RESILIENTAFRICA NETWORK

RESILIENCE INNOVATION CHALLENGES

2015-2017

WEST AFRICA RESILIENCE INNOVATION LAB (WA RILab)

COLLABORATIVE RESILIENCE INNOVATION DESIGN FOOD SECURITY AND DIVERSIFIED LIVELIHOODS IN THE FACE OF RAPID URBANIZATION (CRID4FAL)

GRANT STRUCTURE AND GUIDELINES
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www.grants.ranlab.org

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1.0 Overview

Executive Summary

The scale of migration in West Africa in recent years has increased tremendously mainly as a result of the ECOWAS Protocol on free movement of people, goods and services. This heightens the development challenges in the sub region. A qualitative study conducted in nine communities to understand the vulnerability and adaptive capacity of people has validated this phenomenon as well as unearthed ten dimensions of resilience; Wealth, Security, Psychosocial Health, Health/Health Services, Human Capital, Social Networks, Infrastructure, Governance, Environment and Spiritual. Better understanding the communities, these dimensions, and how they interact, has thrown the spotlight on the challenges facing people living in rapidly urbanizing cities. Rapid urbanization in West Africa has found expression in the outward expansion of the built-up area, converting prime agricultural land into residential and industrial uses. This has compromised the ability of an increasing number of people to make a living because arable lands near these urbanizing areas are being converted for residential and industrial uses. Small-scale farmers in peri-urban areas who depend on agriculture for their livelihood are particularly disadvantaged. Coupled with the incidence of poor rainfall, this has adversely affected rain fed agriculture production across many communities, further leading to food shortages, hunger and under nutrition, and overall food insecurity.

The ever-increasing population in urban centers has outstripped residential and social amenities, natural resources, and the capacity of sanitation and hygiene infrastructure. Indeed in many parts of Ghana's cities, huge amounts of waste is generated every day and much of it stays for weeks without being collected and properly disposed. This has led to an overall deterioration in the quality of the urban environment and the welfare of the people. The sheer numbers concentrated in a small area, compounded by the abuse of available water, sanitation and hygiene (WASH) facilities, weak law enforcement, as well as, the absence of political commitment by city authorities, means achieving long-term sustainability in WASH intervention remains a daunting challenge. Significant investments by government in water, waste disposal, sanitation, hygiene, roads, and drainage infrastructure have failed to effectively expand the infrastructure that provides these services. This has increased the disease burden of the people and sporadic outbreaks of cholera, a sanitation related disease, and other epidemics have resulted. Though cities currently drive negative impacts, they could become the hubs of change and innovation, turning adversity into opportunity.

The main preoccupation of the West Africa Resilience Innovation lab (WA RILab) is to build on the opportunities that the sub region's (Ghana's) rapidly urbanizing cities present for improving the resilience of the urban poor. Waste management is a huge challenge facing rapidly urbanizing cities. One clear mantra that emerged from the community consultations in Northern Ghana is that "*Waste should never go to waste"*. Thus *'w*aste' at the industrial, community, and household level should be seen as an untapped resource rather than a nuisance. What innovations can be developed along the value chain of 'waste' in a manner that provides livelihood opportunities

and addresses WASH challenges in a sustainable manner? How do you move people trapped in a virtual cycle of poverty by the effects of rapid urbanization into a virtuous cycle of prosperity? Against this background, the Collaborative Resilience Innovation Design for Food Security and Diversified Livelihoods in the Face of Rapid Urbanization (CRID4FAL) seeks to innovative solutions to Transform Agricultural Practices and Markets; Improve Water, Sanitation, Hygiene & Health, and Promote Livelihood Diversification & Financial Inclusion. These should be inspired by science, technology, gender, and indigenous knowledge.

In sourcing for innovations, RAN is applying a Collaborative Resilience Innovation Design (CRID) approach that uses a highly collaborative intervention design process in which multi-disciplinary teams of experts, scholars and stakeholders are invited to develop system level interventions in a CRID Workshop. It is based on the thinking that innovative ideas can be co-created collaboratively by experienced stakeholders working with the target communities. The CRID approach is specifically designed to generate "platform-oriented solutions" i.e. solutions that result in a platform that can facilitate multiple development functions instead of a discrete project.

The CRID4FAL challenge call seeks to attract multi-disciplinary teams of innovators and stakeholders to participate in a co-creation process to identify, develop and incubate a combination of innovative projects in support of system-level, platform-oriented interventions in the target community. This call is open to entities or organizations interested in addressing the effects of Rapid Urbanization vis-à-vis climate change within the target communities of Northern, Upper East and Greater Accra Regions of Ghana. Potential applicant organizations may include colleges, universities, autonomous or semi-autonomous research institutes, foundations, NGOs, faith-based organizations, community based organizations and civic groups. Applications will be accepted from 15th September to 17th October 2016 at 11:59 pm (GMT). Shortlisted applicants will be invited to participate in a co-creation process to develop a set of CRID4FALprojects that have shared platform integration features. Teams behind the best projects from the co-creation process will be funded to implement their projects.

Through CRID4FAL, RAN welcomes applications from motivated, experienced and innovative resource persons and teams who can co-create a collaborative, complementary ecosystem of projects designed to impact WASH, livelihoods diversification, agriculture transformation and markets and building agency for change. We are especially interested in innovation projects that are can be structured in the form of platforms on which different functions can be launched, both within the domain of this CRID4FAL call, and for other social transformation activities beyond the domain of this call.

1.1ResilientAfrica Network (RAN)

ResilientAfrica Network (RAN) is one of the eight university-based Development Labs making up the Higher Education Solutions Network (HESN) established by the United States Agency for

International Development (USAID) and existing within its Global Development Lab (http://www.usaid.gov/GlobalDevLab). RAN's core partners include Stanford University, Tulane University, and the Centre for Strategic and International Studies (CSIS). Within Africa, RAN brings together 20 Universities in 18 countries. The Network is led by Makerere University in Kampala, Uganda and the secretariat is located at Makerere University's School of Public Health. RAN is structured around four core establishments referred to as Resilience Innovation Labs (RILabs) which include: the Eastern Africa RILab (EA RILab) based in Uganda and hosted by Makerere University, the West Africa RILab (WA RILab) based in Ghana and hosted by the University for Development Studies, the Horn of Africa RILab (HoA RILab) based in Ethiopia and hosted by Jimma University, and the Southern Africa RILab (SA RILab) based in South Africa with University of Pretoria as host. By applying science, technology, innovation, and partnerships, and using evidence-based approaches, RAN seeks to identify, develop and scale innovative solutions that will strengthen the resilience of African communities afflicted by natural as well as human-made shocks and stresses (http://www.ranlab.org). The RAN development lab was launched in November 2012.

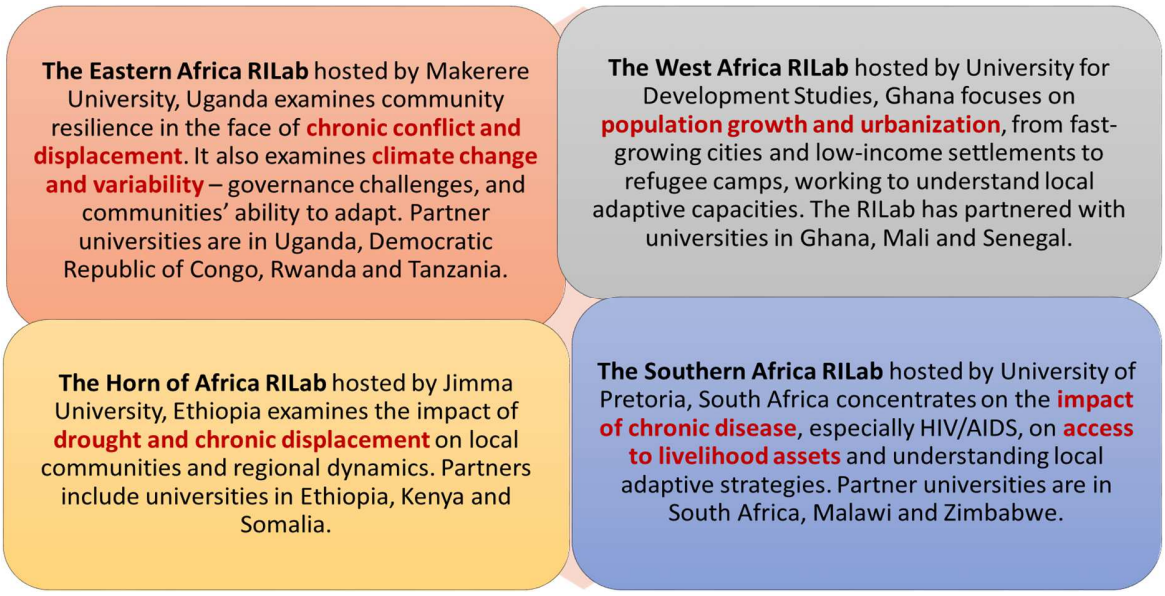

Figure 1: Overview of RILabs and their thematic areas

RAN has three main objectives: 1) To design and operationalize a scientific, data-driven, and evidence-based resilience framework for sub-Saharan Africa; 2) To strengthen resilience at the individual, household and community levels through innovations; and 3) To enhance resilience-related knowledge generation and sharing. RAN's Vision is 'Resilient African communities through innovative solutions', while its Mission is 'to strengthen resilience of African communities through university-led, local, innovative solutions using evidence-based approaches respectively'. RAN defines resilience as the capacity of people and systems to mitigate, adapt to, recover, and learn from shocks and stresses in a manner that reduces vulnerability and increases well-being.

Rationale for the RAN: Development and humanitarian aid have been historically project based. Although these efforts have saved lives, they have not sufficiently built resilience of target communities to recurrent shocks and stresses. For this reason the same shocks and stresses result in the same consequences year in and year out. RAN seeks to break these negative cycles by tapping into the adaptive capacities of target communities to strengthen their resilience to challenges affecting them. Therefore, RAN's primary reason for existence is the identification, development, and piloting of resilience building innovations, and bringing these to scale so as to significantly impact on communities in sub-Saharan Africa.

1.2 RAN's Resilience Framework

RAN has elucidated a theoretical framework for its approach to resilience. This is summarized in the Figure 2.

Figure 2: The RAN Conceptual Resilience Framework

Theory of Change: RAN's Theory of Change states: 'The resilience of people and systems in Africa will be strengthened by leveraging the knowledge, scholarship, and creativity that exists across the ResilientAfrica Network to incubate, test, and scale innovations that target capabilities and reduce vulnerabilities identified by a scientific, data-driven, and evidenced-based resilience framework for sub-Saharan Africa'.

Innovations incubated by RAN shall be translated into 'resilience interventions' and scaled in representative target populations. RAN's assumption is that the effects observed in the test populations can be replicated and brought to scale in other communities that share similar development challenges in sub-Saharan Africa. We postulate that if 'key innovations' (hence interventions) are applied to a reasonable degree of scale in target communities (i.e. that a 'substantial' proportion of the population in the target communities 'adopts' them), they will significantly contribute to 'improving' the resilience of these communities. We are using the term 'strengthening resilience' rather than 'building resilience' because we believe that communities will not start from zero – there is existing strength and background resilience (in form of adaptive strategies) in the communities on which we shall build. The impact of resilience interventions on communities should be measurable. Successful innovations/interventions are expected to impact on at-least one or more building blocks of resilience in the target communities. These 'building blocks of resilience' shall be in form of measurable 'resilience dimensions' and will be described later.

1.3 RAN's Resilience Innovation Challenges (RICs)

RAN seeks to source, develop and scale transformative innovations that strengthen the resilience of communities against natural and human-made shocks and stresses, in line with RAN's thematic areas of focus. In order to effectively tap into the immense innovation potential available not just on the African continent, but globally, RAN supports resilience innovation challenges where the best ideas and/or solutions receive grants to further develop towards achieving widespread usage and reaching full scale. RAN is using **three** main approaches to source innovations: 1) Crowd-sourcing (Known formally as the Resilience Innovation Acceleration Program – RIAP) 2) Design-thinking based ideation (Known formally as the Open Resilience Innovation Challenges - ORICs) and 3) Collaborative Resilience Innovation Design - CRID.

