



Financing a climate-resilient MGNREGS

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- Supporting public planning processes in delivering climate-resilient development outcomes for the poorest
- Supporting climate change negotiators from poor and vulnerable countries for equitable, balanced and multilateral solutions to climate change
- Building capacity to act on the implications of changing ecology and economics for equitable and climate-resilient development in the drylands.

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The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is already delivering climate resilience to India's rural poor. This report investigates how MGNREGS can use climate finance to deliver improved resilience and maximise its development outcomes to reach the rural poor at scale, enabling better spend of India's climate finance. It also explores how MGNREGS can unlock new sources of private finance for low-carbon, climate-resilient development that is owned and delivered by rural households.

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Summary

The rural poor in developing countries are likely to be the worst affected by the rising risks of climate change (IPCC 2014 and 2018; Sen 1999). Yet, local communities in developing countries receive the least climate finance to help them absorb, adapt and transform their livelihoods in response to rising climate impacts (Soanes et al. 2017).

The rural poor urgently need mechanisms that deliver climate finance into their hands. Social protection programmes could play an important role as part of a whole-of-society approach to climate change adaptation (Soanes et al. 2019). Such programmes are already supporting inclusive development and placing resources into the hands of local communities to strengthen their resilience (Agrawal et al. in press) but they could do more to support climate-resilient development in the most vulnerable communities.

India's Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is one of the world's largest social protection programmes, with a 2019/20 budget of over US\$8 billion. MGNREGS is already building rural households' climate resilience through its four interventions – **guaranteed wages** to construct **rural infrastructure**, **strengthening rural institutions** and **building new skills**. But as climate hazards intensify, some households' wellbeing and resilience is declining despite MGNREGS support (Kaur et al. 2019). This indicates the need for the scheme to address climate vulnerability more effectively.

This paper explores how public, private, domestic and international climate finance can strengthen MGNREGS resilience outcomes and improve India's climate spend and shows how social protection programmes can deliver significant resilience outcomes as part of a whole-of-society response to climate change. IIED has made nine climate risk management recommendations that can strengthen MGNREGS' contribution to households and local economies' resilience to climate change (see Box 1) (Kaur et al. 2019). If pursued, these recommendations would have various implications for financing.

MGNREGS mechanism for effective climate finance

MGNREGS is a well-established mechanism for planning, delivering and monitoring expenditure that can deliver climate finance at scale into the hands of poor rural households – particularly the most vulnerable groups including women and scheduled castes and tribes – based on their priorities. Under MGNREGS, planning of paid labour and rural infrastructure happens through a bottom-up process at the lowest level of government – *gram* or *ward sabhas*. Annual labour budgets, containing a state's planned labour and rural infrastructure plans, are financed from the centre through the National Employment Guarantee Fund into each state's State Employment Guarantee Fund. States then distribute funds to local governments for material and administrative costs, with wages paid directly into job cardholders' bank accounts. MGNREGS expenditure is downwardly accountable through social audits undertaken by the vulnerable households prioritised by the scheme (MoRD 2013).

MGNREGS need and sources of climate finance

MGNREGS expenditure is split into wage, material and administrative budgets. There is a 60:40 ratio between wage and material costs and an additional 6% for administration. Delivering a climate-resilient MGNREGS will probably have implications for all three budgets as it will involve designing, testing and implementing the nine climate risk management recommendations (Box 1) by:

- Building climate risk information (weather, climate hazards and climate vulnerabilities), services and skills to support anticipatory wage employment, creating climate-resilient assets and strengthening MGNREGS decision making at all levels
- Strengthening MGNREGS' monitoring and evaluation systems to monitor the climate benefits delivered through its four interventions

BOX 1. NINE RECOMMENDATIONS FOR STRENGTHENING MGNREGS' CONTRIBUTION TO CLIMATE RESILIENCE

1. Provide anticipatory wage employment
2. Provide climate-responsive wage rate
3. Integrate climate risk management strategies into existing infrastructure assets
4. Create new asset categories for low-carbon climate-resilient development
5. Integrate climate risk management into decision making through innovative tools and strengthen capabilities
6. Strengthen investment in climate-resilient livelihoods by deepening access to financial services
7. Promote market linkages for climate-resilient enterprise
8. Build climate awareness
9. Develop skills for climate-resilient livelihoods

- Research and budget for MGNREGS to deliver climate-resilient wages and assets, including any additional materials and labour required for new and improved rural infrastructure designs, and
- Topping up administrative or convergence funds to strengthen MGNREGS functionaries and workers' skills to build and benefit from climate-resilient and low-carbon assets.

