ARC-D Base Line Survey of FCDO-THRIVE project, Renk, Fashoda, Panyikang, Akobo Rubkona and Panyijiar counties in South Sudan.

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South Sudan

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1. Background

The THRIVE programme aims to bolster resilience in conflict and climate affected communities in Greater Upper Nile (GUN). Targeting eight priority counties in Upper Nile, Unity and Jonglei States over four years, THRIVE will reach approximately 120,000 households with gender-responsive and inclusive livelihoods development, market system strengthening, financial inclusion, women's economic empowerment, climate adaptation, and social cohesion activities. Led by GOAL, in partnership with Mercy Corps, CAFOD, and VSF Suisse, and our local implementing partners, the consortium boasts over ten decades of combined experience in GUN working along the triple nexus to foster sustainable and inclusive economic development and build household resilience, by leveraging our core expertise and experience in community-centred approaches, market systems development, financial inclusion, peacebuilding, agro-ecology, and women's economic empowerment. THRIVE's programme design is grounded in evidence from recognised global approaches and the consortium's deep experience and understanding of the South Sudan context. The complex and interconnected challenges faced by communities in the target locations will be addressed through tailored and integrated interventions which foster community ownership. Combining market systems development with locally led participatory approaches, THRIVE offers a unique solution to address root causes of systemic challenges within target pastoral and agro-pastoral value chains which will create long-term and sustainable improvements in household resilience.

THRIVE has implimented for a 4–5-month Inception Phase during Year 1, for project set-up, recruitment, and essential analyses to guide measurement and design, including baseline assessments; GESI, climate and conflict risk analyses; protection risk assessment, ARC-D survey to analyse and determine the community disaster resilience baseline, as well as key MSD diagnostics in relevant value chains (i.e. agro/non-timber forestry).

Among the planned analysis, the analysis of the resilience of communities to disasters (ARC-D was the major one to assess the level of disaster resilience at community level through a discussion-based survey of 30 disaster resilience components.

2. Objective of the Survey

The overall objective of the ARC-D survey is to assess the resilience of selected communities to the most critical scenario using ARC-D tool.

2.1. Specific objectives:

- ✓ To serve as a rapid assessment of shocks, stresses, and resilience capacities at the community level
- ✓ To facilitate communities' self-assessment of their resilience capacities.

- ✓ To serve as the main entry point to engage the community to take active role in efforts to strengthening their resilience (identifying key resilience needs and developing an action plan).

3. Survey Methodology

3.1. Survey Area:

State	County	Number of communities assessed
Upper Nile	Renk	3
	Fashoda	3
	Panyikang	3
Jonglei	Akobo	3
Unity	Rubkona	3
	Panyijiar	3

Table 1: Survey Area

3.2. Survey period: The base line survey was conducted from 25th Feb-28th March 6, 2025.

3.4. Survey Unit: The basic unit of study was the lowest administrative unit of the country (Payams) which were considered as community.

3.5. Data Collection Source and Methods

3.5.1. PART A: Methods and Source

A. Desk review/secondary data gathering.

Before the actual data collection for Part B with the community, desk review was administered to identify the most critical risk scenario. A review of local plans and reports (on DRR, livelihoods, education, etc.) produced by government institutions and/or NGOs, as well as any studies and research documenting the specific community's socioeconomic status (main livelihoods, health status, etc.) and cultural context (religion, present ethnic groups, etc.) was conducted. The document review was conducted before the KII with selected local government office representatives.

B. Key Informant Interview

KII was administered with relevant county level government partners and community leaders, municipality, (RRC, county administration, agriculture offices), and CSOs working in the community to gather information on the governance structures, population data, livelihoods, vulnerable groups, and main shocks and stresses.

C. Direct Observation

When doing the KIIs in the community, the trained ARC-D survey team were also observing and documenting specific elements in the selected communities, including

the physical aspects of the houses, roads, latrines, and water points, as well as the status of the vegetation, crops, soil, specific behaviours (DRR, infrastructure and general situation of the selected county and payams).

3.5.2. PART B METHOD: FOCUS GROUP DISCUSSION

Information was also collected from 3 selected communities (Payams) in each county through a Community Scoring Dialogue (CSD) with 8 to 12 community representatives. The FGD was administered for all the selected communities to gather information about the resilience level of the community in all the components (30 components of ARC-D). The participants in the FGD were composed of the underneath listed groups who are permanent residents of the selected community.

- Members of pertinent local committees (e.g., WASH, environment, women's groups, DRR committee members)
- Teacher (only if resident of the community)
- Health worker (including traditional workers and "healers" only if resident of the community)
- Mothers of children aged 0-5 years
- People belonging to vulnerable groups (as identified in Part A)
- Representatives of the main livelihoods' groups (e.g., farmers, pastoralists, fishermen, business owners, laborers)
- Representatives from the youth community (but over 18 years old to avoid complications with consent)

3.6. Data collection tool: For the Key informant in part A, a KII guide adopted form ARC-D was utilized and For FGD in part B, FGD guiding questions from the ARC-D was adopted. Both tools were translated on spot into the local language to facilitate effective data collection.

3.7. Data Collection Team: The Data collection was done by GOAL and partners MEAL focal points as well as program team members who are certified with ARC-D tool. To facilitate the discussion in part B of the survey, local language translators were also utilized where required.

3.8. Training to ARC-D Analysis Facilitators: a 5 days training was provided to MEAL and program colleagues of partners on the ARC-D tool kit and analysis methodology and tools in collaboration with HQ PTT.

3.9. Data analysis and Report writing: After cleaning, the data was analyzed with ARC-D excel tool to generate different charts and figures. Qualitative data was analyzed using thematic coding from the information obtained from PART A (Key informant) and community dialogue transcripts. ARC-D baseline data was then documented for all the 6 counties and 18 selected communities in those counties, which was used as a

benchmark to measure the progress of the communities to the most critical risk scenarios. Two counties of the THRIVE project, Ulang and Nasir, were not covered by the ARC-D survey as security situation in the counties made it difficult to conduct community dialogues.

4. Ethical Considerations

As part of the process of gaining the respondents' consent to participate in this study, everyone was approached by the interviewers and were briefed on the objectives of the study, how the information will be kept confidential and how it is going to be used in the survey. Then verbal consent was read to the respondents before proceeding to the discussions. Permission was requested from the county administration office and to work collaboratively with the survey team.

Final outputs from the assessment include

- ✓ Data set on ARC-D baseline results for a total of 18 communities (3 communities each in the 6 counties supported by THRIVE project)
- ✓ Analysis Table
- ✓ Final narrative report
- ✓ Collaborative validation workshop for sharing findings and recommendations.

