

Strengthening Rural Resilience in India

A framework for mainstreaming ERADA's outputs for building
long term resilience in rural India

Enhancing Rural Resilience through Appropriate
Development Actions (ERADA)

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Acronyms

BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
BMZ	German Federal Ministry for Economic Cooperation and Development
CRD	Climate Resilient Development
ERADA	Enhancing Rural Resilience through Appropriate Development Actions
FAO	Food and Agriculture Organisation
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
LNOB	Leave No One Behind
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MoRD	Ministry of Rural Development
NRM	Natural Resource Management
PRIME	Pastoralist Areas Resilience Improvement and Market Expansion
RIMA	Resilience Index Measurement and Analysis
TANGO	Technical Assistance to NGOs
UNDRR	United Nations Office for Disaster Risk Reduction
USAID	United States Agency for International Development

Introduction

The paper 'Strengthening Rural Resilience in India: *A framework for mainstreaming ERADA's outputs for building long term resilience in rural India*' outlines a framework for mainstreaming the Enhancing Rural Resilience through Appropriate Development Actions (ERADA) project outputs for building long term resilience in rural India. ERADA is an Indo-German development cooperation project commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, India is implementing the project in partnership with Ministry of Rural Development (MoRD), Government of India (GoI). The goal of the ERADA project is to strengthen the livelihoods of vulnerable households based on locally available natural resources and developmental support programmes.

The project has three components:

Improving wage work potential of vulnerable households and enhancing the natural resource base

Long-term green livelihood development, in convergence with National Rural Livelihoods Mission (NRLM) and other relevant national and state level programmes

Improving convergence and strengthening of multi-stakeholder platforms for providing better access to vulnerable households



ERADA project is operational at a national level, and implemented in four Indian states, namely, Bihar, Jharkhand, Madhya Pradesh and Rajasthan.

The paper draws on existing global and Indian literature, to provide an introduction and definition of rural resilience that is appropriate for the ERADA project context. It locates the ERADA project outputs under the broader resilience discourse and sets out a rural resilience framework which will be further developed as a universal framework for scale-up with the government and other partners during the project phase.

This paper is based on a series of key informant interviews and a literature review, drawing conceptually on the seminal literature relating on resilience, notably Bahadur et al, 2010, Béné et al, 2012 and 2014, and Agarwal et al, 2019.

Introducing and Defining Rural Resilience

The term resilience was first adopted in the 1960s, and has since entered the development discourse, becoming particularly prominent within the debate on Climate Resilient Development since the Paris Climate Accords of 2015.

Resilience has a wide range of meanings in development literature, and often refers to ‘bouncing back and returning to a previous state after a disturbance’, including not only ‘the ability to maintain essential function, identity and structure, but also the capacity for transformation’ (IPCC, 2022). This brief will adopt as a starting point for this paper, the definitions of resilience adopted by the IPCC, which gave a general definition in 2012, and a more detailed definition including climate change, that is particularly relevant for the ERADA project, in 2022;

‘the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner’ (IPCC, 2012)

and

‘the capacity of social, economic and ecosystems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure as well as biodiversity in case of ecosystems while also maintaining the capacity for adaptation, learning and transformation. Resilience is a positive attribute when it maintains such a capacity for adaptation, learning, and/or transformation.’ (IPCC, 2022)

In this way resilience refers to the ability of social-ecological systems to adapt, in anticipation or response, to changes. There are multiple dimensions of resilience, of which social, economic, and ecosystems are key. Resilience has been identified as a critical component of Climate Resilient Development (IPCC, 2022) and is enabled when;

‘governments, civil society and the private sector make inclusive development choices that prioritise risk reduction, equity and justice, and when decision-making processes, finance and actions are integrated across governance levels, sectors and timeframes’

and interventions are based on

‘partnerships with traditionally marginalised groups, including women, youth, Indigenous Peoples, local communities and ethnic minorities (high confidence). These partnerships are most effective when supported by enabling political leadership, institutions, resources, including finance, as well as climate services, information and decision support tools’

Attempting to enhance resilience is however complex, particularly in areas with persistent development gaps and limited resources, as there may be trade-offs and competing priorities between mitigation, adaptation, and development, all of which are relevant to resilience.

There is not a shared universal understanding of resilience as a concept or development strategy;

‘Resilience is an entry point commonly used, although under a wide spectrum of meanings’ and it overlaps with concepts of vulnerability, adaptive capacity, and risk, and strategies for risk management, adaptation, and transformation (IPCC, 2022).

While it lacks a formal technical definition and is not discrete from the range of strategies that are invoked to achieve it, resilience is widely used as an integrating concept and brings together practitioners and policy makers from different disciplines to promote inter-sectoral and integrated approaches and promote a shared discourse¹ functioning as a policy narrative, rather than a tightly defined technical concept.² For the purpose of this paper it is useful to start by identifying some of the key characteristics of resilience which are relevant to the ERADA project, namely; it may be broadly defined as the ability to resist, recover from or adapt to the effects of a shock or change,³ it operates across multiple levels, including individuals, households and social and natural systems,⁴ and in most cases it refers to the response to a broad combination of entangled changes, rather than a single shock or stressor.⁵



Resilience has a wide range of meanings in development literature, and often refers to ‘bouncing back and returning to a previous state after a disturbance’, including not only ‘the ability to maintain essential function, identity and structure, but also the capacity for transformation’ (IPCC, 2022).

¹ Martin-Breen and Andreies, 2012

² Bene et al, 2014

³ Mitchell and Harris, 2012

⁴ Agarwal et al, 2014

⁵ Levine et al, 2011

Unpacking Resilience

Resilience refers to the ability to respond to changing circumstances and is not necessarily an end in itself, but can be considered an enabler of the achievement of other development outcomes, such as nutritional improvements or poverty reduction. It may be characterised in terms of the extent to which actors (individuals or communities) possess a set of capacities which they can mobilise in response to a shock or stressor, to mitigate its adverse impact on well-being, as illustrated in Figure 1.