Climate finance is available from multiple sources and in various forms to cover the full or additional cost of adaptation interventions specifically. Layering these with MGNREGS' existing social protection budget is a cost-effective way of funding the nine climate risk management recommendations and delivering climate finance into the hands and priorities of the poor. Climate finance could be layered with:

Social protection: MGNREGS' wage and material budgets could deliver climate-resilient wages and assets once climate risk information, services and skills of MGNREGS functionaries and job cardholders have been developed, as long as climate risks do not push the scheme beyond its budget capacity. States could better use MGNREGS' administrative budget, which is commonly underspent, to build climate-resilient awareness and skills and undertake research into the implications of climate-resilient wages and assets.

Convergence: India already promotes budgetary and policy convergence, but MGNREGS can improve convergence with the eight missions of the National Action Plan on Climate Change and the dedicated National Adaptation Fund for Climate Change (NAFCC). National missions and NAFCC projects are already investing in line with the nine climate risk management recommendations and using MGNREGS as a delivery tool for resilience in several cases.

Private finance: Unlocking private adaptation finance for developing countries is crucial to mobilise the US\$300 billion per year required by 2030 (UNEP 2016). MGNREGS' finance and planning mechanisms also offer an aggregation model to deliver the scale required to make private adaptation investment attractive. For MGNREGS, private climate finance could reduce the budget burden under escalating climate impacts, transferring this climate risk from the household to the Indian government and from the government to the global reinsurance market.

Risk finance could cover the escalating labour demand and wage rates required to maintain MGNREGS' safety net contribution under increasing climate hazards. For example, linking the Weather Based Insurance Scheme with MGNREGS would cover households' personal climate risk and the Indian government could take out sovereign insurance for anticipatory wage employment, particularly for drought-prone states.

Green debt could cover the additional cost of climate-resilient and low-carbon assets. Deploying green bonds or development impact bonds would allow MGNREGS to raise capital from India's growing green finance market if climate-resilient and low-carbon assets can be aggregated at scale and structured to deliver a return on investment.

Areas for further research

There is a need for further research to better understand MGNREGS' wage and material budget implications for anticipatory wage employment, climate-responsive wage rates, climate risk and low-carbon assets; and how to layer public, private, domestic and international finance in ways that are most efficient while maximising resilience benefits for India's rural poor.

1

Introduction

Climate change has emerged as a major threat to vulnerable households and communities and to the global development agenda. There is increasing evidence that the rural poor in developing countries will be most affected by a changing climate (IPCC 2014 and 2018; Sen 1999). The increased frequency and intensity of extreme weather events and long-term changes in weather patterns will exacerbate the stresses poor households already face and reinforce the underlying drivers of poverty (IPCC 2014; Mearns and Norton 2010; Hallegatte et al. 2016). Unchecked climate change could push more than 720 million people worldwide back into extreme poverty (Granoff et al. 2015).

By 2030, developing countries alone will need US\$140–300 billion a year to reduce poverty despite climate impacts (UNEP 2016). However, in 2016, donors and global funds only committed US\$22 billion for adaptation and there was little investment from the private sector (Buchner et al. 2017). Less than 10% of global fund climate finance has been committed to local interventions (Soanes et al. 2017) that could empower rural communities to build their resilience and improve their low-carbon livelihoods. Of the climate finance that is disbursed, too much is poor quality, delivered through short-term projects designed by distant experts and intermediaries (Soanes et al. 2019).