6. Part A: Context Analysis and Risk Scenario

Below is a detailed analysis of the ARC-D Part A context analysis and risk scenarios for each county (Renk County, Rubkona County, Akobo County, and Panyinjar County). The analysis is structured to cover shocks, stresses, risk scenarios, impacts, and coping mechanisms for each county.

6.1. Part A: Renk County

Renk County experiences a range of shocks, primarily floods occur yearly, affecting all payams the recent floods recorded on 16 August 2024.Heatwaves also persistent over the last 2 years, impacting all payams. Biological shocks also include human disease epidemic specifically Cholera reported last year affecting all payams.

Animal disease epidemic also occurred last year, specifically in Jalhak payam. Crop infestation/disease (Simsim pests) affected Geger and Chemedi payams last year.

Human-caused shocks also are prevalent in Renk county which include economic/market crisis, which is ongoing for the last 5 years, affecting all payams coupled with conflict/violence outbreak which is also Persistent specifically in Chemedi, Geger, and Jalhak payams.

Key stresses exacerbating vulnerability in Renk County include environmental degradation (e.g., erosion, soil depletion), public health concerns (malnutrition, malaria)

across all payams. The above stresses are further exacerbated by social stresses such as rapid population growth, food/income insecurity, gender inequality, discrimination, substance abuse, and insecurity across all payams. Child labor, early marriage, and teenage pregnancy.

Critical Risk Scenarios, **Impact and Coping Mechanisms**

In the three assessed locations the most critical risk scenarios are (Renk South: Human Diseases epidemic (Cholera), Jalhak: Flood, Chemedi: Economic crisis is selected respectively.

Flooding: Jahlak County

Seasonal flooding, particularly flash floods in Khor Achier, with a recent wave on 16 August 2024, displaced families and affected areas like Matakoon, Salam, and Zagolona. Resulting in stresses such as environmental degradation (soil erosion) and poor infrastructure worsen flood impacts.

Impact of the flooding: Loss of property, damaged shelters, displacement (3,383 households or 16,915 individuals), food insecurity, and infrastructure damage including bridges.

Coping Mechanisms: The major coping strategies adopted by the community include reliance on humanitarian aid, and migration to safer locations.

Renk South: Cholera Outbreak

Declared on 23 October 2024 with 44 suspected and 6 confirmed cases, exacerbated by displaced populations, poor sanitation, and overcrowding. Resource scarcity and overwhelmed healthcare systems exacerbate the crisis.

Impact: Increased disease burden and strained healthcare. Humanitarian efforts are led by 34 organizations, including UNHCR.

Coping Mechanisms: The major reported coping mechanism reported by the key informant is reliance on humanitarian aid specifically on NGO's and UN organizations' support.

Chemedi: Economic crisis

The economic crisis in Chemedi Payam mirrors broader challenges in Renk County, where the influx of displaced populations, combined with pre-existing economic vulnerabilities, has created a critical situation. Interventions addressing immediate needs and fostering long-term economic resilience are needed to prevent further deterioration.

Impact: The major impacts include food Insecurity which resulted in resorting to crisis-level coping strategies, such as rationing food, which has become normalized, and some

anticipate extreme measures like theft or migration. Economic hardship has also led to increased depression, trauma, and family strain.

Coping Mechanisms: The communities resorted to relying on humanitarian aid for food and other essential needs. Theft and migration are also the other coping mechanisms observed in the community as per the key informant.

Renk South: Human Diseases epidemic (Cholera)

Cholera outbreak, declared on 23 October 2024, with 44 suspected and 6 confirmed cases, poses the most critical scenario in Renk South Payam. The situation is worsened by displaced populations, poor sanitation, overcrowding, and limited access to clean water, particularly affecting vulnerable communities. Resource scarcity and overwhelmed healthcare systems further aggravate the crisis.

Impact: Increased disease burden, increasing morbidity and potential mortality due to rapid cholera spread, especially among displaced populations living in cramped conditions. The situation also overwhelmed health facilities, with Renk civil hospital struggling to accommodate patients due to limited beds, staff, and medical supplies. The above also poses potential for further disease spread due to inadequate sanitation and contaminated water sources.

Coping Mechanisms: Reliance on humanitarian aid as well as theft and migration are also the other coping mechanisms observed in the community as per the key informant like the previous payam.

6.2. Part A: Akobo County

Akobo County faces several shocks including Hydro-meteorological shocks such as Floods occurred in 2019, 2022, and 2024, lasting 4 months and also drought which was reported in 2024. Similar to Renk count Heatwaves are also ongoing in 2024/2025.

Regarding biological shocks, human disease epidemics such as cholera and measles were reported in 2025 and 2024 respectively. Human-caused shocks include economic crisis is ongoing coupled with conflict and violence including inter and intra-communal conflicts such as cattle raiding and abductions.

Key stresses include in the county also include environmental and biological stresses which include environmental degradation (flooding-induced land degradation), climate change effects (heatwaves, flooding), and public health concerns (cholera, malnutrition). Economic instability (currency devaluation, price spikes) and high youth unemployment is also widely prevalent in the county. Food insecurity, gender-based violence, gender inequality, abductions, early marriage and teenage pregnancy.

Critical Risk Scenarios, Impact and Coping Mechanisms

In the three assessed communities in Akobo County, the most critical risk scenarios are (Bilkey: Conflict/security, Nyandit: Floods, Dengjok: Conflict/security are selected respectively.

Flooding: Nyandit Community

Flooding (2019, 2022, 2024) causes environmental degradation, displacement, and disease outbreaks, worsened by flat topography and clay soil. Poor road infrastructure, lack of dykes, and political instability worsen the shocks. Flat topography exacerbates flooding impacts.

Impact: Displacement, loss of livelihoods (farms, livestock), increased poverty, and reliance on aid. Women face added burdens (e.g., transporting firewood over 4–7 days), and early marriages rise due to economic distress as a result of the floods.

Coping Mechanisms: The positive coping mechanisms include relocating to safer grounds, dyke construction, fishing, petty trade, gathering firewood/wild fruits. Whereas the negative coping mechanisms include relying on aid or support from relatives, selling livestock/assets, skipping meals, early child marriage, and men staying home while women gather resources.

Bilkey and Dengjok communities: Conflict/security

Bilkey and Dengjok Payams of Akobo County are facing conflict/Security because of ongoing inter-communal violence, armed clashes, and insecurity. The conflict is driven by ethnic tensions and resource competition coupled with limited infrastructure, and access to services which exacerbate vulnerabilities.