The crowd-sourcing approach (RIAP) is a bottom-up approach that underscores RAN's conviction that great ideas come from everywhere and from anyone, hence acknowledging the existence of promising prototypes/proof of concepts under development within RAN universities and in-country innovation hubs and other community sources. Using open innovation exhibitions as a method of crowd-sourcing ideas, RAN identifies promising projects, assesses their progress and supports them to develop to the next level.

The design thinking-based approach, completed as part of the Open Resilience Innovation Challenges (ORICs), on the other hand is a top-down approach where RAN uses an intervention strategy process to conceptualize, select, and launch innovative solutions designed for impact and scale and to prioritize interventions by identifying those with the highest and transformative potential for the most pressing resilience challenges in target communities. This approach is based on Stanford's ChangeLabs framework. In an Intervention Strategy Workshop (ISW), technical experts and stakeholders collaboratively use resilience findings to develop critical intervention pathways and to identify the most potentially impactful projects within these pathways. This information is then used to develop resilience innovation challenges that attract

multi-disciplinary teams of innovators to develop new solutions. Many of the solutions developed under this approach are freshly ideated to respond to the specific challenge calls.

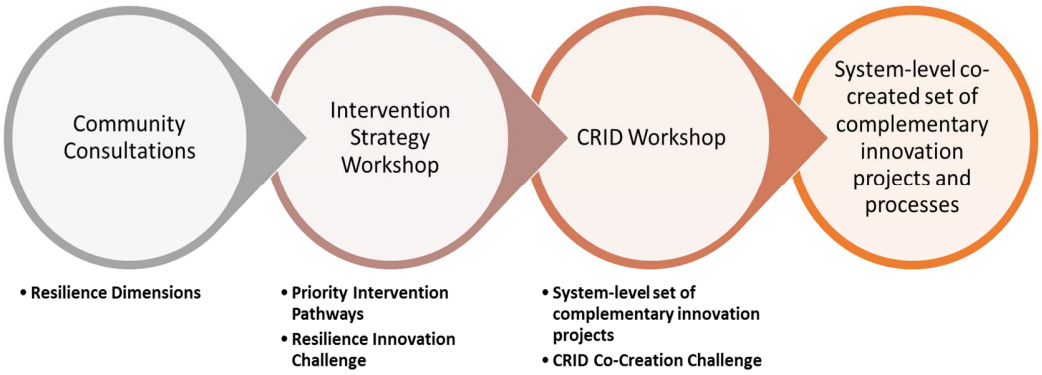

Figure 3: Collaborative Resilience Innovation Design (CRID) approach

The collaborative resilience innovation design (CRID) approach, on the other hand, is a highly collaborative intervention design process in which multi-disciplinary teams of experts, scholars and stakeholders are invited to develop system level interventions in a CRID Workshop. The starting point for solution creation in CRID is the set of priority intervention pathways identified in an Intervention Strategy Workshop (ISW). However, instead of the RIC approach of calling for open innovations from the innovator community, teams of experts and stakeholders engage in a CRID Workshop to design model projects required to address the priority intervention pathways. While the types of projects developed through the RIAP and RIC approaches mentioned are typically small to medium sized projects, those developed through the CRID approach are larger projects designed to cater for a set of complementary system level challenges rather than discrete challenges. The CRID approach therefore generates 'an ecosystem of complementary innovation projects' other than discrete projects. A visual depiction of this structure can be found in Figure 4. An open CRID challenge call seeks to attract multi-disciplinary teams of innovators and stakeholders to participate in a co-creation process to identify, develop and incubate a combination of innovative projects in support of system-level, platform-oriented, interventions in the target community.

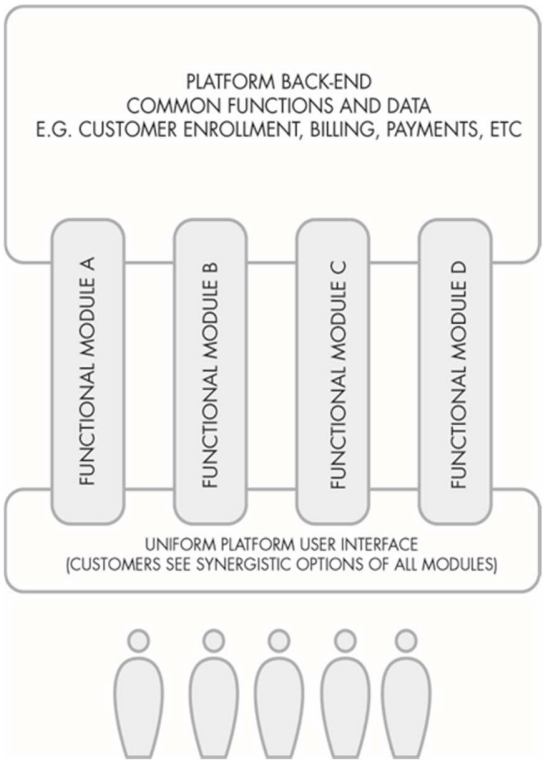

Figure 4: A multi-functional platform with integrated modules. Each functional module represents one of the solutions designed and created by a selected CRID team.

The following key principles govern the success of the CRID Approach:

- A CRID program is shaped around the identification of Intervention Pathways that have emerged out of the ISW process. The CRID program uses a systems approach to foster co-creation of system-level projects that have the most leveraged impact
- Rather than using the identified Intervention Pathways simply as selection criteria for individually generated ideas, the CRID serves as a forcing function to direct innovation efforts
- The CRID program will be focused on the goal of transforming the system *at scale* throughout the process, and have successive filters to ensure that the drive towards scaled impact is not compromised.
- The CRID program will strive to think in terms of *Platforms* that enable and support an ecosystem of innovation and enterprises, whereby platform functions that are created once are made available across services, rather than having to be created by each innovation team. For example, the Platform will create a single Know Your Customer (KYC) database and payment system that can be used by any of the services/projects that may require access to a KYC system.

- The CRID process will take a multi-agency and multi-disciplinary path, so as to be able to approach the problem from a systemic perspective, as well as, with the involvement with the multiple agencies and organizations needed to scale the impact.
- The CRID program will engage the community and co-create solutions with the community in order to ensure that the solutions take into account the contextual realities and have rapid diffusion.
- The CRID program will be structured with sustainable, self-propelling, resource-multiplying strategies so that after the initial investment, the programs continue to thrive and grow.
- The CRID program recognizes that the strategy of innovation is to be coupled with the key capacity building, which can maintain program progress and momentum.

These fundamental principles are used as part of the evaluation criteria during selection of the projects to participate in the CRID Co-Creation Challenge as well as selection of the final system-level co-created projects.

Our three-pronged approach to sourcing innovations allows us to draw upon expert judgment on intervention priorities but, at the same time, allowing RAN to tap into the enormous innovation potential of independent innovators and collaborating teams of experts, all in order to better positioning RAN for resilience impact. This call seeks innovative applications for complementary innovation projects identified under the CRID approach. The intervention pathways and resulting CRID innovation challenges guiding this Call are explained in detail in Section 3.

1.4 The WA RILab

The West Africa RILab (WA RILab) is hosted by the University for Development Studies, School of Medicine and Health Sciences (SMHS) and its **Network Plus Partners include**; University of Education, Winneba, Ghana, University of Bamako (USTTB), Mali, and Cheikh Anta Diop University of Dakar, Senegal. WA RILab has identified five communities in the three countries where its core resilience challenges are highly prevalent. The five communities include three in Ghana, one in Mali and one in Senegal. This round of the CRID4FAL Call is tailored to the three communities in Ghana but with huge potential for replication in the other two communities.

1.5 The WA RILab Priority Resilience Issue

WA RILab's thematic focus is to strengthen the resilience of communities to the myriad effects of rapid urbanization such as food insecurity, WASH, lack of alternative livelihoods opportunities, among others whilst maintaining the vision of a regional network of excellence in indigenous knowledge driven-innovation and resilience scholarship. This thematic area of focus was identified through an extensive baseline literature review that focused on identifying resilience issues that affect the largest section of the population in the WA RILab network countries (Ghana, Mali and Senegal). This was a crucial step in RAN's resilience framework.

Through desktop-based literature reviews, university-based expertise, and engagement with community leaders, RILabs identified the sources and nature of shocks, stresses, and vulnerability in targeted communities in the respective regions. Using this information, each RILab prioritized thematic focus issues for its region and identified sentinel communities to be collaboratively engaged in assessment, observation, and evaluation of resilience trends over time as interventions are developed. Furthermore, with application of a common resilience assessment framework, focus group discussions, key informant interviews, and consultation with development, policy, and community stakeholders, RILabs identified and prioritized dimensions of resilience that were used as input to Intervention Strategy Workshops to translate resilience findings into resilience interventions.

2.0 CRID for Food Self-Sufficiency& Diversified Livelihoods (CRID4FAL)

2.1 The Resilience Gap

The West Africa sub-region is characterized by widespread migration, both internal (within national borders) and international (across national borders). Large numbers of people flee rural areas to urban centers and from the Sahel to forested and more economically vibrant regions. A qualitative study conducted in nine communities worked to understand the vulnerability and adaptive capacity of the people and has validated this phenomenon, as well as, unearthed ten dimensions of resilience: 1) Wealth; 2) Security, Protection; 3) Psychosocial Health; 4) Health/Health Services; 5) Human Capital; 6) Social Capital/Community Networks; 7) Infrastructure; 8) Governance and Advocacy; 9) Natural Resources/Environment, and 10) Spirituality. Better understanding the communities, these dimensions, and how they interact has thrown the spotlight on the challenges facing people living in rapidly urbanizing cities. Rapid urbanization in West Africa has found expression in the outward expansion of the built-up area, converting prime agricultural land into residential and industrial uses. This has deprived an increasing number of people the ability to make a living. New migrants to Ghana's cities are often poor people fleeing economic hardships in rural areas. Upon arrival in the cities, they often have no option but to live in the difficult locations, a high proportion of them living in makeshift housing on unsafe sites, with less adaptive capacity, less state provision to help them cope, and less legal and insurance protection. Thus the urban poor are the most vulnerable to rapid urbanization.

The ever-increasing population in urban centers has outstripped residential and social amenities, natural resources, and the capacity of sanitation and hygiene infrastructure. Indeed, in many parts of Ghana's cities, huge amounts of waste is generated every day and much of it stays for weeks without being collected and properly disposed. This has led to an overall deterioration in the quality of the urban environment and the livelihoods of the people. The sheer numbers of people concentrated in small areas, compounded by the abuse of available water, sanitation and hygiene (WASH) facilities, weak law enforcement, as well as, absence of political commitment by city authorities, means achieving long-term sustainability in WASH intervention remains a daunting

challenge. Over the years, significant investments by government in water, waste disposal, sanitation, hygiene, roads, and drainage infrastructure have failed to effectively expand the capacity of the infrastructure or services that provide these basic amenities. This has increased the disease burden of the people and sporadic outbreaks of cholera, a sanitation related disease, and other epidemics have resulted.

The scale of migration in West Africa in recent years has increased tremendously as a result of the ECOWAS Protocol on free movement of people, goods, and services. This increases the attendant consequences, implications, and challenges for development in the sub region. To make matters worse, alternative livelihood activities are woefully inadequate and food production efforts have not kept pace with the increase in population. This has heightened the vulnerability of the population to food insufficiency and nutrition-related ailments that seriously affect fringed populations. Unemployment is generally high but higher among males than females. In the Tamale Metropolitan area for instance - which is the fastest growing metropolis in West Africa - the proportion of economically non-active population is 38%, the highest in the country. Though the majority of the working population is engaged in agriculture-related activities, they have limited access to credit to increase productivity. Under the circumstances, governments need to step in to provide support so as to ensure that urbanization proceeds along lines that make positive contribution to development, the rewards of which are equitably distributed between settlements. Though cities currently drive negative impacts, they could become the hubs of change and innovation, turning adversity into opportunity.