There is, therefore, an urgent need to reimagine this climate finance system to get more ‘money where it matters’. The system should be able to draw and deliver the right blend of climate finance from both public and private sources to the frontlines of climate change. There needs to be a whole-of-society response that includes devolved climate finance, decentralised energy solutions and adaptive social protection (Soanes et al. 2019).

In India, social protection schemes play a central role in alleviating the poverty of rural households. They also help build resilience of India’s rural poor (Kaur et al. 2019). The largest of these social protection programmes – the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) – reaches rural households through a bottom-up planning process. It has been instrumental in reducing chronic poverty and its budget has increased year on year as a result (Figure 1), investing US\$73 billion since 2005.

But, when exposed to increasingly frequent and high-magnitude risks, social, economic and ecological systems will need to absorb, adapt and transform (Figure 2) if they are to maintain their development gains and address the impacts of climate change. Resilience depends on households’ exposure and sensitivity to climate-induced hazards and their ability to access climate-smart opportunities or investments that support climate-smart responses. MGNREGS does not have the tools or information it needs to proactively help rural households and communities manage these climate risks (Kaur et al. 2019). Given its huge financial scale and rural reach, incorporating climate risk management tools and information into MGNREGS planning and decision making could deliver significant resilience outcomes for India’s rural poor. It could also protect development progress and help India improve its climate spend through public, private, domestic and international resources. Doing so would make MGNREGS a leading global example of how to use climate finance to deliver significant resilience outcomes to many rural households at the frontline of climate change.

IIED has made nine recommendations for integrating climate risk management into MGNREGS to deliver shock-responsive wages and climate-resilient infrastructure, institutions and skills (Kaur et al. 2019). This paper investigates how MGNREGS could and should use climate finance to cover these recommendations by exploring:

- Its contribution to resilience and how to strengthen this contribution
- Its potential to deliver effective climate finance and to use it to strengthen its resilience contribution, and
- The domestic and international climate finance sources it could use to do this.