Impact: Displacement of thousands, loss of life and injuries. Livelihoods are disrupted due to insecurity halting farming and trade, increasing poverty and food insecurity. Market access is limited by security concerns and poor roads, with 90% of household needs met through markets despite low purchasing power. Women and children face heightened risks, including gender-based violence.

Coping Mechanisms: Positive coping mechanisms include relocation to safer areas and some communities maintain peace agreements despite continued violations to the agreements. The peace agreements are mediated by elders of each community which has been a customary practice. Negative coping mechanisms include reliance on humanitarian aid, selling livestock/assets, skipping meals, and early child marriages due to economic distress.

6.3. Part A: Panyinjar County

Panyinjar County experiences shocks including Hydro-meteorological shocks mainly floods. The county was affected by five consecutive years of flooding, affecting 31,245

individuals (16,017 female, 15,228 male) in Kol and Pachar payams. Human-caused shocks also include communal conflicts over pasture due to livestock losses and migration.

Key stresses include environmental degradation (soil erosion, desertification) affecting agriculture and construction. Economic instability is also prevalent due to livestock losses and reduced food production. Social stresses include food insecurity, increased sexual violence risks for women, and forced marriages.

Critical Risk Scenarios, Impact and Coping Mechanisms

In the three assessed communities in Panyijar county, the most critical risk scenarios are Floods across all the Pyamas/communities assessed Ganyiel, Nyal and Thornoum .

Flooding: Ganyiel, Nyal and Thornoum communities

Five years of flooding have displaced 31,245 people to higher grounds, damaged farmlands, reduced fishing, and caused 7,000–10,000 cattle losses. Environmental degradation (soil erosion, desertification) and economic instability worsen flood impacts and hinder fishing causing stresses and exacerbating shocks.

Impact: Reduced food production (from 15 to 4 hectare), disrupted fishing, livestock losses, and increased communal conflicts over grazing land. Women face sexual violence risks while collecting firewood. Food insecurity and malnutrition raised, with reliance on humanitarian aid.

Coping Mechanisms: Positive coping strategies include voluntary dyke construction, petty trade, fishing, and mediation of land disputes by community leaders. Whereas negative coping strategies include selling livestock, gathering wild fruits, reducing meals, sending children to cattle camps, forced child marriages and dependency on humanitarian aid.

6.4. Part A: Rubkona County

Rubkona County is affected by multiple shocks ranging from Hydro-meteorological shocks mainly floods yearly from June to December for the last 5 years, affecting all payams. Heatwaves are also occurring from January to April for the past 2 years. Biological shocks including human disease epidemics specifically cholera, typhoid, malaria are occurring (yearly, June–January); anemia, brucellosis, giardia, arthritis are also common between July and August as per information obtained from a key informant.

Animal disease epidemics such as Hemorrhagic septicemia, black quarter, trypanosomiasis, and others kill 9,000–10,000 cattle yearly between June and July as a peak period. Contagious bovine pleuropneumonia, anthrax, and PPR kill 7,000–8,000 goats/sheep between July to November as reported by a key informant.

Crop infestations/diseases such as Termites, stalk rot, and bacterial stalk rot reduce crop yields by 15% and crazy top and brown stem rot reduce maize/sorghum yields by 25% as reported by key informant. Economic/market crisis, Inter-/intra-communal conflict are also among human caused shocks whereby the latter is triggered by floods and resource competition.

Key stresses include environmental degradation, soil depletion, floodwater contamination. Unemployment, particularly among youth due to flood-related disruption is also among the major stresses. Land disputes between migrants and landowners is also among the social and political stresses.

Critical Risk Scenarios, Impact and Coping Mechanisms

In the three assessed communities in Rubkona county, the most critical risk scenarios are Floods in Rubkona Payam, Inter communal conflict in Buddang Payam and Animal disease in Bentiu Payam.

Flooding: Rubkona Payam

Annual flooding between June and December affects 108,135 people, disrupting livestock rearing, farming, and fishing. It causes displacement (15,286 individuals), disease outbreaks, and conflicts over highland resources. Deforestation, soil erosion, blocked supply routes, and unemployment worsen flood impacts. Floodwater damages infrastructure and fosters disease spread.

Impact: Infrastructure damage (health facilities, schools, water systems), reduced crop yields (15% of usual output), livestock losses (9,000–10,000 cattle), and increased sexual violence risks for women. Households rely on wild foods, and trade disrupted by road inaccessibility as reported by key informant from RRC.

Coping Mechanisms: Positive coping mechanisms include relocation to highlands, dyke/canal construction, and increased fishing. Farmers also use ash to protect crops and pastoralists migrate to safer locations.

Negative coping strategies however include theft, petty crime, begging by children/adults, humanitarian aid reliance, eating wild foods and use of human medicines (e.g., Amoxiclin) for animals.

Buddang Payam: Inter communal conflict

Inter communal conflict in Buddang Payam, Rubkona County is primarily driven by cattle raiding, resource competition (water points, grazing land), and border disputes with neighbouring areas. These conflicts lead to displacement, loss of life, and disruption of livelihoods such as agro-pastoralism and trade.

Impact: The impacts include displacement forcing people to flee with their families to Bentiu and Rubkona towns. Cattle raiding also led to livestock losses reducing household

income and food security. The inter communal conflict also resulted in infrastructure damage on schools, health facilities and markets and poses protection risk such as gender-based violence for women.

Coping Mechanisms: Positive coping mechanisms include peace dialogues by local authorities to resolve disputes over resources and migration to safer grazing area. Negative coping mechanisms however include reliance on humanitarian aid for food and shelter, reducing self-sufficiency, consumption of unsafe wild foods, child labor or early marriage.

Animal disease in Bentiu Payam

Animal diseases, particularly zoonotic and transboundary diseases, pose a critical threat in Bentiu Payam. These diseases disrupt livestock rearing, a primary livelihood for many households, and exacerbate food insecurity. Limited veterinary services also further worsen the situation.

Impact: Livestock losses among cattle and small ruminants and parasitic infections which reduces food and income sources. Loss of livestock also reduces trade and market access, with rising food prices and limited livelihood opportunities affecting households.

Coping Mechanisms: Positive coping mechanisms include pastoralists migrating livestock to less disease prone areas or highlands during outbreaks. There are also animal health workers who provide basic treatments and vaccinations when available. Some households also resort to fishing or small-scale trade to offset livestock losses. Negative Coping strategies also include use of human medicines (e.g., Amoxicillin) for livestock. Reliance on humanitarian aid for food and veterinary supplies is also reported by key informant during Part A of the ARC-D survey.

Even though Part A analysis for Panyikang and Fashoda counties is not shared here and made available, the most critical scenarios for all the six communities (Tonga, Panyikang, Dethim, Dethwok, Kodok Rural and Lul) is identified as Flood. The scale of flooding, impact as well as coping mechanisms are more or less similar to the communities described above.