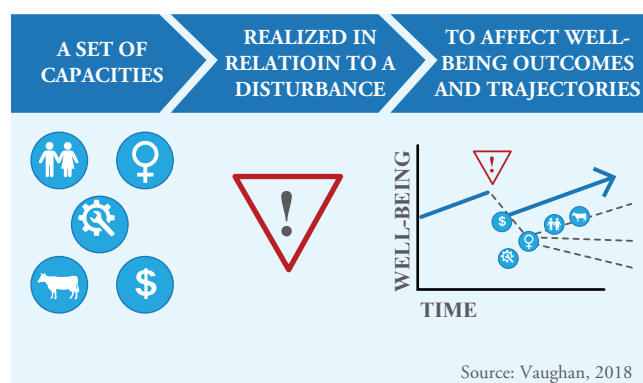


Figure 1: The relationship between capacities, response to shocks and stressors and outcomes

These capacities may be grouped into three key dimensions: absorptive coping capacity, which refers to the persistence of existing norms and processes; adaptive capacity, which refers to incremental adjustment; and transformative capacity, which refers to more fundamental systemic or structural changes, and may be characterised thus;⁶

- **Absorptive capacity** – A system’s ability to maintain its original structure or functioning by absorbing infrequent and low-magnitude risks, either by anticipating or responding to a shock. This relates to the ability of households and communities to minimise exposure to shocks if possible and to recover quickly after exposure
- **Adaptive capacity** – A system’s ability to make small adjustments to its existing risk management strategies, improving its original structure or functioning in anticipation of future risks. This relates to the ability of households and communities to make active and informed choices about their lives and their diversified livelihood strategies based on changing conditions. Adaptive capacity is enabled by access to five key resources: assets; economic, social and institutional stability; social capital; access to resources and entitlements; and power.

- **Transformative capacity** – A system’s ability to fundamentally change in its structure or functioning and adopt new strategies to move beyond vulnerability thresholds. This relates to system-level changes that ensure sustained resilience, including governance mechanisms, policies, cultural norms, and psychosocial factors informing people’s aspirations and confidence to adapt, as well as formal safety nets, access to markets, infrastructure, and basic services.

Resilience is driven by capacity across all three of these dimensions (absorptive, adaptive and transformative) which are interdependent. As such interventions need to support synergies between them, rather than prioritising one to the detriment of the others or assuming that resilience is linear, particularly given the fact that multiple shocks and stressors often occur simultaneously, affecting systems with varying intensities, at different scales, and in different ways, as discussed in Box 3 below.

Box 3: The Interdependence of Absorptive, Adaptive and Transformative Capacity

A system is more likely to absorb a low-intensity shock, but when a stressor exceeds absorptive capacity, the system will respond by drawing on its adaptive capacity to make incremental adjustments to its core structure or functioning. Eventually, the magnitude of an impact will overwhelm adaptive capacity, requiring more drastic change in the system’s structure or functioning. In that case, changes are not incremental any longer. They are transformative, resulting in alterations in the individual or community’s primary structures and functions. These transformational changes (sometime deliberate, sometimes imposed) involve shifts in the nature of the system, such as when a household adopts a new direction in making a living or when a region moves from an agrarian to a resource extraction economy. The main challenges associated with transformation are not only technical or technological but may also include institutional reforms, behavioural shifts and cultural changes.

Source: Bene et al, 2014.

The kind of interventions which have the potential to contribute to resilience across these three capacity domains are illustrated in Figure 2, drawn from the *TANGO Resilience Capacity Measurement Framework*.⁷

⁶ Bene et al, 2012; Agarwal et al, 2019; Vaughan, 2018; Tango, n.d. REF TO BE COMPLETED

⁷ A more detailed list of potential interventions relating to each capacity level is set out in Appendix 1.

RESILIENCE CAPACITY		
Absorptive	Adaptive	Transformative
Informal safety nets	Bridging social capital	Bridging social capital
Shock reparedness & mitigation	Linking social capital	Linking social capital
Hazard insurance (where applicable)	Human capital (includes literacy/education)	Formal safety nets
House savings	Access to financial services	Access to markets
Asset ownership	Livelihood diversity	Access to infrastructure
Conflict mitigation	Exposure to information	Access to basic services
	Asset ownership	Communal natural resources
	Aspirations & confidence to adapt	

Figure 2: Potential Drivers of Enhanced Resilience Capacity

Source: TANGO, n.d.

Building resilience across these capacity dimensions can diminish risk in two ways; by reducing exposure to hazards, on the one hand, and by reducing vulnerability, by limiting susceptibility, and enhancing coping and adaptive capacities, as illustrated in Figure 3.

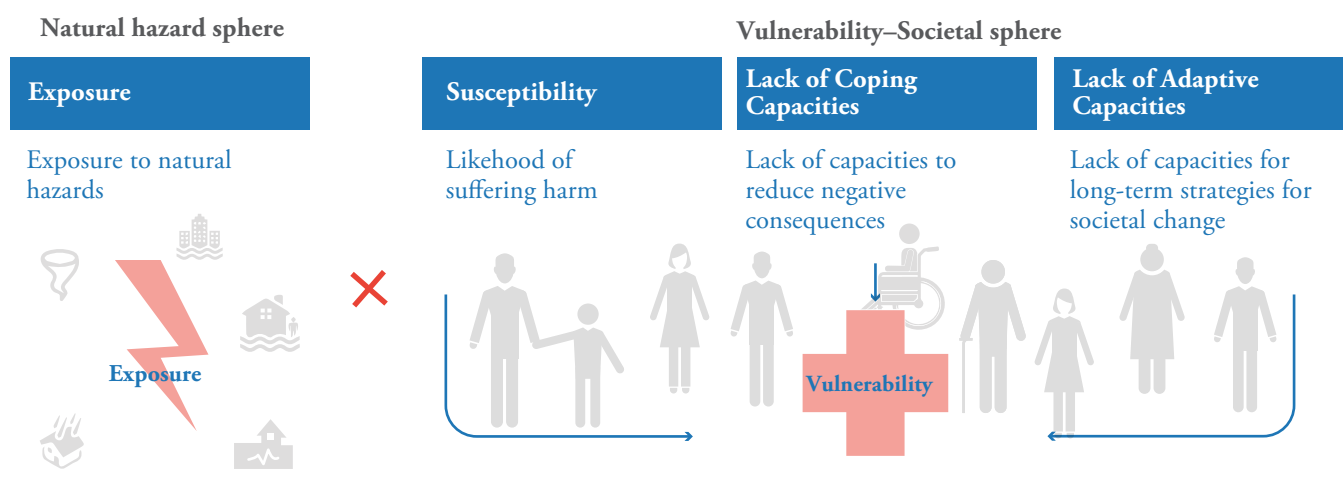


Figure 3: The Drivers of Risk

Source: World Economic Forum, 2019

Hence, risk reduction to enhance resilience can be achieved by *ex ante* interventions to enhance capacity prior to the experience of shocks and stressors and also *ex-post* by interventions which support recovery.