Figure 1. India’s major social sector programmes outlay, 2015/16 to 2019/20

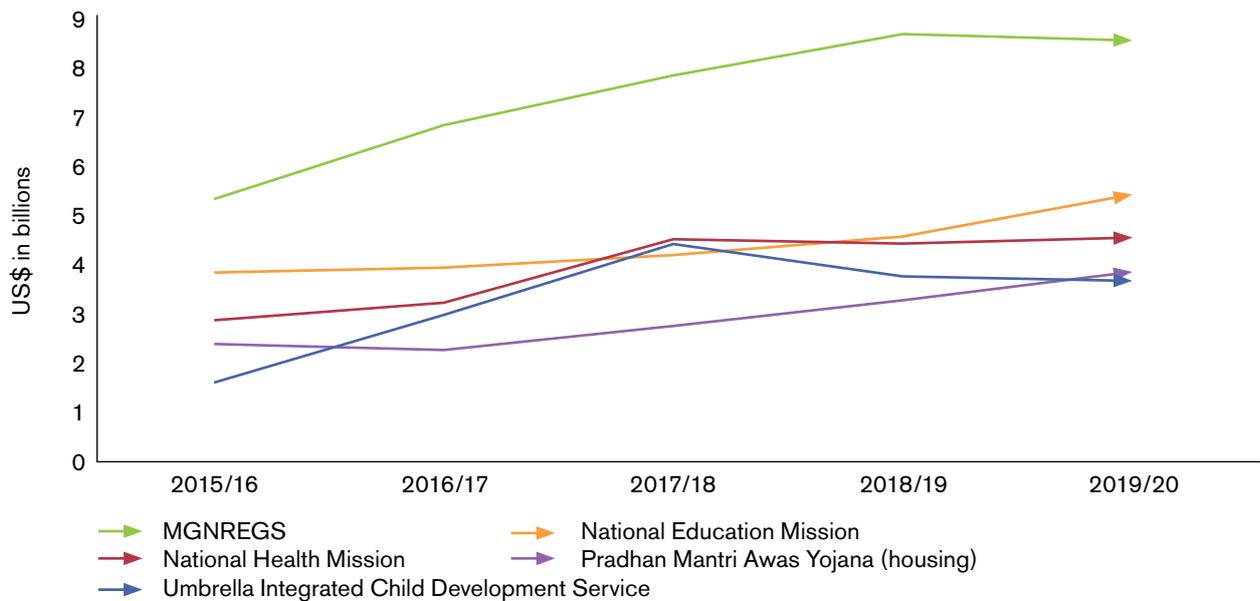
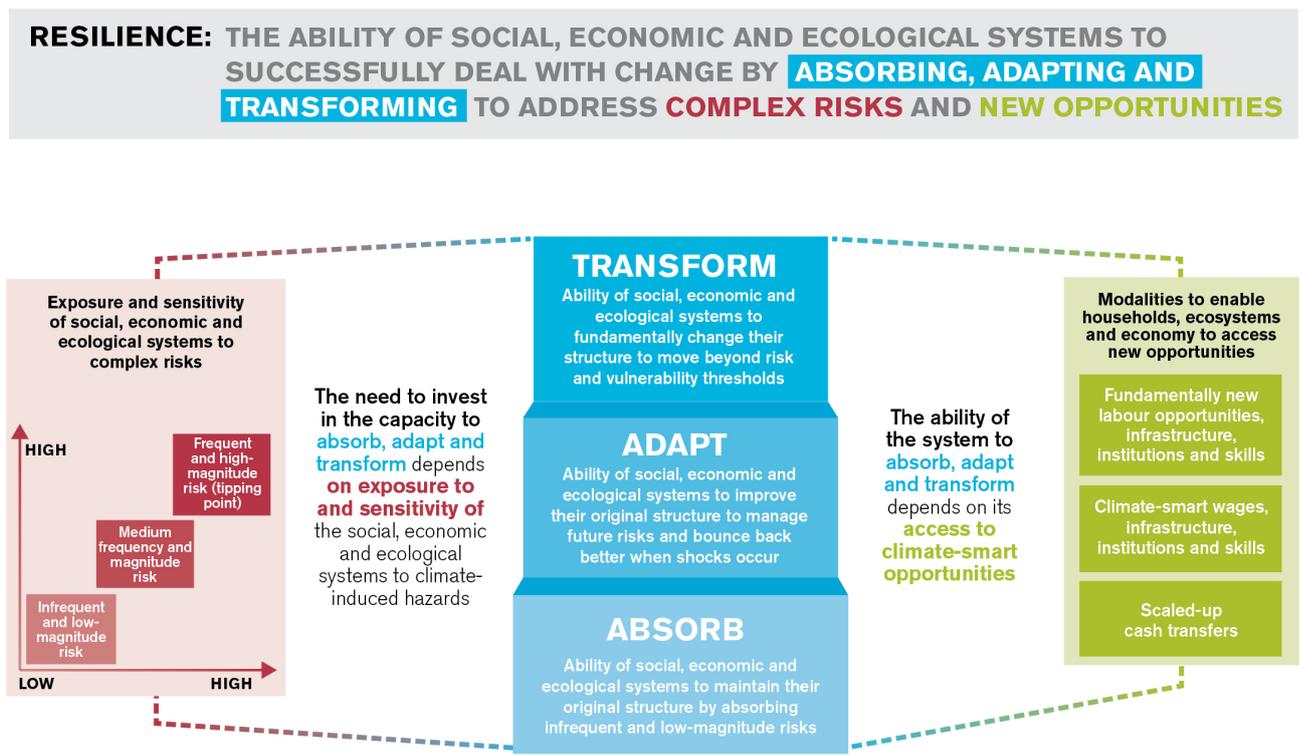


Figure 2. Building resilience to complex risks and opportunities



2

MGNREGS’ contribution to climate resilience

Under MGNREGS, all rural households are entitled to a minimum of 100 days’ guaranteed wage employment as unskilled labourers. This labour builds rural infrastructure – known as works – providing benefits primarily towards agricultural and other allied activities, which most of India’s rural poor rely on. MGNREGS also helps strengthen rural institutions, most notably improving the participation of rural households in local governance bodies known as *gram* or *ward sabhas* and improving rural households’ financial inclusion through access to bank and post office accounts. Finally, by aligning with budgets from other sources to achieve a common objective – through convergence with other Indian government schemes – it helps build and strengthen the skills of individuals delivering MGNREGS.