7. Part B: Resilience scores: disaggregated by component, theme, system

The ARC-D survey results assess the resilience levels of 18 communities across six counties, with resilience scores ranging from 25% to 49% and resilience levels categorized as either 1 (very low resilience) or 2 (low resilience). The assessment reveals a low overall resilience score, with an average resilience score of 32% and an average resilience level of 1.44 across the 18 communities.

#	County	Community	Resilience Score	Resilience Level
1	Renk County	Renk South	49%	2
2		Jalhak	35%	2
3		Chemedi	33%	2
4	Akobo County	Bilkey	33%	2
5		Nyandit	30%	1
6		Dengjok	30%	1
7	Rubkona County	Rubkona	37%	2
8		Buddang/Rotriak	30%	1
9		Bentiu	30%	2
10	Panyijar County	Ganyiel	30%	1
11		Nyal	31%	2
12		Thornoum	30%	1
13	Panykang County	Tonga	32%	2
14		Panyikang	25%	1
15		Dethim	30%	1
16	Fashoda County	Dethwok	29%	1
17		Kodok Rural	30%	1
18		Lul	30%	1
		Average Score	**32%**	**1.44**

Table 2: Resilience Score by County (Source: ARC-D Part B community scoring sheet)

Renk South Community has relatively high resilience score, recording a resilience score of 49% and a level 2 (low resilience) rating, indicating a relatively better capacity to cope with shocks and stresses. Several communities, including Jalhak, Chemedi, Bikey, Nyandit, Rubkona, Nyal, Thornoum, and Panyikang, also fall into the level 2 (low resilience) category, with scores ranging from 32% to 35%. However, their resilience remains low, suggesting they face significant vulnerabilities.

Most of the assessed communities, however, are classified at level 1 (very low resilience), indicating in withstanding or recovering from shocks and stresses. This group includes Dengjok, Budjang/Rotriak, Bentiu, Ganyiel, Dethim, Kodok Rural, and Lul, all scoring between 29% and 30%. Notably, Panyikang, Dethim Payams/communities recorded the lowest score at 25% and 29% respectively, highlighting their low resilience level. Overall, all the assessed communities have very low or low resilience, with only a few communities showing marginally better capacity. The predominance of very low resilience levels suggests the need for resilience-based interventions to strengthen community coping mechanisms and build the resilience of the communities to absorb and withstand shocks and stresses.

The resilience score is guided by the below categorization which could be used as a guide to understand the resilience scoring matrix.

Table of Resilience Levels			Guide
0-30% (30-45 points)	Very Low Resilience	Little awareness of issues and no action	Little awareness of issues and no action
31%-50% (46-75 points)	Low Resilience	Some awareness and motivation, some action, but action is piecemeal and short-term.	Some awareness and motivation, some action, but action is piecemeal and short-term.
51%-70% (76 -105 points)	Medium Resilience	Awareness and long-term actions, but these are not linked to a long-term strategy and/or not all aspects of the problem are addressed.	Awareness and long-term actions, but these are not linked to a long-term strategy and/or not all aspects of the problem are addressed.
71%-90% (106-135 points)	Close to Resilience	Actions are long-term, linked to strategy and address main aspects of the issue, but there are still deficiencies (especially systemic) in implementation.	Actions are long-term, linked to strategy and address main aspects of the issue, but there are still deficiencies (especially systemic) in implementation.
91%-100% (136-150 points)	Resilience	Actions long-term, linked to strategy, addressing all aspects of the issue, embedded in society and sustainable.	Actions long-term, linked to strategy, addressing all aspects of the issue, embedded in society and sustainable.

Table 3: Resilience Scoring guide and matrix (source ARC-D toolkit English)

7.1. Resilience scores by component

As per the Spider chart below, the results of an ARC-D (Analysis of Resilience of Communities to Disasters), which assesses the resilience level of a community across 30 different components is described below. The further out the red shaded area extends on each spoke, the higher the resilience score for that specific component.

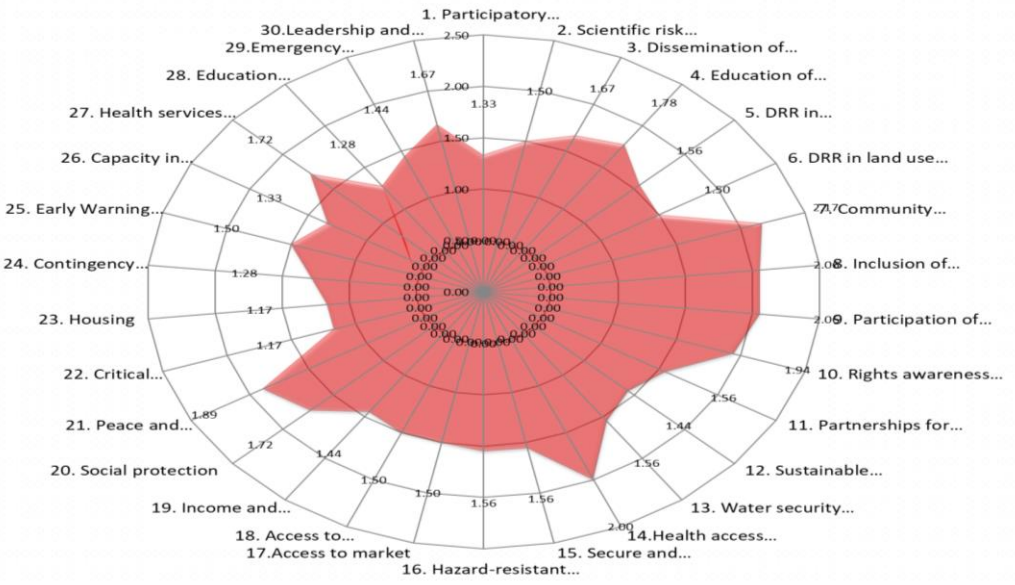


Figure 1: Resilience Score by component

As depicted in the spider chart above, 4 components (Component, 7. (Community decision making), Component, 8. (Inclusion of vulnerable groups), Component 9. Participation of women) and Component 14, (Health access and awareness) have show relatively better level of resilience, suggesting strong community decision making, inclusion of vulnerable groups and health access and awareness, and conflict prevention strategies are in place within the assessed communities. The resilience score for component 7, 8, 9 and 14 is 2.17, 2.06, 2.06 and 2.00 respectively.

