p>Exposure Who or what is exposed to damage? Subsistence population, agricultural communities, etc?</p>
	<p>Vulnerability: sensitivity What are the factors that will render an exposed element subject to a greater degree of impact from the climate hazard? The community relies on rainfall and has no irrigation, so they have high sensitivity to climate change.</p>
	<p>Vulnerability: adaptive capacity What are the factors that will limit or enhance their recovery from climate hazards? The community is poor and can't afford alternative water, or doesn't have support services. They have a lower adaptive capacity to climate change.</p>
	<p>Impact Impacts are defined as hazard likelihood and consequences informed by vulnerability and are included in the calculation. The likelihood of prolonged severe droughts. The consequences are high due to the area being poor and rain-reliant.</p>
Uses	<p>Highest risk areas are calculated by combining hazard, exposure, and vulnerability layers. The subsistence farming areas are exposed to severe drought hazards now and in the future. They have high vulnerability and consequently high drought risk. Flood risk isn't assessed.</p> <p>Used for hazard-specific planning. It does an assessment for drought risk separately to flooding risk with its own separate set of hazard, exposure and vulnerability indicators. These rural communities will likely experience 2+ years of severe drought, have no alternative income and rely on rainfall agriculture. have very limited access to services and can see the impact chains of climate stress are making the situation worse. We want to address their poor capacity to lower their risks.</p>
Weakness	<p>This method is time-consuming, relies on quality data and proxies, deliberately outputs single hazard types, and has a lot of outputs that could be challenging to understand. We have two outputs for drought risk, the current and future risks, but we don't have flood risks and would need a separate assessment for this.</p>
Conclusion	<p>This is the most comprehensive output that presents clearly defined hazard-specific risks and allows for practical adaptation planning based on current and future hazard-specific risks.</p>