These MGNREGS interventions help build rural households’ resilience to low-magnitude and low-frequency climate shocks (Agrawal et al. in press; Kaur et al. 2019). Figure 3 shows how the relationship between the four interventions – wages, infrastructure, institutional strengthening and skills – changes rural households’ livelihood capitals and improves their absorptive, adaptive and transformative resilience to rapid and slow onset climate hazards such as drought and flood.

For example, our study of how MGNREGS builds and strengthens rural households’ resilience to different climate shocks in Andhra Pradesh, Jharkhand, Odisha and Sikkim found that 64% of the 651 households

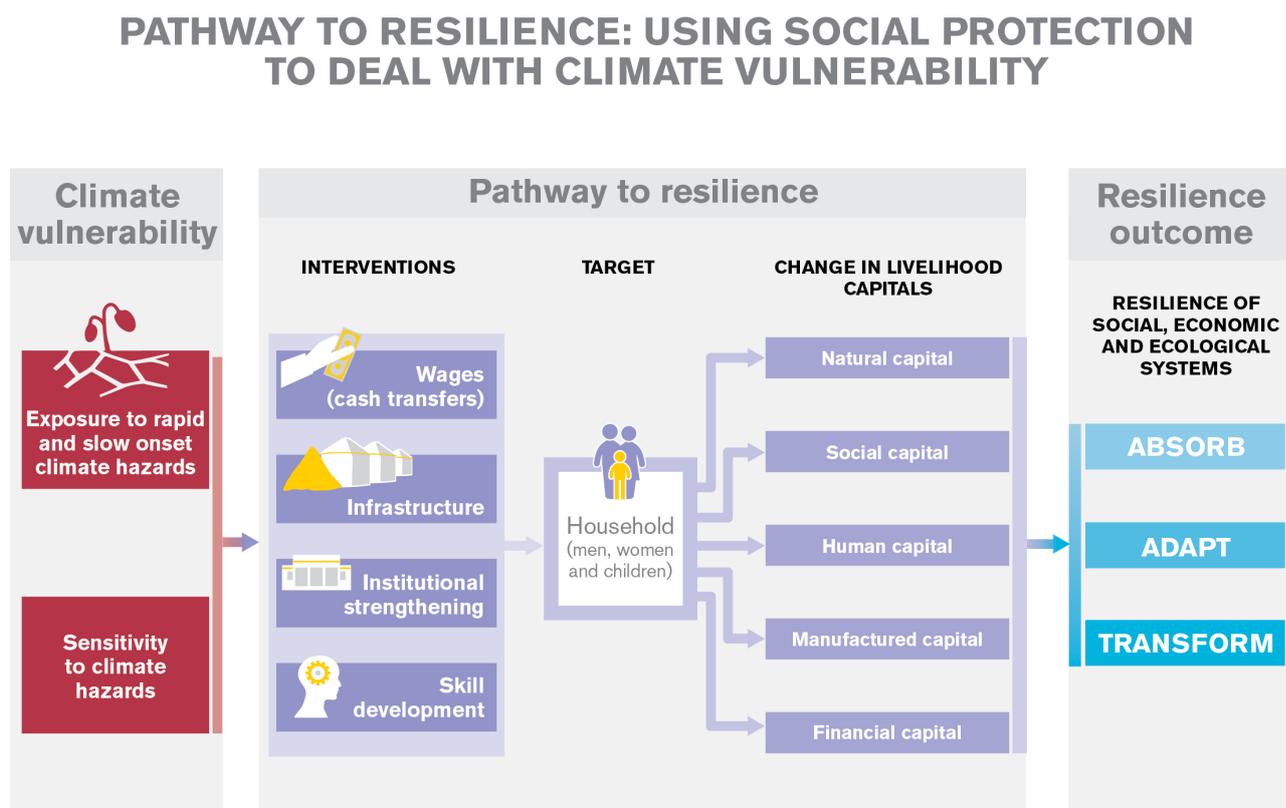
surveyed had been able to improve a combination of their five livelihood capitals to absorb, adapt or transform to address the impacts of climate change (Kaur et al. 2019). Box 2 explores the resilience contribution of MGNREGS’ four interventions in more detail.