The resilience score for the four components still shows low resilience level based on the following criteria (1= Very low resilience, 2= low resilience, 3= medium resilience, 4= close to resilience and 5= resilience). Even though the three components still show low resilience, they are better than other components which have scored less than 2 and fall under very low resilience.

The components which scored slightly lower than the three components above but still better than the others include components10 (Rights awareness and advocacy), 20 (Social protection), 21 (peace and conflict prevention), 4 (Education of children on DRR), 27 (Health services in emergencies, 3 (Dissemination of DRR information) and 30 (leadership and volunteerism in response and recovery) which scored 1.94, 1.72, 1.89, 1.78, 1.72, 1.67 and 1.67 respectively. All the other components scored lower than 1.67 which indicates that the resilience level of the assessed communities in those components is very low. All the 30, components are listed in the table below for reference.

Component number	Resilience component	Resilience Score
Component 1	Participatory community risk assessment	1.33
Component 2	Scientific risk assessment	1.50
Component 3	Dissemination of DRR information	1.67
Component 4	Education of children on DRR	1.78
Component 5	DRR in development planning	1.56
Component 6	DRR in land use planning	1.50
Component 7	Community decision-making	2.17
Component 8	Inclusion of vulnerable groups	2.06
Component 9	Participation of women	2.06
Component 10	Rights awareness and advocacy	1.94

Component 11	Partnerships for DRR and recovery	1.56
Component 12	Sustainable Environmental Management	1.44
Component 13	Water security and management	1.56
Component 14	Health access and awareness	2.00
Component 15	Secure and sufficient food supply	1.56
Component 16	Hazard-resistant livelihoods practices	1.56
Component 17	Access to market	1.50
Component 18	Access to financial services	1.50
Component 19	Income and Asset protection	1.44
Component 20	Social protection	1.72
Component 21	Peace and conflict prevention	1.89
Component 22	Critical infrastructure	1.17
Component 23	Housing	1.17
Component 24	Contingency and recovery planning	1.28
Component 25	Early Warning System	1.50
Component 26	Capacity in preparedness, response and early recovery	1.33
Component 27	Health services in emergencies	1.72
Component 28	Education services in emergencies	1.28
Component 29	Emergency infrastructure	1.44
Component 30	Leadership and volunteerism in response and recovery	1.67

Table 4: Resilience components

7.2. Analysis of resilience score by thematic area

The thirty components listed above are divided into four thematic areas namely Understanding disaster risk, strengthening governance to manage disaster risk, reducing disaster vulnerability for resilience and enhancing disaster preparedness for effective response and to "build back better" in recovery. The bar graph below shows the status of the 18 assessed communities on their resilience level on the upper mentioned four thematic areas.

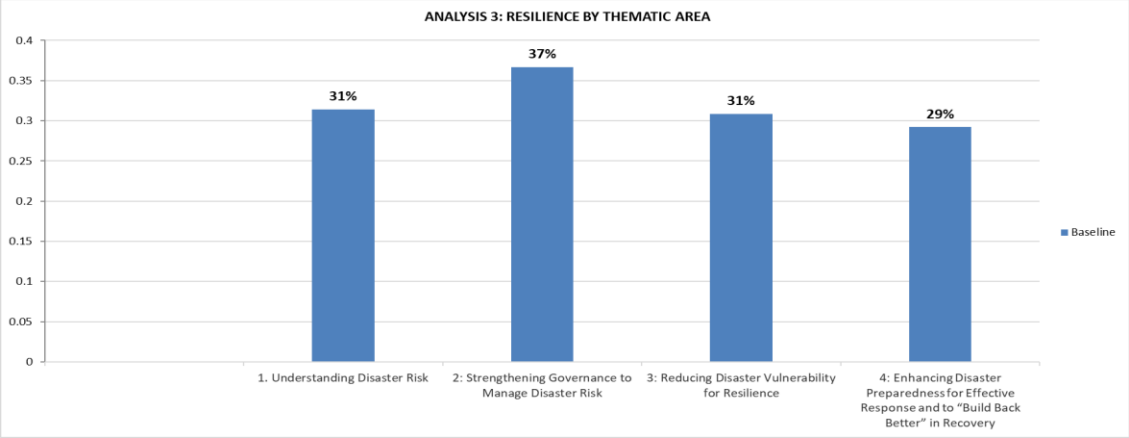


Figure 2: Resilience Score by thematic areas.

Even though all the thematic areas shown very low and low resilience level (29%-37%,), strengthening governance to manage disaster risk has scored relatively higher (37%) suggesting relatively strong governance structures for managing disaster risks in the assessed communities. The understanding disaster risk and reducing disaster vulnerability for resilience themes even still low, shows 31% which falls under the low resilience category with huge room for improvement in assessing and comprehending disaster risks.

Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery however shows very low resilience (29%) highlighting a significant gap in preparedness and recovery strategies.

Overall, the communities show varying resilience levels, with governance being relatively better area and very low preparedness or building back better capacity to shocks and stresses among the assessed communities.

7.3. Analysis of resilience score by system sectors

Households and communities are not islands. They live and function within multiple complex systems (market systems, health systems, governance systems, ecosystems) that they affect and are affected by. The stronger these systems are, the more capacity communities have to achieve their development goals and protect them in adversity. On the contrary, the weaker and less inclusive these systems are more vulnerable they are to disturbances.

A systems approach to resilience helps us understand how various system components (actors (including communities), resources, regulations) interact and interconnect, as well as the interlinkages among various systems and risk factors. In other words, when we apply a systems approach to building resilience, we can anticipate how disasters can trigger economic shocks, how conflicts can leave people more exposed to additional shocks or stresses (e.g., an outbreak of cholera can be triggered when water, sanitation and hygiene systems are destroyed or become inaccessible), and how long-term stresses

such as environmental degradation can lower agricultural productivity, weakening food security and income levels, and impacting a household's ability to pay for health care or education.

The application of the ARC-D toolkit serves as a valuable entry point into systems analysis. Each of its 30 components correspond to one of eight critical sector systems for community resilience, as shown in the GOAL systems wheel (see Figure below). This allows us to do a "vital signs" check on these critical systems for disaster resilience and identify the functional systems that can be leveraged for better resilience outcomes or dysfunctional systems that need to be strengthened or transformed to better support community disaster resilience.