It is important to note, however, that resilience in terms of successful absorption or adaptation in response to shocks and stressors is not necessarily positive. The persistence of existing systems may entail reinforcing structural exploitation and inequality, the suppression of innovation and change, or the accommodation of deteriorating social or economic conditions. At the household level for example, shocks may be absorbed by reducing the number of meals per day or withdrawing children from school, indicating forms of resilience which are detrimental to well-being.⁸ Similarly, maladaptation may result in outcomes which are harmful to welfare and sustainability.

It is also relevant to note that there may be complex distributional dimensions of resilience outcomes, as issues of power and agency determine the extent to which different actors in systems benefit in absorptive, adaptive and transformative scenarios, as well as the extent to which building resilience serves to reduce poverty.⁹



The persistence of existing systems may entail reinforcing structural exploitation and inequality, the suppression of innovation and change, or the accommodation of deteriorating social or economic conditions.

Building resilience across these capacity dimensions can diminish risk, by carrying out interventions that reduce both exposure to hazards, as well as vulnerability, by limiting susceptibility, and enhancing coping and adaptive capacities, as illustrated in Figure 3.

⁸ Bene et al 2012; Bene et al, 2014).

⁹ Leach, 2008; Bene et al, 2012

Using the Resilience Capacities Approach

The three part resilient capacity approach has been widely adopted in development projects addressing resilience in recent years to inform programme design and appraisal, as illustrated in relation to the Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) programme

in Ethiopia, funded by USAID, and the DFID funded Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme, described in Boxes 1 and 2 below.

Box 1: Interventions to Promote Resilience Capacities in the PRIME Programme in Ethiopia

Absorptive	Adaptive	Transformative
Informal Safety Nets, including Credit or micro-finance group, Saving group, Zakat, Mutual help group (including burial societies), Civic ("improving community") group, Charitable group ("helping others") Religious group Women's group	Livelihood diversity, including crop production, livestock production, wage labor, salaried work, sale of bush products, own business, land rental, remittances, gifts/inheritance, other	Basic services, including a primary school or within 5 km, a health center within 5 km, veterinary services within 5 km, agricultural extension services, institutions where people can borrow money, security services that can reach the community within 1 hour.
Asset Ownership, including consumer durables, agricultural productive assets, livestock	Human Capital, including basic literacy, primary or higher education, number of trainings received	Formal safety nets, including institutional food assistance, housing or non-food items, assistance for lost livestock, NGO disaster response assistance
Hazard insurance availability	Financial service availability	Access to infrastructure, including piped water, electricity, telecommunications, paved roads
Perceived ability to recover	Exposure to information	Number of livestock services
Local shock preparedness structure in place	Asset Ownership, including consumer durables, agricultural productive assets, livestock	Access to communal natural resources, including grazing land, water sources for livestock, community forest
Household savings	Aspiration and confidence to adapt	Access to market, including livestock, agricultural products, and inputs
Bonding Social Capital	Bridging social capital	Bridging social capital
	Linking social capital	Linking social capital

Source: Vaughan, 2018

Box 2: The Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme - An example of Absorptive, Adaptive and Transformative Programming

The goal of the \$150 million dollar *Building Resilience and Adaptation to Climate Extremes and Disasters* (BRACED) programme (2015-2019) was to build the resilience of five million vulnerable people against climate extremes and disasters through a combination of: scaling up proven technologies and practices; research and evaluation to build knowledge and evidence on how best to strengthen resilience in different contexts; and enhancing local and national capacity to respond to climate-related shocks and stresses.

Under BRACED, 15 projects were implemented across 13 countries in East Africa, the Sahel and Asia, with the common objective of promoting resilience in order to protect well-being and human development within communities facing multiple overlapping shocks and stressors, and moving beyond ‘incremental’ changes in resilience to achieve more sustained transformational outcomes. The programme attempted to promote resilience through the implementation of a range of interventions directly affecting livelihoods, including: agriculture and livestock management, water supply, natural resource management, financial services and small business development, as well as and other dimensions of well being, including health and nutrition, gender and inclusion, as well as disaster risk management, and government capacity building. The main learning points from the project were:

Individual and household resilience capacities had successfully been built, with access to financial services and market development playing a key role

While building the capacities of women had the potential to improve their status, it had not led to transformational change

The project targeted marginalised people but some remained excluded and the reason for this was not clear

Developing and strengthening institutions for climate information has great potential to build resilience, but this takes time

Source: Leavy et al, 2020.