The main preoccupation of the West Africa Resilience Innovation lab is to build on the opportunities that the sub region's rapidly urbanizing cities present for improving the resilience of the urban poor. Waste management is a huge challenge facing rapidly urbanizing cities. One clear mantra that emerged from the community consultations is that *Waste should never go waste* because **"WASTE IS GOOD"**. Thus *'w*aste' at the industrial and household level must be seen as an untapped resource rather than a nuisance. What innovations can be developed along the value chain of 'waste' in a mutually reinforcing manner that provides livelihood opportunities and addresses WASH challenges, with bridges to improve agricultural practices, in a sustainable manner? How do you move people trapped in a vicious cycle of poverty by the effects of rapid urbanization into a virtuous cycle of prosperity?

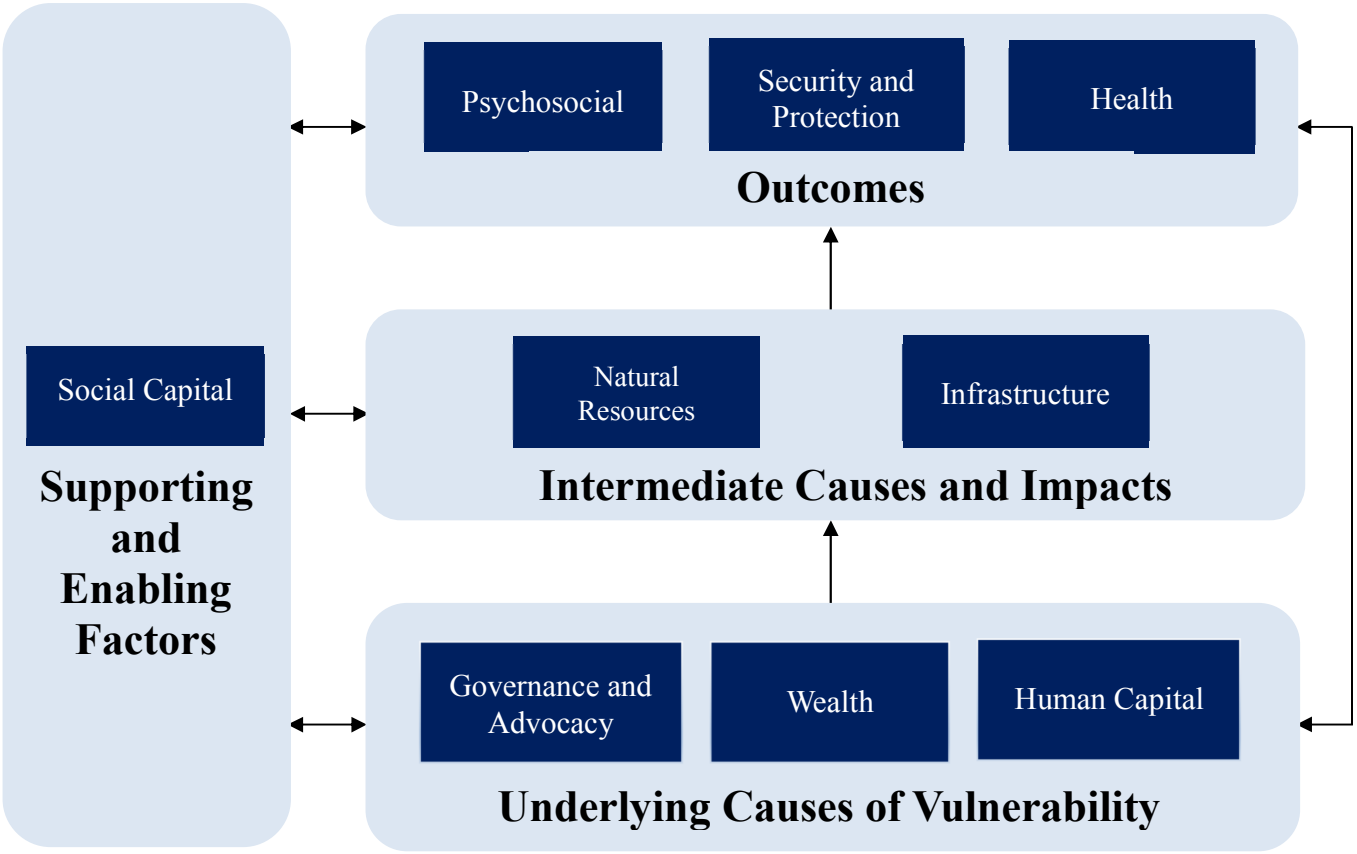

Figure 5: The Resilience Framework for Rapid Urbanization in the Tamale Metropolis
(Source: RAN - State of Africa Resilience Report 2015. p. 56)

Description of the Framework

The above resilience framework is generated from the qualitative study to describe resilience dimensions in the Tamale Metropolitan area (‘*The State of African Resilience: Understanding dimensions of vulnerability and adaptability, 2015*’ accessible at http://www.ranlab.org/resources/publications). Figure 1 shows that:

> “Due to the effects of climate change and a lack of modern agricultural resources, the Tamale Metropolis generally characterized by poor crop yields. Large-scale farming is also on the decline, with significant amounts of farmland having been sold to real estate developers. As a result, the remaining land belonging to the Tamale community is overcrowded and food and employment opportunities are hard to come by. The primary adaptive strategy highlighted here is resorting to subsistence farming and selling extra

food to others. Coping strategies include youth migrating south to look for jobs, children engaging in petty trade to supplement incomes, and people living on arable land instead of farming it (RAN - State of Africa Resilience Report 2015. p. 55-56).

Another major challenge in Tamale, as depicted in the framework, is the impact of poor sanitation on health, in which infrastructure improvements are believed to have the potential for direct influence on health outcomes. An inadequacy of health and hygiene facilities and poor infrastructure is compounded by overcrowding and leads to flash floods, contaminated water sources, and health problems such as communicable hygiene-related diseases. Overall, the dimensions are interconnected and interplay between them is key in determining vulnerability and building resilience among communities in the Tamale metropolis.

2.2 The CRID4FALCall

This CRID4FAL Call focuses on sourcing innovative projects on three 'platforms' projects or innovation challenges co-created by teams of experts from the West Africa sub region. The projects were developed through two workshops convened by the WA RILab: first, the Intervention Strategy Workshop (ISW), which identified the priority intervention pathways; and followed by the Collaborative Resilience Design (CRID) workshop, which co-created the 3 platform projects or innovation challenges. A 'platform project' is defined as a project involving the establishment of a multi-function platform. The multi-function platform then becomes a rallying point around which several applications can be launched, some of them innovative.

The CRID4FAL also focuses on the sourcing, developing, and scaling of transformative technologies and approaches that will strengthen resilience to Rapid Urbanization in the context of climate change and food insecurity. RAN/WA RILab is specifically looking to select and incentivize the development of solutions, and agencies that will set-up, facilitate co-development, test and prepare for potential scale three micro-projects designed to impact Water, Sanitation, Hygiene and Health (WASH+H), Agriculture and Marketing, and Livelihood Diversification and Financial Inclusion while ensuring improved Education and Community Engagements.

The WA RILab CRID4FAL will be a 3-step process.
In **Step 1**, interested applicants will submit applications. In **Step 2,** applicants with the most promising ideas will be invited to co-create a set of system level micro-projects. In **Step 3**, teams behind the best system level micro-projects will then be funded to implement their projects.

Participating co-creators of the system level innovation micro-projects will be invited to form cross-disciplinary sub-teams around the final selected collaborative projects, which may then be funded. Team formation and inclusion into the final award teams will be determined by a variety

of factors including availability/interest, level of contribution that the different stakeholders provided in the development of the respective sub-projects, and an aim to ensure appropriate diversity of technical, regional, and other expertise on each team as needed.

Up to four Phase 1 grants ranging between US$ 30,000 to 100,000 are anticipated to be awarded to teams formed around the final micro-projects selected from those co-created by the co-creation team. Winners of Phase 1 Grants will then qualify to compete for Phase 2 grants. Up to two grants ranging between US$ 100,000 and 200,000) will be awarded. It is envisioned that the grants will support development of complementary innovative approaches and technologies that will strengthen resilience to the recurrent effects of rapid urbanization in West Africa. **[Note: Submission of initial ideas will not automatically mean that an idea is eligible for funding. Eligible ideas for funding will be co-created by the participants of the co-creation workshop. RAN reserves the right to change the projected award amounts or the number of anticipated awards.]**

Invitation to participate in the co-creation workshops will depend on the quality of the applicants' initial ideas submitted, and their willingness to participate in the co-creation process. In the first step of the CRID4FAL, the West Africa RILab invites initial innovative ideas in three priority intervention pathways for resilience building around shocks and stressors associated with rapid urbanization.

The West Africa RILab will support projects through implementation of the platform functions that can demonstrate change in the lives of participating communities. The platform will also host innovators and scholars from the WA RILab's network to help co-create the innovative platform applications and operationalize their functions in the pilot communities. The implementing agency(ies) will test whether each micro-project can change the lives of communities, and spell out which innovative applications work and which ones do not work. Successful completion of Phase 1 and demonstration of clear promising outcomes will result in eligibility for subsequent awards.

The West Africa RILab has identified and will fund micro-projects in three priority intervention platforms or innovation challenges for resilience building around Rapid Urbanization and its associated shocks and stresses:

- *Platform 1:* **Transform Agricultural Practices and Markets**
- *Platform 2:* **Improve Water, Sanitation, Hygiene & Health**
- *Platform 3:* **Promote Livelihood Diversification & Financial Inclusion**

Description of the intervention platforms

Based on data from the community consultations and the analysis of system level relationships at the ISWs, these platforms are described as follows:

- **Platform 1: Transform Agricultural Practices and Markets**

This platform builds upon the key intervention pathway related to Agriculture and Marketing in that most the sub region's people heavily depend on rain-fed agriculture and other natural resources directly affected by the vagaries of nature. Bush fallowing and other agriculture practices, which traditionally restored soil fertility and reduced the buildup of pests and diseases, are disappearing from the agricultural landscape. Overall, the soil resource is being degraded, with a consequent reduction in crop yield. Presently, the challenge of improving productivity without compromising soil sustainability is so large that farmers will need to combine gains from improved germplasm with complementary improvements in their management of soil fertility. Thus communities are stuck in a cycle of low productivity and skewed markets in which they have limited leverage.

- **Platform 2: Improve Water, Sanitation, Hygiene & Health**

This platform builds upon the key intervention pathway related to Water, Sanitation and Hygiene (WASH). Access to water and sanitation is a fundamental human right and essential to life, health and dignity. WASH+H describes all issues that relate to the health and wellbeing of the people. It includes water, sanitation and hygienic behavior of the people. Waste management problems are well entrenched in the study areas (target communities) and have also adversely affected the health of community members. Provision of adequate sanitation services is equally important. Proper disposal of all waste, as well as, control of the carriers of communicable diseases, including mosquitoes, rats, mice, and flies, is crucial to mitigate health risks and preventing epidemics. But the optimum benefit from water and sanitation interventions can only be achieved if communities and individuals are made aware of the links between hygiene practices, poor sanitation, health, and disease. Over the years due to the densely populated nature of the urban areas, compounded by the abuse of available water, sanitation and hygiene (WASH) facilities, weak law enforcement and lack of good WASH practices, achieving long-term sustainability in WASH intervention remains a daunting challenge. We are therefore looking for solutions that will empower target communities with *catalytic and continuous support for scaling up sustainable WASH+H programs* that promote optimism (positive outlook) and a sense of self-determination.