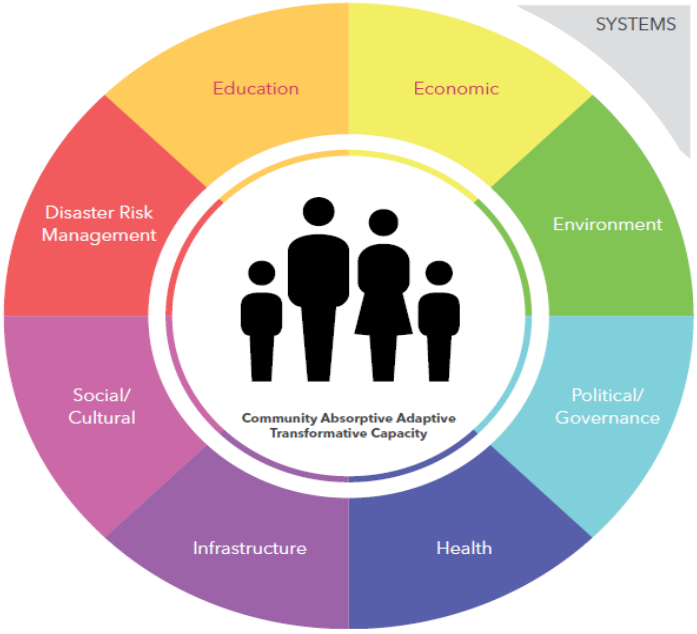


Figure 3: GOAL systems wheel

The bar graph below shows the resilience level of the 18 assessed communities across the 6 counties and shows the resilience status of communities per each system sector.

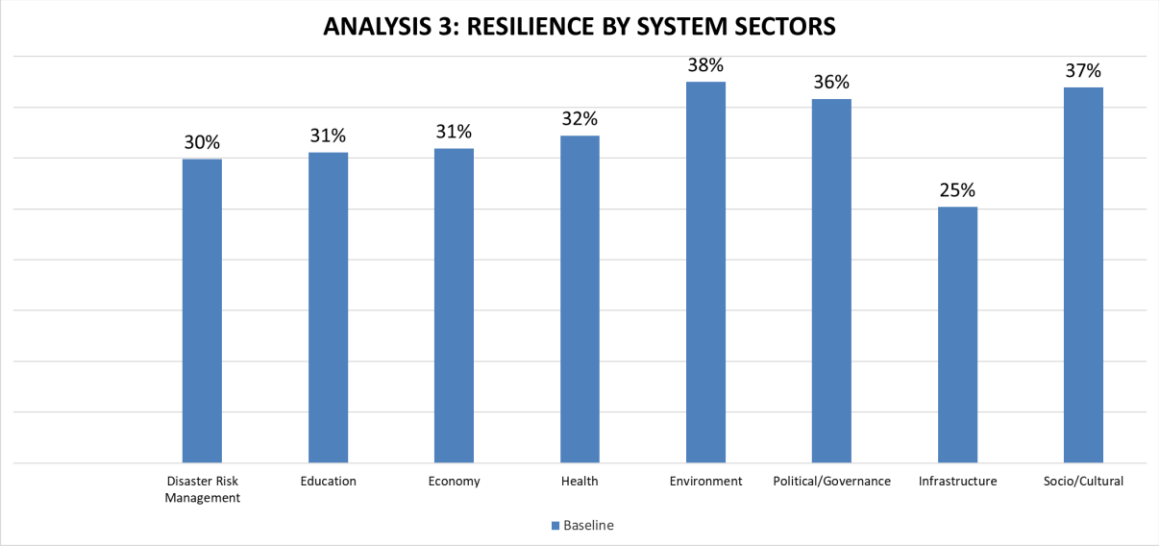


Figure 4: Analysis of resilience by system sectors

Infrastructure and disaster risk management system sectors scored very low resilience level 25% and 30% respectively. This indicates that the communities have limited infrastructure (roads, communication networks, energy, etc) suggesting that these critical elements are particularly vulnerable to shocks or are underdeveloped in their capacity to support the community's needs during and after a disaster. In addition, the very low disaster risk management score suggests that the systems, plans, and capacities for managing disaster risks are underdeveloped or are not effectively implemented. This is a crucial area given the context of resilience.

Education, economy and health system sectors have also scored 31%, 31% and 32% respectively which shows relatively better than infrastructure and disaster risk management but still fall under low resilience category. This might indicate challenges in maintaining educational continuity during emergencies, accessing quality education, or integrating resilience-building themes into the curriculum. The low economy resilience score shows vulnerabilities in livelihoods, market access, financial services, or the ability of the community's economy to recover from shocks. Additionally, the low health resilience level suggests that health services, access to healthcare, and the overall health status of the community could be significantly impacted by disasters or stresses.

Finally, political/governance, socio/cultural and environment system sectors scored 36%, 37% and 38% respectively showing relatively better resilience but still fall under low resilience category. Thus, indicating room for improvement in leadership, decision-making, and policy implementation related to resilience, social cohesion and environmental management practices.

8. Recommendations

Based on the findings from the ARC-D Baseline Survey of the FCDO-THRIVE project in Renk, Fashoda, Panyikang, Akobo, Rubkona, and Panyijiar counties, the following recommendations are forwarded for THRIVE to enhance community resilience to the identified critical risk scenarios.

- ✓ Flooding is a critical risk across multiple counties (Rubkona, Panyijiar, Fashoda, Panyikang, Akobo, Renk), causing displacement, infrastructure damage, and livelihood disruptions. The very low resilience score for infrastructure (25%) highlights underdeveloped systems. Hence, it is crucial to mobilize the community, create awareness and support them to work on in flood resistant infrastructure, such as dykes, drainage canals, and elevated roads, in high-risk payams like Rubkona, Ganyiel, Nyal, and Thornoum. Prioritize community-led construction to foster ownership. This can be achieved in collaboration with local authorities and communities to identify strategic locations for dykes and canals. Support the community, private actors to ensure that tools, materials, and technical training for construction and maintenance are available in the community.
- ✓ Promote environmental management and reforestation is also another recommendation. Environmental degradation (soil erosion, desertification) exacerbates flooding and animal disease impacts across all counties, with the environment system sector scoring low resilience (38%). This weakens agricultural productivity and increases vulnerability. Hence, it is recommended for THRIVE project to implement DRR measures including reforestation and soil conservation programs in Bentiu, Rubkona, and Panyijiar to stabilize soil and reduce floodwater contamination. Promote agroforestry and resilient crop varieties. This can be achieved in partnership with local environmental committees, community action groups to establish community nurseries. Train farmers on soil conservation techniques. This will enhance agricultural resilience, reduce flood impacts, and supports sustainable livelihoods.
- ✓ To mitigate issues associated with animal disease it is recommended to expand veterinary services to deliver vaccinations and treatments for zoonotic and transboundary diseases (e.g., anthrax, foot-and-mouth disease, PPR). Support ton the establishment of mobile veterinary clinics specially in Bentiu Payam to reach remote pastoralist communities. In addition, it is also crucial to work with community animal health workers, train and equip them to provide basic treatments and monitor disease outbreaks.
- ✓ Support conflict resolution and social cohesion as inter-communal conflicts in Buddang Payam (Rubkona) and Bilkey/Dengjok (Akobo) disrupt livelihoods and increase displacement, with peace and conflict prevention scoring low (1.89). Resource competition fuels tensions in Bentiu Payam. Hence, it is crucial for

THRIVE to support community led mediation and peacebuilding initiatives to resolve disputes over grazing land and water points. Strengthen local governance structures to manage resource conflicts.