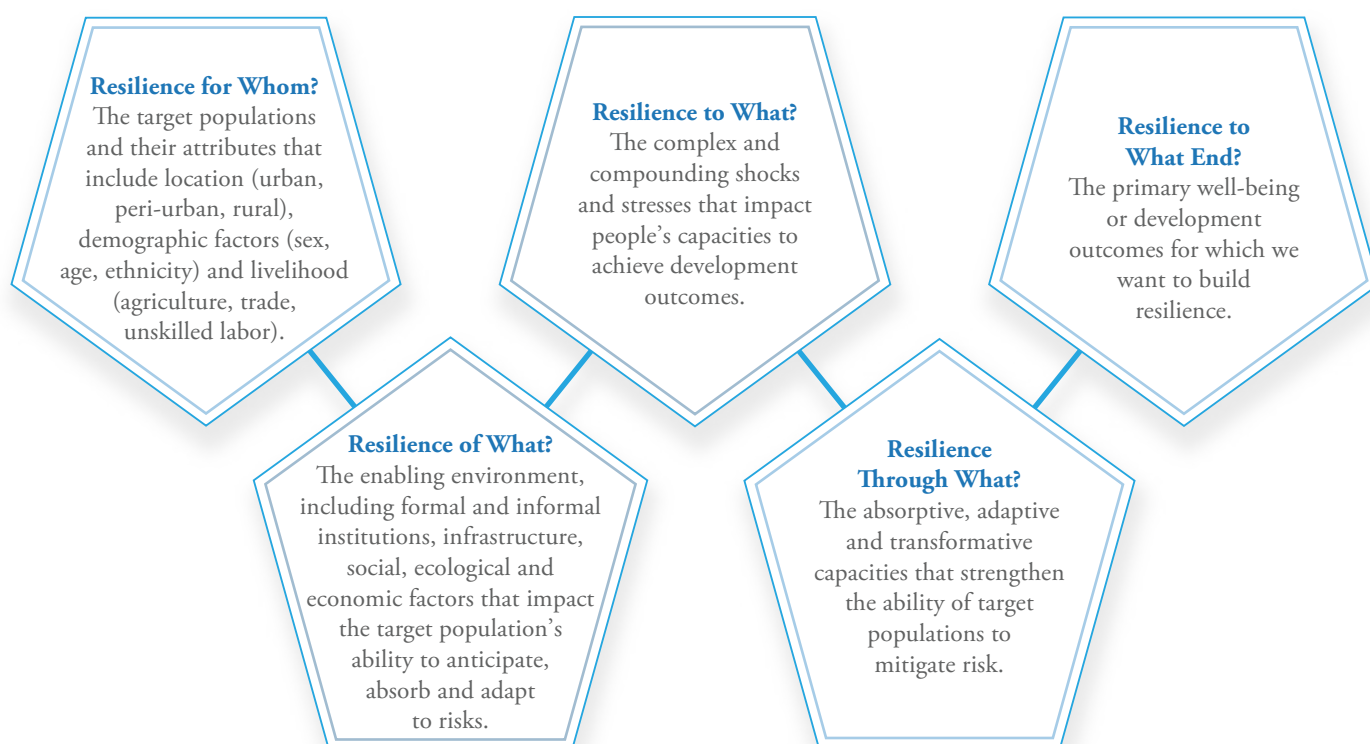
Measuring Resilience

There is no agreed set of indicators which allow resilience to be measured and the impact of interventions to enhance resilience to be readily benchmarked (Bene et al, 2014). This is largely due to the absence of a set definition of resilience (as a process, strategy or outcome) and its intersectoral nature, which is dependent on the simultaneous implementation of a range of development strategies to promote change across the three sets of capacities. As such, the measurement of the performance of interventions to build resilience is often dependent on indicators from different sectoral interventions and discourses, including for example food security, household income or participatory governance. These serve as a proxy for progress against ‘resilience’ and are linked to the

particular aspects of resilience capacity which the programme is attempting to address.

Multiple agencies have attempted to develop approaches for measuring resilience, each responding to the aspects of resilience of particular relevance to their institutional mandate. These include the United Nations Office for Disaster Risk Reduction (UNDRR) People’s *Resilience Framework*¹⁰ which focuses on sustainable development and disaster risk reduction,¹¹ the World Bank’s *Resilience Rating System*,¹² which focuses on building and tracking resilience to climate change, the FAO’s *Resilience Index Measurement and Analysis* (RIMA) approach,¹³ and USAID’s *Resilience Measurement Framework*.¹⁴

While these approaches vary in detail, five key questions have been identified as central to resilience assessment, monitoring and evaluation to enable an in-depth understanding of the complex context and the factors that help individuals, households and communities manage and adapt to risk;¹⁵



¹⁰Reschler, 2013.

¹¹World Bank Group, 2021.

¹²FAO, n.d.

¹³Henly-Shepard and Sagara, 2018

¹⁴Mercy Corps (n.d.) cited in Henley-Shepard and Sagara, 2018

¹⁵ Mercy Corps (n.d.) cited in Henley-Shepard and Sagara, 2018

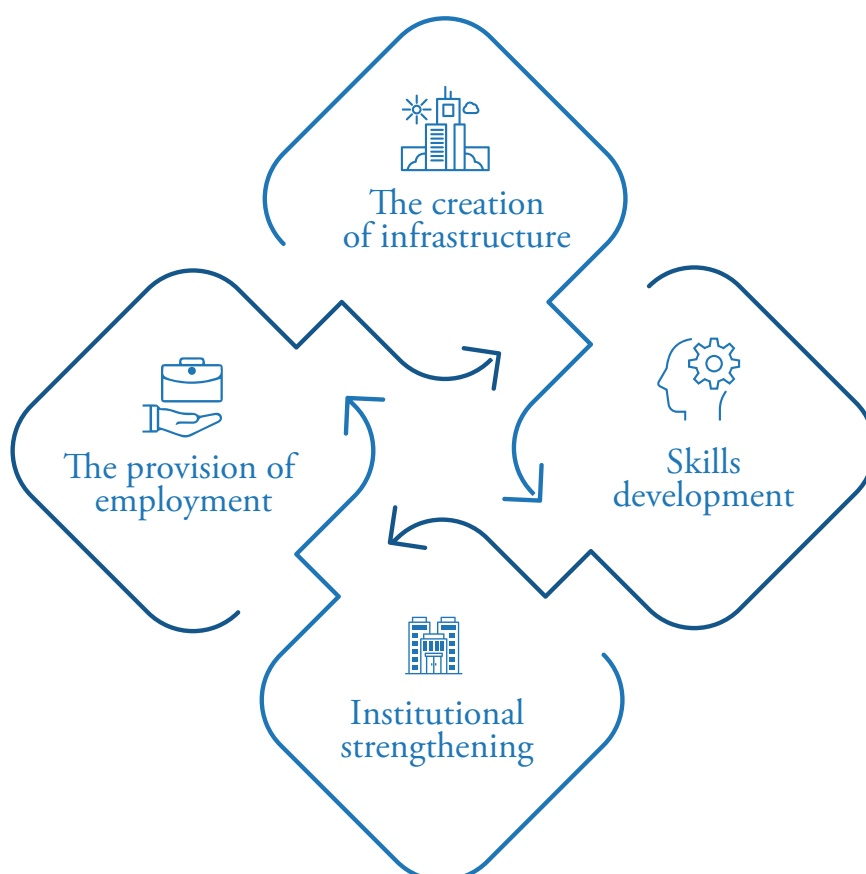
Appraising Impact of *Mahatma Gandhi NREGA* on Resilience

Having discussed the key conceptual issues relating to resilience, we now move on to consider resilience in relation to the Mahatma Gandhi National Rural Employment Guarantee Scheme (*Mahatma Gandhi NREGS*), the central scheme under the partner ministry of the ERADA project.

The Indian Mahatma Gandhi National Rural Employment Guarantee Act *Mahatma Gandhi NREGA* was passed in September 2005 with the objective of addressing the statutory right to food security by making rural workers eligible for up to 100 days of work on demand. Implementation began in 2006 in the poorest 200 districts and was extended to all remaining rural districts in 2008. It is currently the largest rural development programme in India with an annual budget allocation of USD 9.6 billion in 2022.¹⁶ *Mahatma Gandhi NREGA* is operational in 34

out of the 36 states and Union Territories, and 691 of the 712 districts¹⁷ and is the largest public employment programme in the world, employing 150 million people and creating 3.1 billion workdays in 2021/22.¹⁸ 320 million workers are currently registered in the scheme and almost 40% of homes in India received benefits under the scheme over the last five years 2020.¹⁹ *The Mahatma Gandhi NREGS* is a central Government initiative under the Ministry of Rural Development (MoRD), Government of India, and responsibility for implementation is shared between national and state governments.