But, despite MGNREGS support, 19% of those sampled for our study in Andhra Pradesh, Jharkhand, Odisha and Sikkim reported a decline in household wellbeing and reduced resilience. It is clear that, although MGNREGS is implicitly climate responsive and provides 50 days’ additional wage employment when natural calamities are declared, it does not have the climate risk management tools or information to address the increasingly frequent and intense climate hazards Indian rural households are likely to be exposed to (Kaur et al. 2019).

More than a decade has passed since MGNREGS was launched to alleviate poverty. It is now time to enhance this primary objective by simultaneously delivering climate resilience to the rural poor. This does not signify a change in policy focus: if MGNREGS is to continue alleviating chronic poverty, it also needs to address climate resilience.

Drawing on all previous analyses of MGNREGS’ contribution to climate resilience, IIED has made nine recommendations for integrating climate risk management into MGNREGS to deliver shock-responsive wages and climate-resilient infrastructure, institutions and skills (Kaur et al. 2019):

Figure 3. MGNREGS contribution to climate resilience



1. Providing anticipatory wage employment:

Giving households access to 50 days additional wage labour **before** a hazard will help build their monetary reserves to absorb climate shocks. Households can currently access these 50 days only **after** a natural calamity.

2. Providing a climate-responsive wage rate:

Linking state wage rates under MGNREGS to a climate-responsive indicator that considers the impact of climate change on consumption patterns will help households accumulate higher financial capital to absorb acute climate risks. The current wage rate is based on the consumer price index for agricultural labourers, which draws on 1983 consumption patterns.

3. Integrating climate risk management into existing infrastructure categories: Using climate hazard and vulnerability information to select, design, plan, place and monitor MGNREGS rural infrastructure will improve and maximise the agricultural and other allied resilience benefits of creating assets. The focus should be on constructing 'minimum regret' assets, which perform well under a range of future climate uncertainties.

4. Creating new asset categories for low-carbon and climate-resilient development: Sanctioning low-carbon opportunities such as off-grid energy or

energy service centres and other special works that stimulate or contribute towards livelihoods that are less exposed to climate hazards will help households reduce their sensitivity to certain climate hazards.

5. Integrating climate risk management into MGNREGS decision making to strengthen planning and delivery:

Incorporating climate risk information into MGNREGS decision making at all levels to inform wage delivery, infrastructure construction, annual labour budget planning and other MGNREGS interventions will help ensure all components of MGNREGS are climate resilient.

6. Deepening access to financial services for climate-resilient investments:

Continuing to link job cardholders to formal banking institutions and expanding digitised payments will help ensure rapid payments to households, especially in times of climate shock.

7. Promoting market linkages for climate-resilient enterprise:

MGNREGS' contributions towards resilience in the household economy have knock-on resilience effects in the local economy. For example, linking interventions and building skills that support producer groups, women's self-help groups and cooperatives to engage in the rural economy will sustain and improve poverty alleviation in the context of increasing climate hazards.

BOX 2. MGNREGS TOOLS AND POTENTIAL CLIMATE RESILIENCE BENEFITS

Guaranteed wages (cash transfers): MGNREGS guarantees a minimum of 100 days' work in rural areas to every household whose adult members volunteer for unskilled work. These adults are known as job cardholders once they have formally registered. Households use MGNREGS wages to supplement other sources of income and smooth consumption gaps. Job cardholders can demand wage labour when climate hazards undermine other income sources, making it an implicitly climate-responsive instrument. Recognising this, the scheme now offers an additional 50 days' work in times when natural calamities – such as flood and drought – are officially declared (MoRD 2016).