- **Platform 3: Promote Livelihood Diversification & Financial Inclusion**

This platform builds upon the key intervention pathway related to Financial Inclusion and Livelihood Diversification. For example, two of the target communities in Ghana are highly dependent on rain-fed subsistence agriculture that is vulnerable to adverse effects of rapid urbanization and climate variability. Alternative livelihood opportunities are limited and access to financial services remains a big challenge. Non diversification is caused by the lack of viable livelihood options that are contextually relevant, easy to implement and highly profitable. It is

also caused by low financial inclusion and a pervasive culture of not saving as one of the biggest impediments to investment. The WA RILab is looking for solutions that will substantially empower target communities by diversifying their livelihoods using simple but highly profitable farm and non-farm businesses and solutions that also create opportunities for better financial inclusion through savings and access to credit.

This round of innovative micro-projects targets the following anticipated outcomes:

Table 1: Anticipated outcomes of the proposed interventions

Final outcomes	Intermediate outcomes
Reduced poverty	Improved incomes of farmers
Reduced rural-urban migration	Job creation
Diversified energy sources	Increased participation in decision making
Well-nourished and healthy people	Increased employment opportunities
Stronger community structures	More health services infrastructure
Lower dependency ratio	Increased access to financial services
Increased self-esteem	Increased demand for local recipes
More enlightened citizens	Improved financial literacy and inclusion
Sustainable market for local foods	Improve perception of local recipes
Sustainable financial systems	Increased job avenues/credit faculties
Improved soil quality	Improved agricultural technologies
Improved food sovereignty	Improved food security
Sustainable safe water supply	Increased urban food production/water supply
Improved practices including indigenous knowledge based agriculture	Improved WASH facilities
Sustainable land use and planning	Increased access to toilet facilities
Sustainable water recycling and reuse	Increased number of household toilets
Increased agriculture for sustainable income	Reduced use of non-organic fertilizers / Increased use of organic fertilizers
Environmentally-friendly agriculture	Reduced dependence on wood fuels
Improved green energy usage	Increased youth participation in agriculture

Key Dimensions of Change

The planned intervention will contribute to creating change through nine 'change dimensions', aligning with nine of the ten resilience dimensions (excluding the Infrastructure dimension). The change dimensions are highlighted in Table 2.

Table 2: Dimensions of change for the proposed interventions

Resilience dimensions addressed	*Change dimensions*
1. Wealth	Diversified income sources
2. Human capital	1. Knowledgeable and skilled workforce 2. Better Access to Quality Formal and Non-formal Education 3. Financial Inclusion (Credit, Savings, Investment etc.)

Resilience dimensions addressed	*Change dimensions*
3. Health and health services	4. Healthy households through preventive care 5. Better Access to Healthcare 6. Reduced Malnutrition
4. Environment and natural resources	7. Renewable energy through sustainable resource management. 8. Environment and Natural Resource Management 9. Forestation
5. Psychosocial health 6. Security, protection and advocacy 7. Spirituality 8. Social capital/Networks	10. Systems/procedures/guidelines 11. Happy and optimistic people at peace with their environment 12. Social networking 13. Improved Access to Markets 14. Mindsets/attitudes/cultural values
9. Governance	15. Inclusive decision making 16. Gender mainstreaming 17. Functional and responsive institutions

2.3 Objectives of the CRID4FAL Call

Communities in Ghana experience rapid urbanization and its attendant consequences such as food insufficiency, overcrowding, and pressure on limited water, sanitation, hygiene and health facilities, as well as, inadequate livelihood opportunities. Those who farm in urban and peri-urban areas are also contending with climate change, the ever-decreasing land space for farming as a result of increasing demand for land for residential purposes, and the high dependence on single crop subsistence agriculture using agro chemicals.

The WA RILab Resilience Innovation Challenge Grants are designed to achieve the following objectives:

2.3.1 General Objective:

To strengthen the resilience of target communities by building their agency to transform agricultural practices and take more control of the agricultural value chain, promote life and entrepreneurship skills and diversify to off-farm profitable enterprises and in ways that are sustainable and improve access of the poor to financial services.

2.3.2 Specific Objectives:

The specific objectives of the WA RILab Call are:

1. To transform agriculture practices using indigenous knowledge, appropriate technology, and strategic marketing;

2. To boost the local economy by diversifying livelihood opportunities through entrepreneurship;
3. To empower communities with knowledge and technology to make use of available resources for productive purposes;
4. To improve access to financial services for the urban poor and fringed communities; and
5. To develop low cost waste management technologies and profitable businesses along the value chain of waste.

The CRID4FAL organizers and partners strive to provide a round of grants that lead to resilience building towards the achievement of these five objectives.

3.0 CRID4FAL Grants: Structure, technical overview and schedule

3.1 Overview of the grant structure

West Africa RILab invites applications from entities and organizations with innovative approaches to strengthening resilience of target communities by building their agency to improve and transform agricultural practices and markets that have control of the agricultural value chain, improve the waste management skills and to diversify to profitable enterprises, in ways that are environmentally sustainable. The WA RILab seeks to co-create a complementary set of innovative projects in support of system-level interventions in the target community along the three resilience innovation challenges as identified in Section 3.2.

The issues being addressed by RAN are systemic, scaled, complex and multidimensional. Approaches to such complex resilience issues such as identified by the priority intervention pathways in Section 2.2 should be based on Systems Thinking. It is not sufficient to come up with an innovative idea. The innovation process first, needs to look at the challenges as a set of system actors, stakeholders, and forces that are acting with complex interactions and relationships, giving rise to interconnected outcomes and vulnerabilities. The theory is that by using Systems Thinking it is possible arrive at solutions that have the capacity to have systemic impact. The ISW ensures such a systems approach both in understanding the problem and then arriving at intervention pathways. The CRID approach then extends the priority intervention pathways into the "projectization" or Innovation Design phase so as to identify and design system level resilience projects. With this alternative strategy to sourcing resilience innovations, the WA RILab will conduct facilitated innovation project design workshops using design-thinking co-creation methods. Selected CRID4FAL applications, as well as, diverse stakeholders and experts will be brought together to develop system level projects. The system level projects will be comprised of different functions, each of which will draw on innovations (including those proposed by selected CRID4FAL applicants) to deliver a service that transforms the target communities. The system platform provides an innovative vehicle that promotes several functions in a way existing systems have not performed before.

Support for multiple intervention pathways in CRID platform projects is based on the assumption that resilience dimensions are impacted by several system level factors which if addressed simultaneously could lead to large scale transformation of a community over a relatively short time. The innovation projects are not built around one pathway but are built around a system, working simultaneously on a multiplicity of change levers and pathways to create complete transformation of the system. Outputs of the CRID approach will, by design, be multi-faceted, synergistic projects built to enhance intervention pathway synergies. They will address multiple intervention pathways in a synergistic way to achieve multiple resilience outcomes in a unified manner, in line with systems thinking. It should be noted however that some of the functions on a CRID platform project may not be related to the primary intervention pathways, e.g., a mobile phone based platform to promote access to agricultural extension

services could also be used by another stakeholder in the health sector to announce a mass immunization program for children. The platform therefore has multiple plug-in functions of a diverse nature and is adaptable.

CRID4FAL anticipates identifying and funding up to approximately ten (10) project teams addressing any of the challenges described under the intervention platforms in sub-section 3.2 of this Call. Teams will be selected based on the quality of their applications, which will be evaluated to ascertain resilience building potential, potential for transformative impact at systems level and across platforms, scalability, feasibility, and viability. This will include their level of presence in the target communities, and their capacity for community mobilization and running innovative community programs. Teams will have to demonstrate that they will be able to mobilize relevant stakeholders to contribute to their innovation project and work with different stakeholders to leverage their projects as a mobilization tool for community change. They will also have to demonstrate openness to iteration of their ideas to create new system level ideas through collaboration, and willingness to synergize across micro projects to create a multi-function platform. Implementation of the CRID4FAL process will take the following steps.

Step 1 - Identification of Co-creation Participants

This request for proposals is the first step in the CRID4FAL process. The initial call for proposals is aimed at identification of applicants with promising ideas that can contribute to the envisaged intervention strategies through a co-creation process. Participants will have submitted proposals related to the three (3) CRID project pathways from which up to approximately 12 applicants with the most promising project ideas will be selected and invited to a co-creation session.

For each of the three priority intervention pathways, WA RILab will invite up to approximately four (4) applicants to join a team of critical stakeholders and players from the communities as well as reputable organizations undertaking related development work. Critical stakeholders will range from development agencies, NGOs, government agencies, private sector players, academia, and representatives of key target communities, etc. In all, we would expect on average 5-8 people per priority intervention pathway making a total of about 15 - 24 people that would convene for a co-creation workshop. The primary role of the meeting participants will be to engage in collaborative projectization.

Step 2 - Collaborative Projectization

Approximately two members from each the 12 applicant teams with the most promising ideas together with approximately 6-12 representatives of critical stakeholders will be invited for a co-creation workshop. The co-creation workshop will take place at the Dungu (Tamale) campus of the University for Development Studies. Using a process adapted from Stanford University's ChangeLabs, participants will engage in brainstorming sessions based on design-thinking and co-creation principles, to co-create new synergistic projects by building on the ideas initially

selected to create new system level projects. This is a highly proactive process that uses divergence, convergence, rapid prototyping and iteration to narrow down on the best solution options. This process aims to generate approximately 8 interrelated micro-projects: These will include up to approximately six function-based micro-projects and approximately two cross-cutting projects in form of 'platforms' that can coordinate delivery of the other function-based micro-projects.

Step 3 - Innovation Project Specifications

For each identified CRID platform projects, co-creation teams comprised of members from the 12 applicant teams in the initial call for proposals will be invited to develop concept papers of 5 - 7 pages each that detail the goals, scope, activities, budget, timelines, target users, M&E plan and personnel/partnership plan. The 12 applicant teams will self-select as well as be guided into co-creation teams based on similarities, synergies and/or relevance of their individual application ideas. The entities to lead on each of the identified projects will be selected by the RILab's team and CRID facilitators. Selection to lead a concept will depend on the level of alignment of the concept idea to initial ideas submitted by the co-creation participants, the level of an entity's contribution to co-creation of the idea, and technical capacity of the organization to implement the ideas. The concept paper would also outline the key applicants, participating organizations and university experts that need to be involved for successful implementation of the project providing their roles plus responsibilities, as well as, degree of engagement. It is also expected that the concept papers will also identify opportunities for student innovators/interns to be engaged to support development of components of the platform projects. The initial concept development will last approximately 3 days and concept teams will have up to 2-3 weeks following the co-creation to further refine their concepts and develop clear parameters for the project's scope. It is envisaged that since the CRID co-creation workshop will handle about three priority intervention pathways, it will generate at least about 1-3 viable concept papers. A total of approximately 8 full concept papers are expected to result from this stage, including approximately 6 function-based micro-projects and about 2 platform-based micro-projects.

Step 4 - Final CRID Concept Evaluation, selection and alignment

The concept papers will undergo a final competitive evaluation stage. The final papers will need to demonstrate a good fit to the WA RILab resilience innovation challenges and the priority intervention pathways. They will also need to include innovative approaches. In addition, concepts that best depict systems level approaches and impacts will be prioritized. The panels of judges will consider such variables as:

1. Technical suitability to the type of project, availability of mentors - as may be required, availability of resources at the community level, and level of interest in the concept;
2. Technical viability of the proposed project;
3. Qualifications of the proposed core team to lead implementation of the project, and experience in leading community interventions;
4. Clear demonstration of understanding of user needs and issue-points;

5. Innovativeness of the functions stipulated in the project;
6. System level effects of the intervention;
7. For function-based micro-projects, ability to synergize with other functions in the ecosystem and to fit on a common delivery platform;
8. For platform-based micro-projects, ability to foster convergence and coordination of different functions;
9. Qualifications of the proposed core team to lead implementation of the project;
10. Team experience in leading community interventions in the relevant domain area; and
11. Demonstrated consideration of the scalability and sustainability of their proposed solution.