The key vectors of the *Mahatma Gandhi NREGA* which contribute to resilience are common across all public employment programmes, and have been identified as shown below;²⁰



¹⁶ <https://idronline.org/article/livelihoods/budget-2022-allocation-to-mgnrega-must-be-increased/>

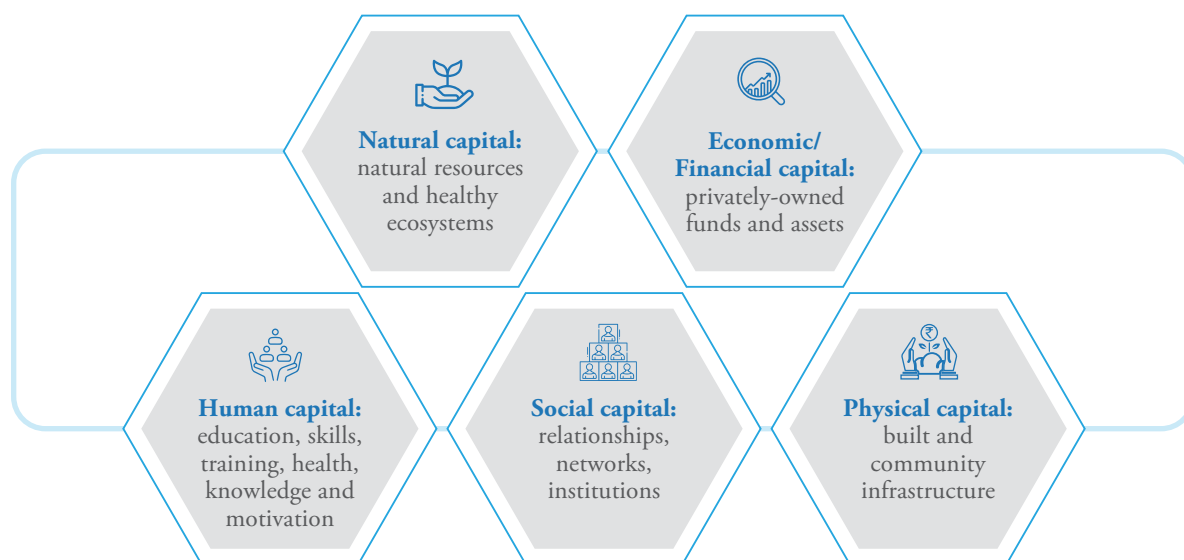
¹⁷ McCord and Paul, 2019

¹⁸ https://nrega.nic.in/Nregahome/MGNREGA_new/Nrega_home.aspx

¹⁹ <https://www.statista.com/statistics/1170490/india-share-of-household-receiving-benefits-under-mgnrega/>

²⁰ See Devereux and Solomon, 2006.

Each of these vectors has the potential to strengthen the range of livelihoods resources to which communities have access and which are central to resilience capacity. These resources have been characterised as range of different types of capital²¹;



By enhancing these livelihoods capitals, *Mahatma Gandhi NREGA* contributes to the development of resilience pathways which build absorptive, adaptive and transformative capacity (Kaur et al, 2019). The way that the programme contributes across each of the five livelihood capitals and the associated pathways to enhanced resilience capacity is summarised in Figure 4.

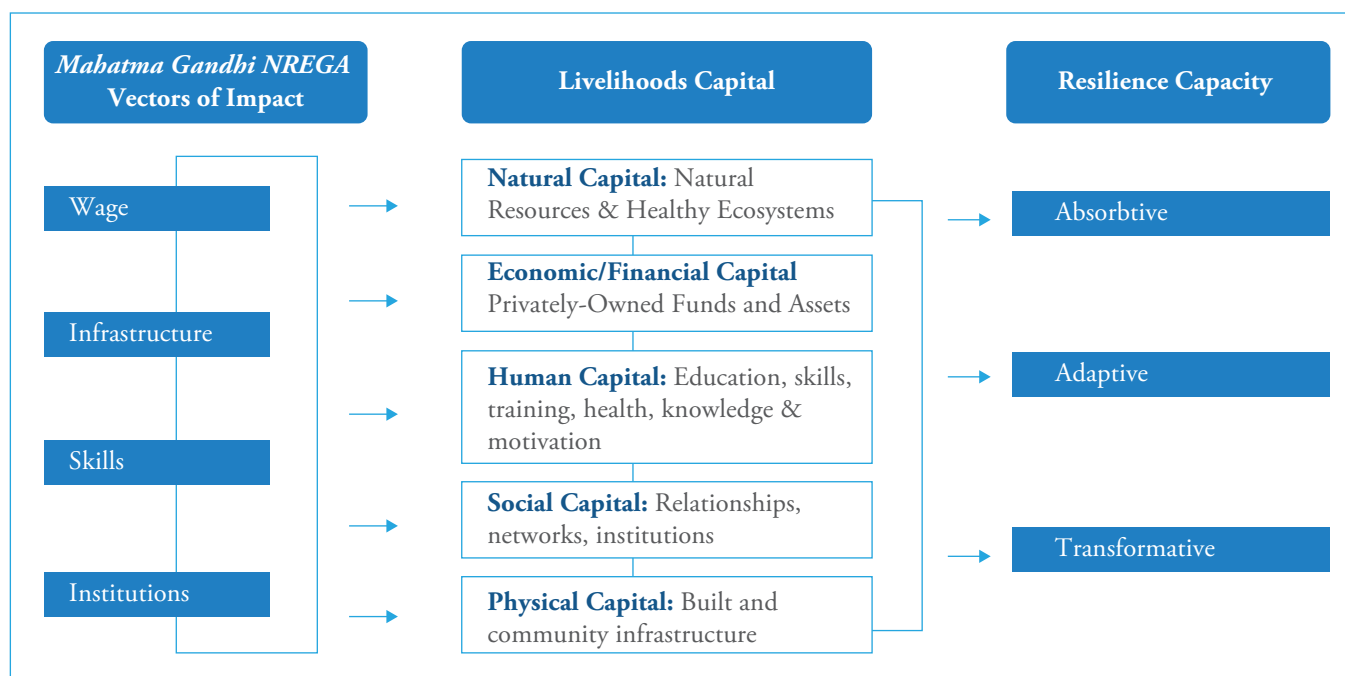


Figure 4: Framework for rural resilience in ERADA: Mapping outputs into pathways to resilience

²¹ See Schoones 1998; 2009.