Rural infrastructure: MGNREGS builds individual (private) and public rural infrastructure assets to support long-term livelihood strategies and strengthen the local economy. To date, it has created 3.8 million private and public assets, including:

- Water and soil conservation infrastructure – such as check dams, ponds and trenches – afforestation and land development works. Around 57% of MGNREGS total expenditure has created individual and community natural resource management assets in the last five years.
- Irrigation channels, plantations, livestock, fisheries infrastructure, water and grain storage structures. Around 63% of MGNREGS total expenditure has created rural infrastructure that supports agriculture-based livelihoods.
- Other infrastructure, such as roads, footpaths, sanitation infrastructure and community buildings.

Institutional strengthening: MGNREGS strengthens rural institutions to empower rural households and improve programme delivery by:

- Enhancing household participation in local governance bodies – such as the village-level *gram sabhas* – and their decision making around MGNREGS labour allocation and infrastructure selection.
- Improving financial inclusion by linking job cardholders to banks with digitised payments through the electronic fund management system. MGNREGS uses this system to pay about 94% of wages into beneficiary accounts, making it one of the best examples of direct benefit transfers across Indian government programmes (MoRD 2016).
- Strengthening community institutions – such as self-help and producer groups – to build collective action and create stronger market linkages by converging with other government programmes. This includes integrating and layering technical, institutional and financial resources to deliver better programme outcomes.

Skill development: In recent years, MGNREGS has focused on strengthening beneficiaries and service providers' capabilities to plan and deliver durable assets and upgrade livelihood strategies. This includes training service providers and barefoot technicians – selected from MGNREGS beneficiaries – in integrated natural resource management, geospatial information systems and developing *gram panchayat* plans. MGNREGS job cardholders have access to training from Deen Dayal Upadhyaya Grameen Kaushalya Yojana for placement-based employment or from rural self-employment training institutes (MoRD 2016).

- 8. Building MGNREGS functionaries and beneficiaries' climate awareness:** Helping local decision makers and MGNREGS workers better understand how they can anticipate and plan for climate hazards and apply this knowledge will help them make better decisions around MGNREGS and livelihoods.
- 9. Developing skills for climate-smart livelihoods:** Training households and local MGNREGS functionaries in climate-smart livelihoods – such as small-scale renewable energy initiatives – will help

households transition away from climate-sensitive sectors and promote climate-resilient growth in rural areas, reducing their exposure and sensitivity to localised climate risks.

Integrating these nine climate risk management recommendations into MGNREGS will have implications for central and state budgets. But with climate finance, MGNREGS could deliver substantial resilience outcomes that also improve development results for rural India.

3

How MGNREGS can deliver effective climate finance

MGNREGS has a well-established financial mechanism for delivering wages to rural job cardholders, financing materials to build rural infrastructure and supporting the administration of the scheme. MGNREGS expenditure is split into three components (MoRD 2013):

- **Wages:** 60% is for rural wages for unskilled labour undertaken by job cardholders.
- **Materials:** 40% is for construction materials for rural infrastructure built by job cardholders and to pay the wages of skilled and semi-skilled labourers.
- **Administration:** On top of this, states get another 6% of their total wage and materials budgets to support training, information, education and communication activities to build MGNREGS awareness in rural households and administrative functions. The latter include data collection, quality management, grievance procedures, procurement of technical services, operational expenses and information, communications and technology facilities. Four per cent of this administrative budget must be spent at the block (cluster of villages) level or below.

Labour budgets are approved centrally on an annual basis. The National Employment Guarantee Fund then provides each state's State Employment Guarantee Fund with money to cover the wage, administrative and 75% of the material components. The labour budget includes the projected wage, material and administrative budgets for every state and district. Funds are transferred to state level and recorded with an electronic fund management system (e-FMS), which helps ensure no funds are left idle at any level of MGNREGS. The state then releases material and administration funds from the State Employment Guarantee Fund to local government bodies at district, block and *gram panchayat* (village) levels. It pays wages directly to job cardholders' individual or joint savings accounts within registered banks and post offices (MoRD 2013).