Based on this evaluation, up to approximately 4 CRID micro-projects will be selected for funding. These will include an estimated (subject to change) split of up to 3 function-based micro-projects and 1 platform-based micro-project. Approved concept papers will be further refined (co-designed) as may be required. The concept team members will be associated as a CRID4FAL Project Consortium for implementation

Step 5: Pre-award project harmonization meeting

The final approximately 4 selected project teams will be invited to a 1-day workshop to harmonize their work schedules, discuss coordination mechanisms and agree on cross-project synergies. The rationale for this meeting is that CRID projects are supposed to work synergistically as interdependent functions to contribute to system level changes. While each function-based micro-project addresses a specific function within the system, all functions need other functions to complete their delivery and maximize impact. Likewise, the platform-based project ought to act as a platform that enables 'plug-in' of the other function-based micro-projects. Following the 1-day harmonization workshop, the different teams will then complete and submit their workplans clearly showing how they synergize with other micro-projects in the ecosystem.

Step 6 - Awarding and commissioning of the CRID4FAL function and platform innovations teams

Grant agreement(s) will be signed with the winning CRID4FAL Project Consortium (a), WA RILab and RAN that will outline implementation of the project(s) on a day-to-day basis. Professional experts would be contracted for the duration that their expertise is required, while Consortium members would enter into collaboration agreements with WA RILab on a case-by-case basis depending on the nature and extent of their involvement. It is anticipated that Steps 2 - 5 will take up to two (2) months including time needed for USAID review and approval. (**Note:** Finally, please be advised that teams proposing work in certain countries may require additional vetting and special notification procedures before work may commence in accordance with USAID policies and procedures.)

Upon selection, each successful Consortium team will receive a CRID4FAL grant to support the development of their proposed idea depending on its current status and progress. The CRID4FAL grants are structured in two distinct and progressive phases where each phase has specific implementation requirements and funding levels:

- Phase I: Solution Development (prototyping)
- Phase II: Piloting and Preparation for Scaling.

Progressing from one phase to the next will be competitive and will depend on successfully meeting the requirements of the previous phase based on set evaluation criteria as detailed in Section 6 of this Call and will be competitive. Out of the approximately four (4) teams that are anticipated to receive Phase I funding, it is anticipated that only the best two (2) or so teams will be selected to receive Phase II funding. It is however possible that all four projects proceed to Phase 2 if they can all demonstrate a data-driven and evidence-based level of effectiveness as rallying points for community change, and if they are demonstrated to be highly complementary to each other, depending on the availability of funding.

Additionally, to be selected, teams will have to demonstrate the extent to which human capacity development aspects have been mainstreamed into their activities for increased individual and community level agency, as well as green technologies and approaches where appropriate. This requirement underscores RAN's belief in the power and agency of the individual community member as a critical aspect of resilience building and sustainability. By mainstreaming human capacity development and increased agency we mean proposed solutions should contain a component for understanding and promoting the community's 'know-how' to apply the solution, empowering them to manage their affairs without necessarily always relying on external support, and ensuring access by marginalized groups like women and the youth. By 'green technologies and approaches' we mean solutions that on the whole are eco-friendly and contribute to better protection of the environment and conservation. (NOTE: All selected projects will also be subject to internal USAID environmental review before awards are made at each Phase.)

The anticipated dates for all phases of the competition are provided in Table3.

Phase I: Solution Development Phase

Competition for Phase I shall be open to all eligible individuals or entities. The Call will be open on September 15, 2016. A panel of judges will select up to approximately twelve (12) finalists based on the merit of their applications and other criteria (Evaluation criteria provided in Section 6). The approximate twelve finalists will each be invited to participate in the CRID4FAL co-creation process as outlined by Steps 1 – 6 above. Successful CRID4FAL Teams will use this grant to develop a 'proof of concept' or a 'preliminary prototype' of the proposed solution in the target community.

Once function project and platform project teams have been selected, they will participate in three key in-person training workshops that will ensure their integration into the CRID

architecture. The first workshop will be an "Understanding Human-Centered Design and Platform-Oriented Design". The goal of this training is to (1) build grantee capacity in the basic of human-centered design to apply to their solution development, and (2) further orient the selected teams to the expectation that their solutions will ultimately integrate into a commonly-accessible platform that shares user data, back-end payment mechanisms, etc. (see Figure 4). The second workshop will occur immediately following the first, and will be an "Introduction to Business Viability". It will familiarize the teams with the basics of creating economic viable products that have a sustainable business model.

The third workshop that the function project and platform project teams will participate in is the "Synergies and Platform Integration Workshop". This workshop will occur towards the end of the first third of the grant period, after the teams have conducted fieldwork and developed and tested initial solution prototypes. The purpose of this workshop is to establish the fundamental architecture of the common platform that the projects will each plug into, and identify features and design specifications for that platform, based on the experience of each team in their target user communities. The Platform Design grantees will work with these specifications to begin building the back-end architecture of a unifying platform (Phase 1).

For the function project teams, Phase 1 is expected to include: (1) Establishing the innovation project in a defined test community; (2) Rallying some community members to access and test the project; (3) Rallying some local community based organizations to subscribe to the project and leverage their contributions in taking the project to fruition. The concept or preliminary prototype should demonstrate technical feasibility and viability of the proposed solution, either with a physical simple prototype (for technology based ideas), a viable unit process (for physical processes), or a viable concept (for conceptual approaches).

Phase II: Piloting and Preparation for Scaling

During Phase 2, it is expected that proposed solutions/prototypes will be piloted on a small scale to aid assessment of a project's viability for multiplicative use and scale. Grantees will also use this phase to: (1) Support contributions from innovators from within the communities and universities in the development of complementary applications that enhance the project's potential to foster community change; and (2) Prove that the project contributes significantly to system-level changes required to strengthen resilience (i.e. project is effective as a tool that contributes to mobilizing communities for better access to vital social services, increased productivity, and livelihood changes to increase their resilience, at minimal cost, and with clear recommendations on what works and what does not work). The final outcome of the phase is to demonstrate technical feasibility and viability of the proposed project as a key component in transforming communities. A project should also demonstrate its complementarity with other projects in addressing the resilience challenge through viable integration into the CRID platform created by the Platform Design teams.

Phase II grants will only be awarded to a sub-set of winners of Phase 1 grants upon verification of a viable prototype (for technology based solutions) or a viable methodology (for solutions in form of approaches or models) that is ready for pilot and with promising transformative potential. Award of a Phase II grant will require verification and assessment of a project's plausibility, functionality, potential for adoption and efficacy in transforming lives (awardees will provide visual, video, database or text-based evidence of results depending on the type of idea). It is anticipated that approximately two co-creation teams will be selected for this award, based on projects that demonstrate clear potential for resilience building, promising data-driven and evidence-based scalability and transformative potential from Phase 1 development. RAN reserves the right to change the project amounts, or the number of anticipated awards for any stage of this challenge. The release of this call does not obligate RAN to make any awards now or in the future. It is anticipated that participants will use this grant to implement their business model, test their prototype or approach on a wider scale and position their model for resource multiplication opportunity in order maximum transformative impact. This will include development of a mechanism for wider adoption and scale of the model in communities with similar challenges, beyond the test community. ***[Note: Respondents to the general call cannot apply directly for Phase 2 grants. These grants will be competed for by Phase 1 grantees only, upon satisfactory completion and rigorous assessment of deliverables for Phase 1. RAN reserves the right to not issue any grants at either Phase 1 or Phase 2.]***

3.2 Call structure and micro-project platform description

Based on data from the community consultations and the analysis of system level relationships at an Intervention Strategy Workshop (ISW), three priority intervention pathways emerged for the West Africa as presented in Section 2.2. The three pathways served as input to a CRID workshop in identifying the key innovation challenges to be addressed by CRID4FAL as highlighted in Figure 3.

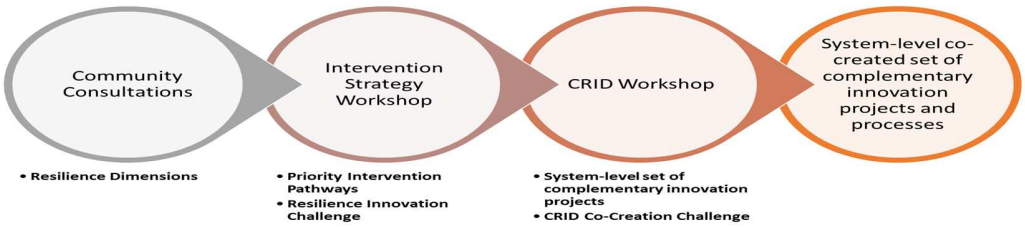

Figure 3: Collaborative Resilience Innovation Design (CRID) approach

3.2.1 Summary of the Innovation Challenges:

The CRID workshop comprising of a team of experts and practitioners conducted by WA RILab has identified three priority intervention platforms that have a high transformational potential to impact resilience strengthening around food insecurity and rapid urbanization. These three complementary innovation project platforms will be the basis for rallying innovators to generate innovative ideas to address the priority resilience challenges for the region. However, the particular resilience challenges to focus on under the CRID are:

- Innovation Challenge 1: Transform Agricultural Practices and Markets
- Innovation Challenge 2: Improve Water, Sanitation, Hygiene & Health
- Innovation Challenge 3: Promote Livelihood Diversification & Financial Inclusion

3.2.2 Detailed Description of the Innovation Resilience Challenges:

This section describes the architecture of the three Resilience Intervention Challenges that will form the core theme of CRID4FAL (hence the three innovative micro-projects) targeted by the West Africa RILab. A detailed description of the Challenges with at least 2 resilience innovation modules as stated below:

Innovation Challenge 1: Transform Agricultural Practices & Markets

In the face of rapid urbanization in West Africa, most of the sub region's population relies heavily on rain-fed agriculture and other natural resources directly affected by the vagaries of nature. The growing frequency and severity of extreme events such as droughts, floods, and heat waves, along with shifting rainfall patterns, threaten to overwhelm the natural resilience of West African communities, risking livelihoods and food security. Subsistence farming is the mainstay of communities that experience shocks and stressors arising from migration, drought and sometimes flooding. Overdependence on rain-fed agriculture, small farm sizes, low technology, inadequate start-up capital, and the non-existence of value addition tend to increase vulnerability to food insecurity as a result of poor knowledge about how to prepare nutritious local recipes. Thus, locally available rich foods are not optimized. Lack of direct access to buyers, poor smallholder cohesion, lack of inputs, and low price leverage all affect the farmer's income. The fallows, which traditionally restored soil fertility and reduced the buildup of pests and diseases, are disappearing from the agricultural landscape. The soil resource is being degraded, with a consequent reduction in crop yield. Presently the challenge of improving productivity without compromising sustainability is so large that farmers will need to combine gains from improved germplasm with complementary improvements in their management of soil fertility.

The Innovation Challenge: This platform seeks solutions that disrupt the status quo by substantially building agency of smallholder farmers to have more control over efficient agricultural production processes, marketing and consumption of local foods and soil fertility

management. The platform has three innovative ideas/modules highlighted as follows:

Innovative Idea 1: Use Appropriate Technology to Increase Agriculture Output
Develop low cost environmentally friendly approaches to increase yield per acreage by employing indigenous knowledge, resources, technologies which encompass gender and ICT platforms to improve access to markets and to increase income. Particularly encouraged are proposals that provide innovative approaches to promoting the following:

- Group-based access to markets
- Gender-equitable benefit sharing mechanism
- Use of established ICT market platforms

Innovative Idea 2: Value addition to locally available foods
Develop approaches for piloting, evaluating and scaling innovations that address key constraints related to:

- Alternative packages of assistance to Small and Medium Enterprises (SMEs) attempting to anticipate and take advantage of the growing markets for processed and perishable foods.
- Small-scale processing technology that is user friendly and adds value to indigenous locally produced crops, e.g., millet, fonio, groundnuts, etc.
- Indigenous technologies for food preservation.

Innovative Idea 3: Improve Soil Fertility and Agricultural waste reuse
Develop models or approaches appropriate for integrated soil fertility management and maximizing the use of agricultural waste so as to improve the incomes of smallholder farmers.

We are especially interested in innovation projects that can be structured in the form of platforms on which different functions can be launched, both within the domain of the call, and for other social transformation activities beyond the domain of this call.