Creating a Framework for Rural Resilience

The ERADA project is designed to support the impact of the *Mahatma Gandhi NREGA* by promoting the capacity of households to absorb the effects of climate risks, adapt to climate impacts and transform their livelihood strategies to address growing climate stresses. It seeks to achieve these outcomes by

- i) Increasing *Mahatma Gandhi NREGA* performance in terms of effectiveness and efficiency by enhancing implementation modalities and performance, and
- ii) Promoting policy convergence by aligning policies in terms of their objectives and instruments, so that different policy areas are coherent and reinforce each other, as described in Figure 5.

The objective of the ERADA project is to strengthen the livelihoods of vulnerable households based on locally available natural resources and developmental support programmes.

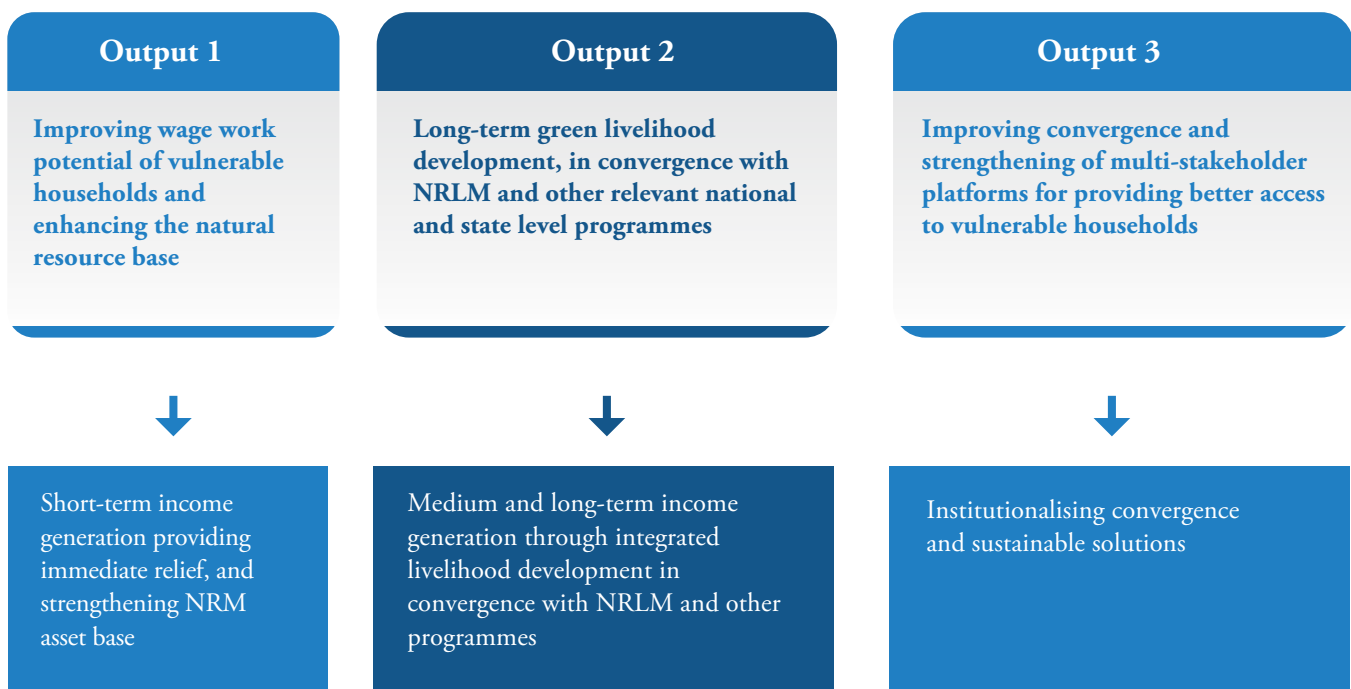
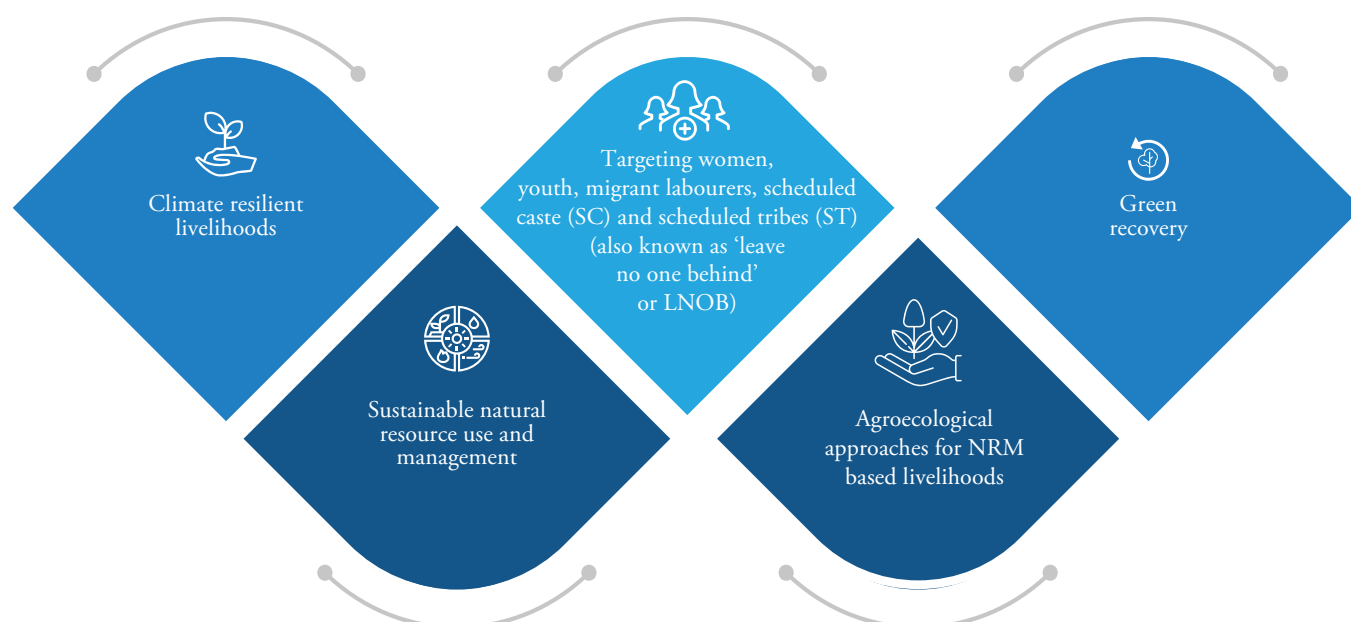


Figure 5: ERADA's outputs in the context of strengthening rural resilience in India

Source: Indo-German ERADA Project, 2021, <https://www.giz.de/en/worldwide/109493.html>

By improving implementation and enhancing convergence ERADA has the potential to contribute directly to the different forms of resilience outlined above and the five livelihoods capitals which drive resilience outcomes. Key resilience aspects of ERADA are the promotion of:



The ERADA resilience framework needs to capture the resilience impacts of these interventions across the four key vectors through which *Mahatma Gandhi NREGA* functions (the wage, creation of infrastructure, skills development and institutional strengthening). This can be achieved by identifying and appraise the extent to which these interventions create pathways out of poverty through increased resilience.