- ✓ Promote gender equality and social protection as GBV, early marriage, and child labor are prevalent stresses across all counties, with women facing heightened risks during flooding and conflict. Hence it is crucial to create safe spaces for women and girls in Bentiu and Rubkona Payams, coupled with awareness campaigns on gender equality and protection. This can be achieved by leveraging THRIVE's women's economic empowerment focus to train women in leadership and advocacy.
- ✓ Diversify livelihoods and strengthen market systems as economic instability and livestock losses, coupled with low resilience in economy and market access limit income opportunities. Hence, it is essential to promote alternative livelihoods, such as fishing, petty trade, and resilient crop farming. Strengthen market systems by improving access to financial services and market linkages. This can be achieved by utilizing THRIVE's market systems development expertise and economic empowerment model to establish village savings and loan associations (VSLAs) and train communities on value chain development for crops and fish.
- ✓ Support disaster preparedness and early warning systems which showed very low resilience score for disaster preparedness and early warning systems. This indicates significant gaps in community capacity to anticipate and respond to shocks like animal disease and flooding. Hence it is important to support community based early warning systems for animal diseases and floods, integrated with local governance structures. Enhance preparedness through contingency planning and DRR training. This can be achieved through training community leaders and DRR committees on early warning systems, using available channels for message dissemination.

9. Annexes:

9.1. THRIVE Community Resilience score for each community

THRIVE ARC-D Resilience Score - Bas

9.1. ARC-D Part A template

OBJECTIVES

By doing this assignment, you'll be able to:

Identify main shocks and stresses that have affected or affecting a community by using ARC-D Part A

Identify the main risks of a community and develop risk scenarios, their impact and coping mechanisms.

INSTRUCTIONS

Quickly mark all the shocks and stresses that have affected or are affecting the selected community (ask the key informant at county (RRC) to give the shocks and stresses for all the three payams selected in each county).

Then, choose the main risk for which a scenario will be described/developed.

Describe the scenario in Table B (Part A of ARC-D)

PART A: ARC-D TOOLKIT

	8A. Shocks (Sudden events that impact on the vulnerability of a system and its components):	Mark X	**Frequency** (e.g., One earthquake in 25 years, or five landslides per rainy season)	**Average Duration**	**Comments**
Geological shocks	Earthquake				
	Tsunami				
	Volcanic Eruption				
	Landslide				
	Other:				
Hydr	Flood				
	Cyclone/Hurricane/Typhoon				
	Tornado/Twister				

	Storm surge				
	Severe winter weather				
	Drought				
	Heatwave				
	Other:				
Biological shocks	**Human disease epidemic**				
	Specify human epidemic:				
	Specify human epidemic:				
	Specify human epidemic:				
	Animal disease epidemic				
	Specify animal epidemic:				
	Specify animal epidemic:				
	Crop infestation/disease				
	Specify infestation/disease:				
	Specify infestation/disease:				
	Other:				
Human-caused shocks	Economic/market crisis (severe price fluctuation, severe market disruption)				
	Conflict/violence outbreak				
	Inter- or intra-communal conflict (e.g., cattle rustling, gang violence, disputes over natural resources, etc.):				
	State-involved conflict				
	Nuclear/radioactive accident				
	Chemical accident				

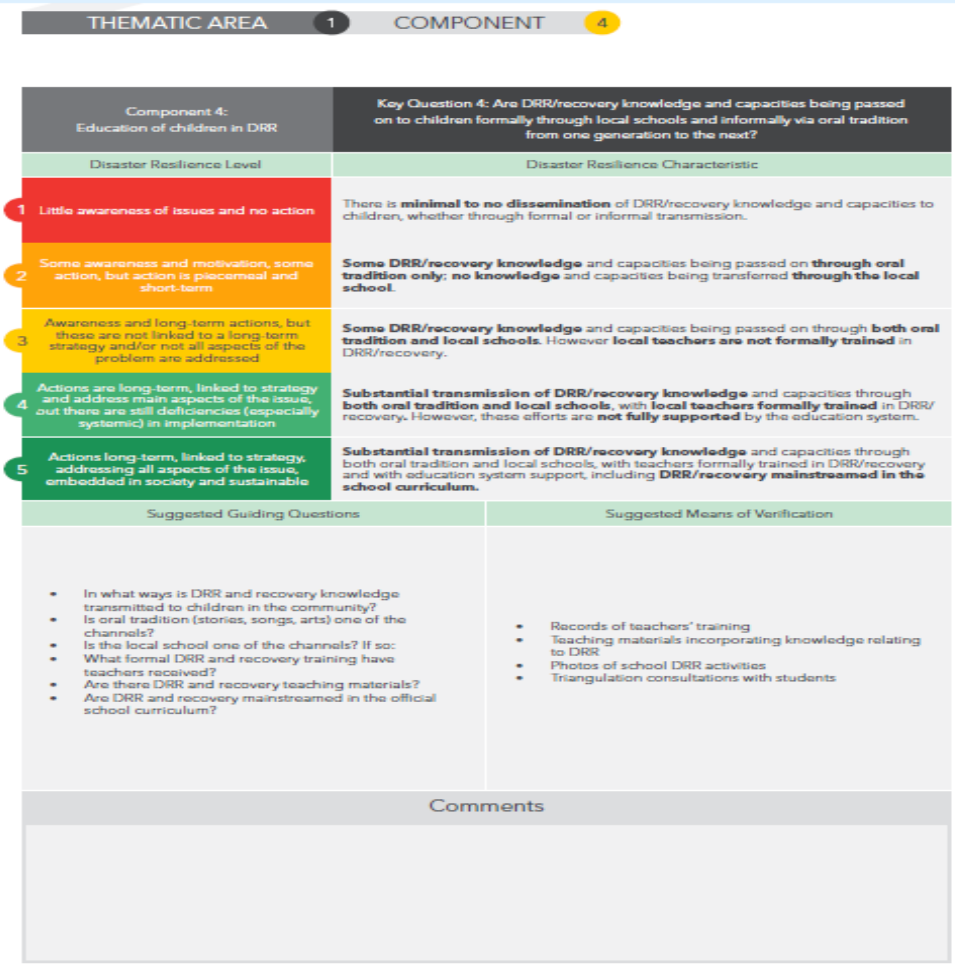
	Fire spread (including forest fires)				
	Other:				
	Other:				
	Other:				