Innovation Challenge 2: Improve Water, Sanitation and Hygiene& Health

WASH is a major aspect of the health of the people in the target communities. The ever-increasing population, driven by high birth rates and in-migration, has outstripped residential and social amenities, water resources, and the capacity of sanitation and hygiene infrastructure. This has led to an overall deterioration in the quality of the environment. Over the years, significant investments by government in water, waste management, sanitation and hygiene have not translated into ensuring sustainable availability and access to sufficient water of good quality. Organizations working to promote WASH are challenged by deplorable attitudes, behaviours, and practices in the urban and peri-urban areas. Use of untreated wastewater for vegetable farming is widespread across the metropolis.

Innovation Challenge: We are seeking innovative solutions to develop models and approaches for improving behaviours and attitudes while creating innovative technologies to promoting WASH. These interventions would engage the community by leveraging existing traditional platforms for community engagement. Some innovative solutions may include:

Innovative Idea 1: Household Water Management and Reuse
Develop models and approaches or technologies for promoting sustainable water supply that would reduce vulnerability to household water shortage and promote opportunities for multiple uses of water.

Innovative Idea 2: Solid and Liquid Waste Management
Develop models and approaches or technologies for promoting sustainable solid and liquid waste management to reduce vulnerability of households to communicable diseases and in a manner that also builds bridges for agricultural production**.**

Innovative Idea 3: Health Seeking Behaviour
Develop models and approaches for promoting and catalyzing health and improving health-seeking behaviour.

This platform seeks solutions that disrupt the inability to manage wastewater, including water reuse and rainwater harvesting for homes and institutions. Rainwater harvesting technologies for homes and institutions have been tried in other areas and have proved successful. We are especially interested in innovation projects that can be structured in the form of platforms on which different functions can be launched, both within the domain of the call, and for other social transformation activities beyond the domain of this call.

Innovation Challenge 3: Promote Livelihood Diversification & Financial Inclusion

Entrepreneurship is important to the economic and social development of a community. Through innovation, entrepreneurs create new, competitive markets and businesses. This leads to job creation, which has a multiplying effect on the economy. Potential entrepreneurs in West African communities (particularly Ghana) are constrained by the lack of entrepreneurial skills and the limited access to finance/start-up capital. The Government of Ghana's (GoG) Microfinance and Small Loans Centre has a mission "to provide micro and small loans for start-ups and small businesses with fast, easy and accessible microcredit and small loans to grow and expand their businesses as well as to enhance job and wealth creation". But its services do not reach majority of those most in need. Other microcredit facilities also follow the line of traditional lending institutions by demanding collateral for borrowing. Existing entrepreneurship skills development programs are also few and not well focused. Upgrading skills can be a key channel to improve productivity and incomes in the informal economy and open opportunities to link with the formal economy.

Innovation Challenge: We are looking for innovations that can develop models and approaches or technologies for promoting life and entrepreneurship skills in target communities, Tamale, Navrongo and Ashaiman. With coordinated support, interventions on this platform can greatly benefit from existing financial services for business start-ups. Innovative ideas include:

Innovative Idea 1: Life and entrepreneurship skills development
Develop models and approaches or technologies for promoting life and entrepreneurship skills that would reduce vulnerability to food insecurity and promote opportunities for diversified livelihoods taking into account specific contexts in target communities.

Innovative Idea 2: Alternative Livelihood Opportunities
Develop models and approaches or technologies for supporting local business ideas to grow into viable alternative livelihood enterprises.

We are especially interested in innovation projects that can be structured in the form of platforms on which different functions can be launched, both within the domain of the call, and for other social transformation activities beyond the domain of this call.

3.2.3 Description of key relationships and roles

The main responsibility of entities/organizations applying for this grant is to participate in the co-creation processes that will lead to the final projects that will be selected for funding. RAN would like to make it clear that selection for the initial co-creation workshop shall not guarantee that a team is included in the final projects selected for funding.

The responsibility of the final teams selected for funding shall be to establish the required innovation projects in a defined test community and test their potential to cause change in these communities. Entities or organizations selected for the final awards will establish mechanisms for development and testing of their projects, involving both its staff and key stakeholders or beneficiaries within the community. Innovation projects should aim to involve the respective communities as much as possible in the development and testing of the project. In line with this, grantees will set 'ground-rules' for accessing and utilizing their respective projects by consulting communities. Grantees will also identify community champions to steer change in uptake of the project's functions. Projects could also be used to rally other community based organizations that can contribute to its setting up, or to the development and implementation of some of its critical applications.

In developing and rolling out of projects in the Tamale, Ashaiman, and Navrongo Districts of Ghana, grantees will work closely with the WA RILab. Depending on the needs of a given project, the WA RILab will mobilize students, faculty and scholars who are interested in working with grantees to develop applications that leverage the innovation project. Interested and competent students/faculty will be placed as 'Resilience Innovation Fellows (RIFs)' for short

periods in the target communities, not exceeding the duration of the grant period. The role of these Resilience Innovation Fellows shall be to liaise with awardees to test the functionality, utilization and impacts of a CRID4FAL Consortium (Prime Recipient and Sub-recipients)'s projects on the target communities. Fellows will be placed for short periods to be determined in the planning phase once the grants have been awarded.

The final outcome of this grant call is to demonstrate technical feasibility and viability of a CRID4FAL Consortium's set of innovation projects to transform communities (i.e. is the set of projects effective as a tool for mobilizing communities for livelihoods change to increase their resilience, at minimal cost, and with clear recommendations on which applications work and which ones do not work). To demonstrate effectiveness, CRID4FAL Consortiums will answer some or all of the following questions at project evaluation:

- If a given set of complementary projects is placed in the community, to what extent can it change the lives of communities?
- What do the target communities use it for?
- Which leadership patterns and change champions emerge?
- Which applications and application functions are most transformative in building the resilience of target communities?
- What are some unintended consequences or effects of the set of projects, both negative and positive? Is the set of projects a paradigm changer?

Implementing CRID4FAL consortia will also be required to collaborate with each other. This is because, by design, projects will be selected so as to correspond to the three intervention pathways required to create remarkable positive changes in the target communities in a synergistic manner. Because of their synergy, communities will need a holistic approach to which each of the selected projects contributes. Grantees shall therefore be engaged in planning meetings and mechanisms for working together to complement each other's projects.

3.3 CRID4FAL Grants and Additional Costs:

3.3.1 Grant amounts

This call comprises **three** resilience innovation challenges described by:

- **Innovation Challenge 1: Transform Agricultural Practices & Markets**
- **Innovation Challenge 2: WASTE IS GOOD: Improve Water, Sanitation, and Hygiene& Health.**
- **Innovation Challenge 3: Promote Livelihood Diversification & Financial Inclusion**

Grants will be awarded as follows:

- An estimated total of up to approximately 4 teams will be selected to receive a grant to lead one of the co-created micro projects (Anticipated award range, about USD $30,000-100,000). This funding will be mainly targeted towards ideation and testing of the proposed approach.
- An estimated total of up to approximately 2 grants will be awarded in Phase 2 (Anticipated award range: approximately USD $100,000 - $200,000), mainly targeted towards conducting a larger pilot and testing the scalability of the project. Phase 2 must demonstrate promising data-driven and evidence-based scalability and transformative potential from Phase 1 development**. (*NOTE: RAN reserves the right to change the projected award amounts, or the number of anticipated awards, at any time. The release of this Call does not obligate RAN to make any awards*).**

3.3.2 Official currency

All currency quotations in the Resilience Innovation Challenge should be in United States Dollars (USD $).

3.3.3 Resources beyond the award

Awardee teams shall be responsible for costs of all research and development, prototyping, travel, and shipping expenses that exceed the grant amount awarded in this Call. Grant money and other reimbursement amounts will be paid through a sub-award agreement with the RAN and WA RILab, and are subject to the availability of funds. RAN reserves the right to determine the grant amount awarded to a particular team and to vary grant amounts among selected finalists based on RAN's analysis of the proposed project budget and the availability of funds. The Judging Panel, RAN and USAID are not obligated to make any awards should no teams match the selection criteria or for any other reason.

However, RAN is fully cognizant of the fact that bringing successful interventions to full scale may in some projects require much more resources than can be provided by the RAN. As part of the mentorship process, RAN will provide support to grantees in Phase II for the development of viable business models on data analysis and showcasing evidence of project's outcomes, and on mobilization of external funding from interested agencies, especially for interventions that are clearly impactful on the communities.

3.4 Implementation schedule

Table 3 provides an overview of the call schedule

Table 3: CRID4FAL call schedule

Milestone	Timeline
Phase I	
Call open for applications	September 15 – October 17, 2016
Dedicated Question and Answer Periods	Sept 16 – October 13, 2016
FAQs posted online	Sept 15, 2016
Applicant support Webinar	Sept 22, 2016
Applications submission deadline	Oct 17, 2016
Shortlisted applicants invited for co-creation process announced	Nov 14, 2016
Shortlisted applicants acceptance deadline	Nov 21, 2016
CRID4FAL Co-creation Period	Nov 28 – Jan 23, 2017
Grants awarded and finalists announced	Jan 30, 2017
Implementation period	Feb 1 – July 30, 2017
Phase I Evaluation	Aug 2-17, 2017
Phase II:	
Finalists Selection (from Phase I grantees)including preparation of Phase II action plans	Aug 20-30, 2017
Phase II Grants awarded	Sept 2, 2017
Implementation period	Sept 2 - Jan 30, 2018
Phase II Evaluation -Assessment for need for no-cost grant extension	Feb 1 - 28, 2018
Reporting, project close out and dissemination for scale	Feb/March, 2018

4.0 CRID4FAL Grants: Eligibility, Terms and Conditions

4.1Rules for eligibility

4.1.1 Eligible applicants

Individuals or teams of individuals as well as entities or organizations working in similar domain areas in the target communities of Ghana are eligible to apply. Entities or organisations willing to partner with those working within the target communities (as may be identified through the co-creation process) are also welcome to apply. Potential applicant organizations may include colleges, universities, autonomous or semi-autonomous research institutes, foundations, NGOs, faith-based organizations, community based organizations and civic groups. All applicants in this category must be legally recognized entities, formally registered under applicable law, and they should attach evidence to that effect on their application.

4.1.2 Other General Requirements

Entities that are ineligible to apply include: Governments (local and foreign) and their agencies, non-incorporated entities (informal organizations or networks), and individuals not affiliated with any legally recognized entity as specified in Sec. 4.1.1. Other entities ineligible to apply include any individuals or organizations participating in, linked to, or sponsoring subversive activities including criminal acts, terrorism or related activities. A responsibility determination will be conducted on all teams applying for the grants for their status regarding United States Government (USG) sanctioned individuals and entities and for the legal nature of their affiliate organization.

Grants may not be awarded to an organization from, or with a principal place of business in, a country subject to trade and economic sanctions administered by the Office of Foreign Assets Control (OFAC) of the United States Department of Treasury or to any individual or entity subject to targeted trade and economic sanctions administered by OFAC. For more information, see OFAC website: http://www.ustreas.gov/ofac/. The current list of OFAC restricted countries includes Iran, Syria, Cuba, North Korea, and Sudan. However, the list of countries subject to OFAC restrictions may change, and RAN will conduct a final eligibility determination prior to award. All USAID restrictions pertaining to US Government funding apply.

Grant winners must not engage in transactions with, or provide resources or support to, individuals and organizations associated with terrorism, including those individuals or entities that appear on the Specially Designated Nationals and Blocked Persons List maintained by the U.S. Treasury (online at: **https://www.treasury.gov/resource-centre/sanctions/Pages/default.aspx**) or the United Nations Security designation list (online at: http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml).

CRID4FAL seeks applications that have an operational focus in low-income and middle-income countries, as defined by the World Bank (http://data.worldbank.org/about/country-classifications/country-and-lending-groups). The implementation of the project including pilot

and testing will be done primarily in Ghana, and in similar communities within Mali and Senegal, all of which are under the West Africa RILab.