The way that ERADA will contribute through these vectors to achieve resilience outcomes by enhancing household income, may be illustrated by combining the resilience capacity and livelihoods capital approaches outlined above, with the 'Hanging in, Stepping up and Stepping Out framework'.²² The resulting simple schema accommodates a dynamic understanding of poverty, livelihoods, and the multiple shocks and stressors to which the poor are exposed.

It illustrates how ERADA has the potential to focus on those who are left behind and enhance their adaptive capacity by increasing household income, see Figure 7.



The way that ERADA will contribute through these vectors to achieve resilience outcomes by enhancing household income, may be illustrated by combining the resilience capacity and livelihoods capital approaches outlined above, with the 'Hanging in, Stepping up and Stepping Out framework'.

²² Dorward et al, 2009.

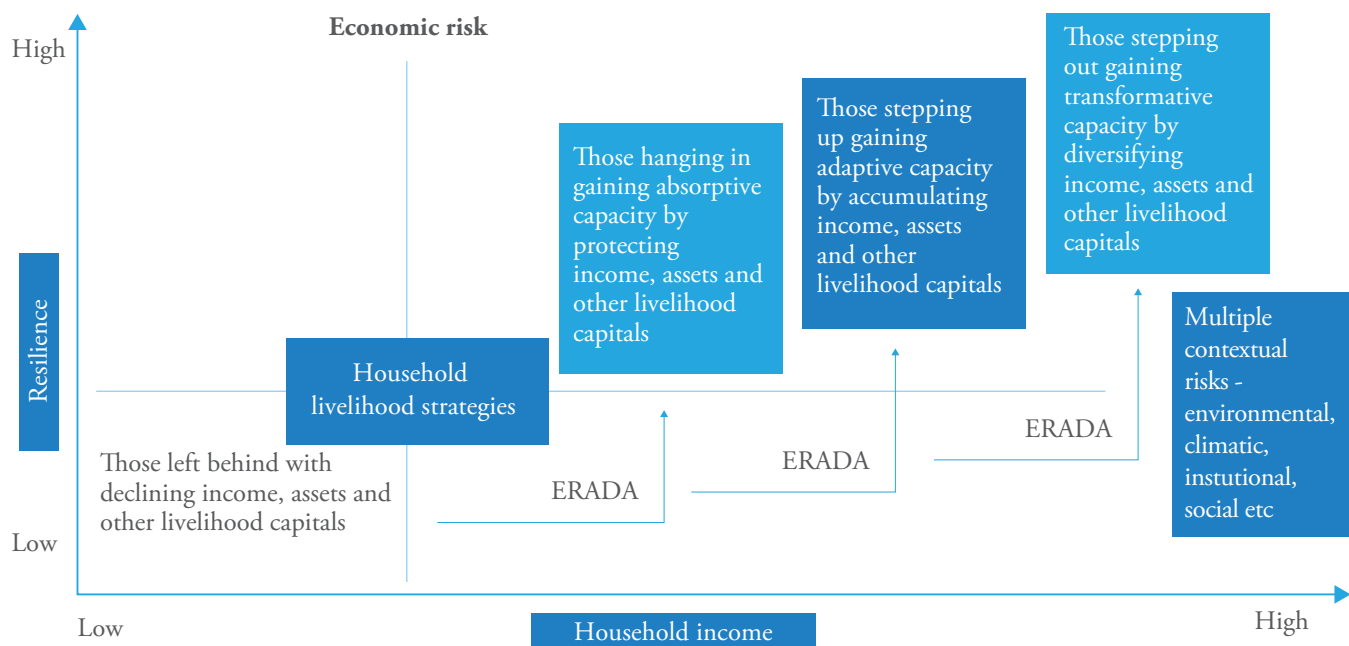
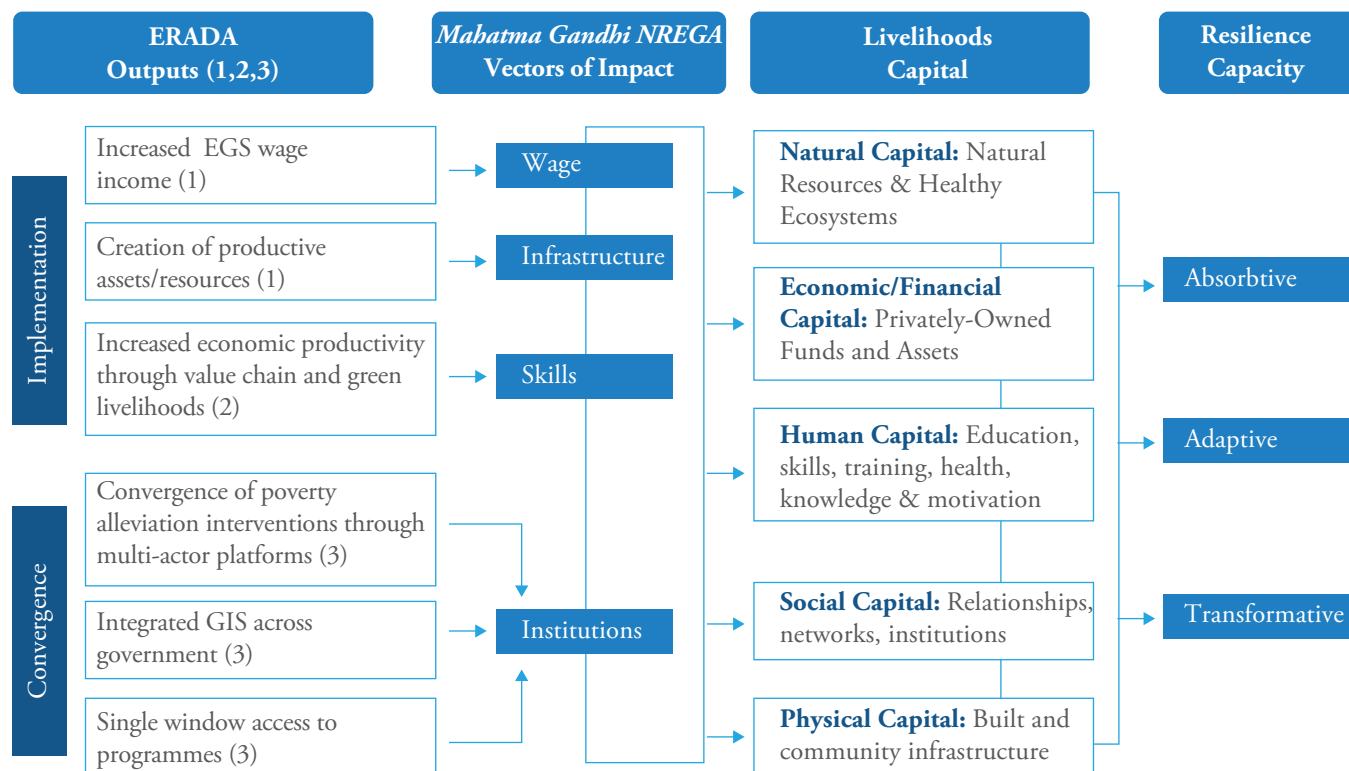