	8B. Stresses (Long-term trends that undermine the potential of a system and increase the vulnerability of actors within it.)	Mark X	Comments
Environmental or Biological Stresses	Environmental degradation (e.g., erosion, desertification, soil fertility depletion, water and air pollution, etc.)		
	Negative effects of climate change		
	Public health concerns (HIV, malaria, malnutrition, etc.)		
	Other:		
Economic Stresses	Economic instability (Food and fuel price fluctuation) and/or decline		
	Unemployment		
	Other:		
ASocial Stresses	Unplanned urbanization		
	Rapid population growth		
	Food insecurity and/or income insecurity		
	Gender-based violence		
	Gender inequality		
	Discrimination		
	Substance abuse		
	Insecurity		
	Child labor and child soldiers		
	Early marriage/teenage pregnancy		
	Other:		
Political Stresses	Protracted conflict		
	Political Instability and/or tension		
	Land disputes		

	Other:		

	8C. Principal Risk Scenario Analysis Based on the information completed above, please identify and analyze the main risk scenarios that affect this community.
Risk scenario 1	**Description**
	Shock: Which shock is the most devastating and, if applicable, how does it lead to other shocks? (secondary shocks) (e.g., hurricane leads to landslide)
	Stresses: In what ways is the identified shock(s) exacerbated by the identified stresses? (e.g., hurricane impacts leading to landslides are exacerbated by environmental degradation (e.g., soil erosion) and unplanned urbanization (e.g., poor location/quality of infrastructure), etc.)
	Impact: What is the extent of impact (damage, loss, etc.) from this risk scenario (i.e., the shocks and stresses identified above)? The impact of a risk scenario could be developed with special attention to the target group and disaggregated by gender and age, if that were possible.
	Coping Mechanisms: **1)** What coping mechanisms (both positive and negative) does the community use to deal with this risk scenario? The coping mechanisms could be developed with special attention to the target group and disaggregated by gender and age, if that were possible.

9.2. ARC-D Questionnaire PART B: Community Disaster Resilience Assessment (sample for only 1 component)



THEMATIC AREA 1 COMPONENT 4

Component 4: Education of children in DRR	Key Question 4: Are DRR/recovery knowledge and capacities being passed on to children formally through local schools and informally via oral tradition from one generation to the next?
Disaster Resilience Level	Disaster Resilience Characteristic
1 Little awareness of issues and no action	There is **minimal to no dissemination** of DRR/recovery knowledge and capacities to children, whether through formal or informal transmission.
2 Some awareness and motivation, some action, but action is piecemeal and short-term	**Some DRR/recovery knowledge** and capacities being passed on **through oral tradition only**; **no knowledge** and capacities being transferred **through the local school**.
3 Awareness and long-term actions, but these are not linked to a long-term strategy and/or not all aspects of the problem are addressed	**Some DRR/recovery knowledge** and capacities being passed on through **both oral tradition and local schools**. However **local teachers are not formally trained** in DRR/recovery.
4 Actions are long-term, linked to strategy and address main aspects of the issue, but there are still deficiencies (especially systemic) in implementation	**Substantial transmission of DRR/recovery knowledge** and capacities through **both oral tradition and local schools**, with **local teachers formally trained** in DRR/ recovery. However, these efforts are **not fully supported** by the education system.
5 Actions long-term, linked to strategy, addressing all aspects of the issue, embedded in society and sustainable	**Substantial transmission of DRR/recovery knowledge** and capacities through both oral tradition and local schools, with teachers formally trained in DRR/recovery and with education system support, including **DRR/recovery mainstreamed in the school curriculum.**

Suggested Guiding Questions	Suggested Means of Verification
• In what ways is DRR and recovery knowledge transmitted to children in the community? • Is oral tradition (stories, songs, arts) one of the channels? • Is the local school one of the channels? If so: • What formal DRR and recovery training have teachers received? • Are there DRR and recovery teaching materials? • Are DRR and recovery mainstreamed in the official school curriculum?	• Records of teachers' training • Teaching materials incorporating knowledge relating to DRR • Photos of school DRR activities • Triangulation consultations with students

Comments

9.3. ARC-D Part B: Community dialogue transcript template

Section one: general information

THRIVE Project Analysis of the Resilience of Communities to Disasters using ARC-D Toolkits.
Location (County): _____ CSD Date: _____ Facilitator's name: _____ Note taker's name: _____ Community (Payam): _____ Risk Scenario: _____ CSD Start time: _____ CSD End time: _____

Section 2: CSD Notes/ Results:

Components	**Responses in bullet points** (the responses should be linked to guiding questions outline in ARC-D toolkit manual).	**Score/rating (1-5)**	**Additional comments**
Component 1: Participatory community risk assessment	**Example:** • No hazard analysis conducted. • Projected losses or impact analysis was carried out with report shared by some community members. • Community leaders and payam administrator were the only people involved when projecting the losses. • Finding of projected losses were only shared with community leaders and no further action taken as a result. • DRM committee at county level rarely engage with community leaders and payam administrator when there is any potential hazard that might affect the community.	**2**	• Few people in the community were involved during the risk assessment**.** • No hazard analysis been carried out. • No regular coordination between DRM committee and community members, some are only involved when assessing the losses.

Component 2: Scientific risk assessment			
Component 3: Dissemination of DRR information			
Component 4: Education of children in DRR			
Component 5: DRR in development planning			
Component 6: DRR in land use planning			
Component 7: Community Decision-Making			
Component 8: Inclusion of Vulnerable Groups			
Component 9: Women's participation			
Component 10: Rights Awareness and Advocacy			
Component 11: Partnerships for DRR and recovery			

Component 12: Sustainable Environmental Management			
Component 13: Water security and management			
Component 14: Health access and awareness			
Component 15: Secure food supply			
Component 16: Hazard-resistant livelihoods practices			
Component 17: Market access			
Component 18: Access to Financial Service**s**			
Component 19: Income and Asset Protection			
Component 20: Access to Social Protection			
Component 21: Social cohesion and conflict prevention			
Component 22:			

Critical Infrastructure			
Component 23: Housing			
Component 24: Contingency and recovery planning.			
Component 25: Early Warning System			
Component 26: Capacity in preparedness, response and early recovery			
Component 27: Health services in emergencies			
Component 28: Education services in emergencies			
Component 29: Emergency Infrastructure			
Component 30: Leadership and volunteerism in response and recovery			