In addition, please be advised that sub-recipients proposing work in certain countries may require additional vetting and special notification procedures before work may commence in accordance with USAID policies and procedures.

4.2 Intellectual Property

The initial intellectual property for the platform projects created under this CRID award belongs to the associated CRID4FAL team. Any sub-sequent Intellectual property that shall be co-created by the CRID4FAL teams shall be jointly owned by the team in accordance with their inventive contribution to such Intellectual Property. All awardee teams shall grant to the West Africa Resilience Innovation Lab (WA RILab) and its affiliates (these include USAID, Makerere University and partner universities) a non-exclusive, royalty-free, perpetual license to use any resultant or derived intellectual property (e.g. product, service, or technology) that will be developed using the CRID4FAL grants, for development work.

All proceeds accruing from commercialization of IP generated via CRID4FAL grants, following the conclusion of the grant period, belongs to the associated CRID4FAL team.

5.0 Submission of Applications

5.1 Application submission

Submission of Full Applications will be done online at grants.ranlab.org. All applications must be submitted via this platform and RAN will not accept applications submitted via any other means. Complete instructions on how to submit applications are provided on the website and also available at the WA RILab offices. Applicants must ensure that their applications are successfully submitted on the platform in their entirety, and they will receive a confirmatory email from the online platform as proof that their application has been successfully submitted. If the Applicant experiences any difficulty with submitting an application through the online Application Platform, the Applicant should send an e-mail to the West Africa RILab CRID4FAL support team at: support.warilab@ranlab.org

5.2 Rules governing submission and participation

- Applications must be written and submitted in English and all money denoted in USD.
- Applications must be submitted via the web-based platform at grants.ranlab.org/. Those submitted via regular mail, facsimile, or email will not be accepted.

- Complete applications must be submitted by the CRID4FAL call application submission deadline (11:59 pm GMT on 17th October 2016) using the online platform (grants.ranlab.org). No additions or modifications to the applications will be accepted after this submission deadline.
- An application can target only one of the three (3) innovation challenges as described in Section 3.2 under this CRID4FAL call. Entities or organizations can however submit more than one application targeting different innovation challenges. In such instances, each of the different projects will be submitted and reviewed separately.
- Organizations that make it through the initial selection will be invited to participate in the CRID4FAL Co-creation Workshop. Selected teams will need to confirm their participation by acceptance deadline (5:00 pm GMT on 21st November 2016) using the online platform (grants.ranlab.org). No additions to the co-creation list of participants will be accepted after this acceptance deadline. This deadline applies to only those applicants who are invited to participate in the co-creation process after the applications are evaluated.
- RAN bears no responsibility for any transmission errors associated with electronic submissions.
- If no application meets the required threshold to participate in the CRID4FAL co-creation process, the call may be reopened at the sole discretion of RAN, the WA RILab, and USAID.
- Liability: Participants agree to assume any and all risks, and waive claims against RAN and its related entities and partners for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from their participation in this innovation challenge.

5.3 Applicant support

5.3.1 Questions during the pre-submission period

Applicants will have an opportunity to pose questions regarding the innovation challenge or any part of the application process. The question submission period will run from 16th September – 13th October 2016 for the CRID4FAL application phase. Applicants may submit questions to support.warilab@ranlab.org during this timeframe. Frequently Asked Questions and Answers will be posted on the FAQ section on the platform website (grants.ranlab.org) by 15th September 2016. Note that Applicants can reach the WA RILab at any time via our support email, support.warilab@ranlab.org.

5.3.2 Webinars

RAN will host a public webinar on 22nd September 2016 to allow potential CRID4FAL applicants to ask any pertinent questions and seek clarifications for anything that may not be clear regarding the call. The connection and schedule details for this webinar will be posted on grants.ranlab.org.

5.4 Information required from applicants

5.4.1 Basic applicant information

Through the Online Application Platform, applicants are asked to input details regarding their Organization. The information will target background characteristics, mission and areas of operation of the organization. This information will not be used for any other purposes other than those related to this call. The following information will be collected:

- Name and full address of the Organization
- Geographical areas of operation
- Scope of work
- Country where the organization is incorporated/registered (Teams will be required to upload documentary evidence of official incorporation).
- Particulars of the team leader as the organization's Point of Contact (name, position title, telephone number, e-mail address)
- Names of other organizations/firms that are partnering on the application
- Short profiles of key team members highlighting their expertise and experience

5.4.2 Technical information

Phase I

The following points will be addressed by applicants:

- Concise application title
- Innovation Challenge applied for and rationale for selecting this particular set
- A detailed description of the human-level need that your team is designing a solution to, supported by evidence from the field
- A description your proposed solution: How will this solution specifically meet/address the identified user need?
- Partnerships: Who are the key stakeholders that will be critical to the development of your solution? What partners do you already have secured? How you plan to get additional necessary stakeholder buy in?
- A preliminary business model: How will this solution generate revenue? Who will pay for this service or product and why? What is the estimated market size for this product or service?
- Scalability: How is your proposed solution going to reach 100,000+ users? Why you are confident that users will adopt this solution, and what mechanisms will you use to increase adoption?
- How will your solution or intervention make use of mobile phone technology, if at all?
- Team Quality: Why is your team uniquely suited to lead the creation and implementation of this solution? What are the strengths that each team member brings to the table?
- What is innovative about the solution given the current state of knowledge and practice? Why hasn't this solution been done before?
- Measurement: How will you track the impact and success of your proposed solution? What indicators will you use and how will you collect the necessary data in a cost-

efficient manner? Teams will need to present their plan on generating evidence around their respective solutions

- How the implementation of the solution would be structured and positioned for success, taking into account the need to build community-level agency
- If your solution is a physical product, how will you adopt environmentally sustainable design, manufacturing, and distribution practices?
- Project Budget: Organizations will be required to upload their proposed activity budget and Gantt chart detailing their proposed activities and timelines. Guiding templates for this information will be available on the online application platform. At this level, teams will be expected to budget only for Phase 1 funding. Budgets should be itemized based on the activities to be undertaken to provide necessary deliverables for Phase 1 funding. Thereafter, a summary budget that re-categorizes key costs in the following categories should be derived from the detailed budget:
    - Personnel Costs
    - Travel/Transportation
    - Equipment
    - Supplies
    - Administrative and other Costs
- The Application is limited to 30,000 characters (approximately 5,000 words or 10 pages of single spacing, font size 12)

Phase II

The following points will be addressed by CRID4FAL consortia

- Phase I evaluation reports/evidence of impact/success/progress
- Phase I deliverables (technical, financial and administrative)
- Work plans and Budgets for subsequent activities (scaling activities for Phase II)
- Monitoring and evaluation (M&E) plan

6.0 Judging Applications and Selection of Finalists

6.1 Judging phases

The CRID4FAL grant is a 2-phased grant where teams advance from one phase to the next based on expert evaluation. Each stage focuses on different aspects within the innovation development timeline and as such, different evaluation criteria will be used for the different stages. Table 4 below provides a summary of the different phase-specific evaluation criteria. RAN may also apply additional geographic, thematic, gender, and other considerations as additional evaluation criteria.

Judging panel

The Judging Panel is responsible for evaluating applications for alignment with RAN's theory of change with respect to strengthening resilience to shocks and stresses arising out of food insecurity and low-income generation. The Judging Panel is comprised of highly qualified and impartial judges with expertise in the technical domains in which the intervention pathways lie (i.e. agriculture, development, markets, behavior change, engineering, financial services etc.), resilience building, development programming, business modeling, and user-centered design approaches. The Judging Panel is also drawn from various sectors including academia, civil society organizations, the private sector, public sector, development partners and USAID national and regional representatives. RAN and USAID retain the sole and absolute discretion to declare the finalists and award all grants in this call. An entrant may not challenge any such decision.

All members of the Judging Panel will sign Non-Disclosure Agreements and Conflict of Interest Forms, as well as statements acknowledging that they make no personal claim to the intellectual property developed by Teams or relevant partners.

6.2 Phase-based evaluation criteria

The following criteria will be used to evaluate applications at the three different stages of the CRID4FAL call. RAN may also apply additional geographic, thematic, gender, and other considerations as additional evaluation criteria.

Table 4: CRID4FAL Evaluation Criteria

Phase I (Application)		
Evaluation Criteria	**Evaluation Aspects**	**Maximum Score**
Alignment to CRID4FAL pathways and RAN's theory of change for strengthening resilience	Does the proposed solution address the desired resilience outcomes for each innovation challenge? Does it strengthen human capacity development?	20%
Technical Approach and Methodology	Is the proposed solution innovative? Does it have the potential to disrupt/transform current practices and approaches? Does it constitute a paradigm shift? Is there a plan for awareness creation, imparting knowledge and skills, and skills transfer (capacity	50%

	building)?	
Viability and applicability to local communities	Is it viable for the target communities? Can it be replicated in similar contexts?	20%
Environmental sensitivity	Are proposed approaches and technologies (where appropriate) green and pro-natural resource conservation?	10%
Phase II (Eligibility for further funding)		
Evaluation Criteria	**Evaluation Aspects**	**Maximum Score**
Technical feasibility	Is the approach or technology technically feasible? Is the solution cost-effective and innovative compared to existing alternatives? Does it have transformative potential? Has it been optimized for efficiency?[By optimization, we mean that the prototype or concept is developed to a model with acceptable or better efficiency than the existing technical standard (e.g. 75% validity for screening tests, 75% efficiency for engines, sufficiently acceptable aesthetics, dexterity and ergonomics (for technology based prototypes) or sufficiently proven cause-effect linkages, input and process considerations and clearly established potential confounders (for a conceptual approach based solution)] Does project significantly contribute to the associated system-level innovation challenge? Have any applications or other innovation projects been able to leverage the approach or technology? Have unintended consequences been identified and strategies to amplify or mitigate these been put in place?	40%
Business model and Market viability	Have market assessments been done? Has the business model been refined to reflect the market trends? Is the refined diffusion strategy sufficiently plausible?	30%
People (user) aspects	Is the solution user-friendly? Is it easily adoptable? Is it acceptable given the socio-cultural dynamics? Have aspects that require human behavior change been addressed? Has the desired behavior been adequately cultivated? Have agency aspects been promoted?	15%
Evidence of Impact Potential	Is there evidence that the solution has had impact or has the potential to create impact? What format is this evidence? How does it compare with trends of other projects/programs addressing similar challenges?	15%
Phase II (Final evaluation at conclusion of project)		
Evaluation Criteria	**Evaluation Aspects**	**Maximum Score**
Technical Feasibility	Has the technical approach been optimized? Has approach demonstrated potential for adoption and efficacy in transforming lives of the target community? Has the approach served as a launch pad for different applications or for strengthening the impact of the other innovation projects targeting positive changes in the target community?	15%

Evidence of adoption	Is there evidence that a critical number of users adopted and continued to use the solution? Does the solution demonstrate additional positive spin-offs and/or a paradigmatic shift?	25%
Market viability assessment	Is there evidence that the solution viable given the operational context? Has the business model been refined to maximize scaling potential?	25%
Awareness of and strategies to address/comply with policy and regulatory requirements	Does the team demonstrate sufficient actionable knowledge on the policy and regulatory environment that could impede or catapult scaling of the innovation? Have appropriate strategies to address policy or regulatory impediments been designed?	10%
Stakeholder buy-in	Have critical partnerships for implementation and scale been identified? Has commitment to participate been sought and received favorable response?	25%

6.3 Selection of finalists

Once the application period closes, a team of reviewers/judges will assess all submitted applications using the evaluation criteria given in this section. Incomplete applications will be excluded from the evaluation process. The evaluation process will proceed in multiple stages:

Stage 1: The reviewers will assess all submitted applications in line with the evaluation criteria provided in Table 4 and shortlist the top tier applications per innovation challenge. RAN may also apply additional geographic, thematic, gender, and other considerations as additional evaluation criteria.

Stage 2: Teams of shortlisted applications will make a live pitch in-person or online at a workshop and respond to questions. These questions will have arisen out of their written submissions and will include any issues flagged for clarification by the reviewers, as well as any ad-hoc questions arising from the live pitch. The pitch sessions maybe conducted using appropriate communication technologies other than face-to-face.