Figure 6: The 'Hanging in, Stepping up and Stepping Out' framework, for ERADA

Source: Based on Dorward et al. 2009 and Steinbach et al. 2016

The integration of ERADA outputs into a pathway to resilience framework is illustrated in Figure 7 below, which shows how each of the three outputs feeds into the four intervention vectors of *Mahatma Gandhi NREGA* and links it to livelihood capital outputs and resilience capacities.



Source: Adapted from Kaur et al, 2019

Figure 7: Contributions of ERADA and Mahatma Gandhi NREGA across the five livelihood capitals


Measuring Resilience Outcomes – Future Challenges

The framework linking the ERADA project to resilience outcomes via enhanced livelihoods capital mentioned above can be used conceptually as a basis for tracing programme impacts on resilience. If it is to be operationalised as a monitoring tool, it will be necessary to develop indicators associated with each pathway and thresholds associated with the different resilience capacity outcomes which can be traced along causal linkages from the three outputs on the left of the diagram (Figure 7).

As noted above, resilience outcomes have the potential to be measured across a range of dimensions, and there has been much experimentation in recent years with a number of different qualitative and quantitative approaches to measuring resilience impacts,²³ including the development of survey based resilience indices which identify shifts within and between resilience capacities.²⁴ The ERADA project will need to identify and develop methodologies for capturing and measuring the impact of the three outputs on resilience, based on this framework. The project already has a rural living income component, and income data from this initiative may be used initially as a proxy for household well-being and changes in resilience capacity. Under this component of the project, a living income is calculated, based on the cost of the basket of goods and services required for a decent standard of living, as compared to the actual income of different target groups prior to, during and following project implementation. This will enable the impact of the project interventions relating to *Mahatma Gandhi NREGA* income, value chain improvements, training through capacity and skills development, and natural resource management and asset creation to be captured in as much as they enhance positive changes in household income. This change in income can be used as a proxy for changes in resilience, on the assumption that it will contribute to reducing risks (in terms of both exposure and vulnerability) and also enhance livelihood capital gains across several dimensions.

However, using a single monetary proxy for resilience impacts is problematic,²⁵ it will be necessary for the project to consider other drivers of resilience beyond income, to identify shifts between the three levels of resilience capacity, and also to include aspects of community resilience which extend beyond the household measurement approach adopted in the living wage initiative. This is a challenge to be addressed by ERADA in order to capture the impacts of the wider convergence, and natural resource management dimensions of the project on resilience. One approach to be explored is the community monitoring of changes on the availability of natural resources and its usage resulting from *Mahatma Gandhi NREGA* assets and infrastructure initiatives, and an analysis of the livelihood implications at community level of these changes, using simple low cost methodologies such as for monitoring dam water levels, assessing the availability of fodder/ natural resources for specific number of months etc.²⁶

The framework presented in this paper locates the ERADA project within the broader rural resilience discourse and links it to the key analytical and conceptual approaches currently in usage. To conclude, the next task is to operationalise this framework by developing a set of associated project specific resilience indicators for implementation as well as assessment of the framework.



The framework linking the ERADA project to resilience outcomes via enhanced livelihoods capital mentioned above can be used conceptually as a basis for tracing programme impacts on resilience.

²³ See Schipper and Langston (2015) for an overview of resilience measurement frameworks.

²⁴ See for example Kaur et al, 2019.

²⁵ Levine, 2014

²⁶ See for example Ludi et al, 2016

Appendix 1

Interventions Types to Enhance Different Resilience Capacities

	Absorptive	Adaptive	Transformative
Individual	Psychological		
	Risk Aversion	Aspirations	
		Risk Tolerance	
		Confidence	
Household		Motivation	
	Financial		
	Savings		
	Credit		
Community	Assets		
	Livelihoods		
	Crop Insurance	Agricultural Practices	Roads
		Input Markets	Market Infrastructure
Regional		Market Information	Extension Services
		Vocational Skills	Irrigation Infrastructure
		Financial Literacy	Research Institutions
		Business Skills	
National		Contract Farming	
		Diversified Income Sources	
	Disaster Risk Management		
	Emergency Response Structures		Food Protection Infrastructure
Health	Early Warning Information		Green Infrastructure
	Climate/Weather Information		Safety Nets-Cash, In-kinds
	Local Conflict Management Structure		
	Health		
Social	Hygien & Sanitation	Public Health Monitoring	Water Infrastructure
	Health Insurance		Energy
			Health Facilities
	Social		
Governance	Local Group Networks	Trade Networks	Equitable Household Decisions
	Local Borrowing	Producer Organisations	Gender Equity and Inclusion
		Intercommunity Arrangements	Social Equity and Inclusion
	Governance		
			Policies & Regulations
			Local Budget Allocations
			Institutional Accountability
			Active Civil Society
			Integrated Water Resources Management
			Low Enforcement

Source: Vaughan, 2018.

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ERADA

Enhancing Rural Resilience Through
Appropriate Development Actions

FOR A **GOLDEN** TOMORROW

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