Stage 3:

RAN will consult with relevant technical and geographic experts within USAID and final selection decisions will be made for applicants to be invited for the CRID4RED co-creation process.

6.4Notification of award

Successful Organizations will be notified by e-mail and telephone to their designated point of contact. Successful teams and their affiliate organizations will also be profiled on the grant website: grants.ranlab.org/.

6.5Tracking your application

The grant website will contain information on the status of the applications at the different stages. Tracking will be provided for the entire batch of applications and not for individual applications.

7.0. CRID4AL Innovator Support: Capacity Building andMentorship

The West Africa RILab will enroll selected finalists into RAN's incubation support program. The RILab will offer technical support to the teams as they develop solutions in line with their awards.

7.1 Induction activities

Successful applicants will be taken through a brief pre-award induction period, to set the pace for their working relationship, scheduling and ethics with RAN. This process will include:

Induction Workshop: Winning Organizations and individuals will be invited for an induction and planning workshop. The purpose of the workshop will be to bring Organizations up to speed with RAN's approach, to un-pack in detail the meaning of multi-function micro-projects and how RAN plans to use them as a vehicle for delivery of system level innovations, and to agree on methods of work, rules of engagement, milestones and award disbursements. Applicants will be formally inducted into RAN's Innovation Incubation Pipeline.

Formation and proof of a multi-disciplinary team: Winning Organizations will under-go a team composition check and will be advised on the critical composition of their team that caters for cross-discipline needs of their idea. Teams with clear gaps will be required to source additional membership to bridge gaps.

Contracts and IP issues: Following the completion of revision of team composition, teams will be referred to RAN's appointed Legal team to sign an agreement for the grant which will be consistent with the previsions of the Prime Cooperative Agreement to RAN.

Work plan: Successful teams will be required to develop a work plan for execution of the development of their idea. This work plan will be agreed upon with the WA RILab team.

Compulsory skills training: Successful teams will be required to under-go some basic trainings at a convenient time when they are next offered by the RILab. Two of these courses will be compulsory for all awardee teams (Not all team members will be required to attend but each team will be represented by at least 1 team member):

- Short course in Resilience Interventions (RI) (Equivalent to 5 credits or 1 Week): The concept of resilience is a relatively new term to many university students and stakeholders. Because RAN's primary interest is in innovations that build resilience, at least one member from all innovators initiated into RAN's development incubator will

undergo a rapid course on 'Resilience Interventions' as a minimum standard across the RILabs.

- Short course in Design Thinking (DT) (Equivalent to 5 credits or 1 Week): RAN's approach to innovations will be driven by the 'Human-Centered Design philosophy. At least one representative from each selected team must undergo this training. The training will incorporate best practices in design of innovations that meet actual needs of communities. It will also include fail-fast approaches to rapid prototyping and clear elaboration of a theory of change.
- The courses will be provided in dual mode as 'face-to-face' or as 'M-KITs' (A MKIT is a series of short multi-media online tutorials organized to impart specific skills) to increase their accessibility and to facilitate flexibility in time schedules of innovators, given other time requirements that the innovators may have. The face-to-face courses will be offered at the lab premises on a regular predictable basis (e.g., it is anticipated that the West Africa RILab will offer these courses on a regular basis). In order to build innovation capacity, the courses will be open to all students and faculty in the partner universities while the online courses/MKITS will be open to an international audience. Detailed information on the availability and platforms for taking the M-Kits will be provided in due course. Admission to the face-to-face courses will be on a first-come-first-serve basis, although RAN innovators will be given due preference.

Other skills trainings: During the design phase, teams or team mentors may realize the need for acquiring specific skills in a particular skills area. RAN will have a menu of courses ('face-to-face' and 'M-KITs') that interested teams can choose to take to enhance their capacity.

Mentor matching: Innovator teams will be matched with suitable mentor(s), facilitated by the WA RILab. Mentors should be professionals with technical knowledge of the solution domain in which the respective innovator teams are working. Additional mentors may be identified in due course when the innovation has reached other stages where it requires specific expertise like an entrepreneurship plan or community testing. Mentors should as much as possible be persons with proven interest in innovation and ready to offer services and time as champions of student innovations, with minimal cost to the project.

Inductive brain-storming: The WA RILab will invite the successful applicants for an inductive brain-storming session in which they will present their idea and a detailed technical critique will be provided. The WA RILabs will compose the teams of technical persons to critique these ideas.

7.2 Mentorship support to innovators

Although RAN's innovation awardee-mentor teams will each be expected to operate with a reasonable degree of autonomy, the RILabs will develop an incubation support program to provide continuous support to developers based on their needs at different stages. Incubation support will be provided asynchronously to the different teams and in a sufficiently flexible way to allow innovators will different needs to benefit.

Support activities will also be opened to other innovators and potential innovators not necessarily in RAN's innovation pipeline, so as to build innovation capacity and team based learning. The proposed faculty mentor/sponsors should be technically aligned with the team's technical requirements and will offer technical guidance and academic input into their activities. In addition to this mentor the WA RILab may, if they deem it fit, identify and attach one or more mentors in other technical dimensions needed for the proposed solution to be developed and optimized.

Mentorships support could include:

- Brainstorming/ideation/rapid prototyping sessions for developers to refine their idea;
- Elective trainings on specific skills areas identified from the developers;
- Linkage to communities to brain-storm of ideas and collect additional information on prototypes and test refined prototypes;
- Working space for small team discussions;
- Referral linkages to specialty labs where developers can develop special components of their prototypes;
- Linkage to other HESN partners offering support that is in line with their work;
- Bringing on more mentors with additional expertise in specific areas; and
- Technical vetting of resilience and support in outlining a theory of change for each innovation.

8.0 Important definitions:

Adaptive capacity: The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to avert some or all of the negative effects of a shock or stress.

Institution: Refers to the leadership or governance structure for the affected community.

Livelihoods infrastructure: Refers to holdings on which households or communities depend for income e.g. gardens/crops, stored produce.

Modular knowledge and Information Transaction System (MKITS): Refers to a series of short multi-media online tutorials organized to impart specific skills sets for innovation developers asynchronously and at a distance aimed at enhancing specific skills sets among resilience innovators. They are defined as 'high value learning objects' because they will be designed in such a way that they transmit critical technical information to develop a critical knowledge base and/or specific skills for the innovator in a relatively short period of time. [*Example: An innovator from a computing class is developing a prototype for a malaria diagnostic device but he/she is not knowledgeable about sensitivity and specificity of screening tests in human beings – he/she may take a rapid course in 'Validity of Screening tests', another in 'Ethics of research on human subjects' and another in 'Phase 1, II and III clinical trials' but these will be designed only to impact the critical background knowledge so that they are well aware of the standard of practice in the public health arena when developing their prototype.]* The MKITS will be prepared and packaged by RAN's RILabs and will consist of short themed sessions using different media. An interested person may use one MKIT (e.g. an MKIT on 'Rapid Prototyping') within a set of MKITS (e.g. on Design thinking) or may use a complete cluster of kits which when combined form a course (e.g. on Resilience) or may use a mix of different MKITS from different courses.

Physical infrastructure: This refers to built physical structures e.g. buildings, roads, bridges, schools, churches/mosques that are vulnerable to the effects of a shock or stress.

Resilience: RAN defines resilience as the capacity of people and systems to mitigate, adapt to, recover and learn from shocks and stresses in a manner that reduces vulnerability and increases well-being.

Resilience Innovation: A resilience innovation refers to a newly applied science driven 'technology' or 'approach' with the potential to demonstrably impact positively on one or more dimensions of resilience in a particular community and other communities that share similar resilience dimensions. It may be a totally new idea, or an existing idea that is applied differently of in a community where it has not been applied before.

Risk: The probability of suffering damage (to life, property, economic disruptions and environment) from a hazard for a given area and reference period.

Shock: A sudden occurrence befalling the communities, resulting in a significant challenge to their livelihood.
Stress: A slow-onset or chronic occurrence befalling the communities, resulting in a significant challenge to their livelihood

Theory of Change (TOC): A theory of change indicates what change is expected to happen as a result of an initiative, how the change might come about and the underlying assumptions that explain how and why the desired change is expected to come about. The theory of change approach requires that all outcomes must be achieved before the long-term result.

Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability can encompass the immediate vulnerability factors as well as the causes and underlying drivers of vulnerability.

9.0 Health, Safety, Ethics and Environment

All team members must participate in all required training and briefings required by the RAN CRID Team, USAID, and partners, including regular briefings and team meetings. In addition to complying with applicable law and regulations, each Team is expected to employ appropriate safety precautions during technology or any other demonstrations. All teams must wear appropriate personal protective equipment if implementation of their projects requires working in environments with unhealthy exposures. In the event that the Judging Panel or facility personnel observe dangerous actions or conditions that may potentially impact the safety of the Teams or any other persons, the CRID Team shall have the right to suspend or disqualify a Team from competing and/or advise a Team that, until the condition is corrected, testing by the Team must cease and will not be eligible as a valid grant application.

All approaches or solutions that require invasive procedures on humans must undergo the appropriate institutional/ethical review processes of their respective countries. RAN will not seek ethical approvals on behalf of any awardee team; it is the responsibility of teams to do so. **However, RAN will not support sub-awardee research that involves potentially invasive procedures on human subjects without proof of ethical approval from appropriate Institutional Review Boards.** Team mentors shall provide relevant support to their teams in development of such ethics protocols as needed, as part of the incubation support process.

All proposed projects must be reviewed by USAID's Bureau Environmental Officer before awards are made.

10.0 Monitoring and Evaluation

10.1 Project M&E plans

Following the award, and as part of the incubation process, each team will be guided to develop an M&E plan for their project. The plan will be revised at each phase for ideas that make it to Phases 2. The plan will indicate key milestones and process indicators, based on which progress in implementation will be tracked. The milestones will also determine the installments in which the grant amount will be disbursed.

The M&E plan will also include a set of output and outcome indicators to be developed in line with the respective output and outcome indicators for the specific intervention pathway, as well as the resilience dimensions targeted. These indicators should be measurable and may include both qualitative and quantitative indicators. Assessment of the impact of innovations will be measured in two ways:

1. *At the testing and scale up stage:* Each innovator will be required to collect relevant quantitative and qualitative data on a case-study basis to show the potential utility of their innovation on the test communities, in line with the output and outcome indicators specified in the M&E plan for their project. Innovators will be supported during Phase I of their incubation process to develop a theory of change, aligned with one or more dimensions of RAN's resilience framework. In addition to the in-built M&E framework for each project, innovators will be required to avail their prototypes/deliverables for inspection as part of RAN's follow-up on grant performance.
2. *Periodic surveys in target communities:* The RILabs will conduct periodic surveys on study communities to assess impact of interventions on resilience.

10.2 Post award period reporting

As a condition of accepting these grants, Teams will agree to participate in reporting up to two (2) years following the conclusion of their award period. RAN will require Teams to report activities related to the solution developed for the grant including, but not limited to: outputs/outcomes, fundraising, partnerships, investments in the solution/approach/technology, commercialization, and market entry and growth. The purpose of the reporting is to allow RAN to: 1) Determine the extent to which solutions have moved to scale, 2) Determine the extent to which adopted solutions have resulted in a measurable impact on the problem (improvement through greater efficiency, cost-effectiveness, or more people reached), and 3) report relevant and required information to USAID during the grant reporting period.

11.0 References

1. *ResilientAfrica Network (RAN) (2015). The State of African Resilience Report. (https://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/150311_african_resilience.pdf)*

2. *ResilientAfrica Network (2015). What People Say When They Truly Speak: Results from Ghana's First Deliberative Poll, West Africa Resilience Innovation Lab. University for Development Studies, Tamale, Ghana.*

3. *RAN/WA RILab (2014) The State of Ghanaian Resilience: Understanding the Dimensions of Vulnerability and Adaptation in three Communities in Ghana, August 2014.*