The key for MGNREGS is maintaining the 60:40 split of wage and materials expenditure. Integrating our nine climate risk management recommendations will probably increase the wage, material and administrative budgets. For example, developing an anticipatory wage employment mechanism will require investment in new

data, tools and skills, such as packaging and deploying climate information with triggers for when the 50 additional labour days are made available (MoRD 2013).

MGNREGS can use its existing financial mechanisms at central (National Employment Guarantee Fund) and state (State Employment Guarantee Fund) level to deliver climate finance to design, test and in some cases fully implement the nine resilience recommendations. It can also channel external climate finance through existing convergence set-ups to top up wage, material and administrative budgets at state level (MoRD 2013).

MGNREGS can also help strengthen the quality of climate finance. It reaches India's rural households through the principle of bottom-up planning, empowering rural households to decide when they require digital or cash wages and propose which rural

assets to build. MGNREGS targets the most vulnerable households, particularly women and scheduled castes and tribes. These processes are locally accountable through social audit quality control, undertaken by these vulnerable groups and households (MoRD 2013). Incorporating climate finance into the MGNREGS budget will help MGNREGS deliver resilience across India's rural poor, strengthening development results despite increasing climate hazards.

Although further research is needed on the exact implications for MGNREGS expenditure, we have mapped out how MGNREGS could use climate finance. In the longer run, the MGNREGS budget will benefit, as every US\$1 invested in preparedness actions before disaster strikes saves US\$4–7 in relief actions after the disaster (Griffiths 2016).

Table 1. Using climate finance to deliver the nine recommendations to strengthen MGNREGS contribution to climate resilience

CLIMATE RISK MANAGEMENT TOOLS	HOW CLIMATE FINANCE CAN BE USED TO DELIVER CLIMATE RESILIENCE
 Provision of wages	
1. Provide anticipatory wage employment	<ul style="list-style-type: none"> • Build and package weather and climate information, including triggers for anticipatory employment for each hazard • Top up wage budget to cover escalating demand for 50 extra wage labour days under increasing climate hazards
2. Provide climate-responsive wage rate	<ul style="list-style-type: none"> • Top up administration budgets or support external research to understand wage rate and budget implications • Top up wage budget as wage rates increase as climate impacts worsen
 Creation of rural infrastructure	
3. Integrate climate risk management strategies into existing infrastructure assets	<ul style="list-style-type: none"> • Build and package climate risk information for stakeholders involved in asset selection and creation • Strengthen monitoring and evaluation (M&E) systems to monitor climate benefits of MGNREGS infrastructure • Top up or support administrative budget for building the skills and infrastructure needed to use climate risk information • Top up or support material budget for extra costs of climate-resilient works
4. Create new asset categories for low-carbon, climate-resilient development (outside agriculture)	<ul style="list-style-type: none"> • Top up or support material budget to cover extra costs of low-carbon, climate-resilient assets • Top up or support administrative budget to build new skills to construct and use new low-carbon, climate-resilient assets
 Strengthening institutions	
5. Integrate climate risk management into decision making through innovative tools and strengthened capabilities	<ul style="list-style-type: none"> • Build and package climate risk management and information services for stakeholders involved across MGNREGS decision making • Strengthen M&E systems to monitor climate benefits of climate-resilient MGNREGS decision making • Top up or support administrative budgets for building the skills and infrastructure needed to use climate risk management and information tools
6. Strengthen investment in climate-resilient livelihoods by deepening access to financial services	<ul style="list-style-type: none"> • Strengthen financial services used by MGNREGS with latest financial technologies (fintech)
7. Promote market linkages for climate-resilient enterprise	<ul style="list-style-type: none"> • Top up or support material budget or convergence for new skilled and semi-skilled labour • Top up or support administration budgets to support new skills for climate-resilient livelihoods
 Skill development	
8. Build climate awareness	<ul style="list-style-type: none"> • Top up administrative budgets or support designing and delivering or strengthening training and awareness-raising campaigns on climate change
9. Develop skills for climate-resilient livelihoods	<ul style="list-style-type: none"> • Top up administrative budgets or support designing and delivering training to build new skills for climate-resilient and low-carbon livelihoods

4

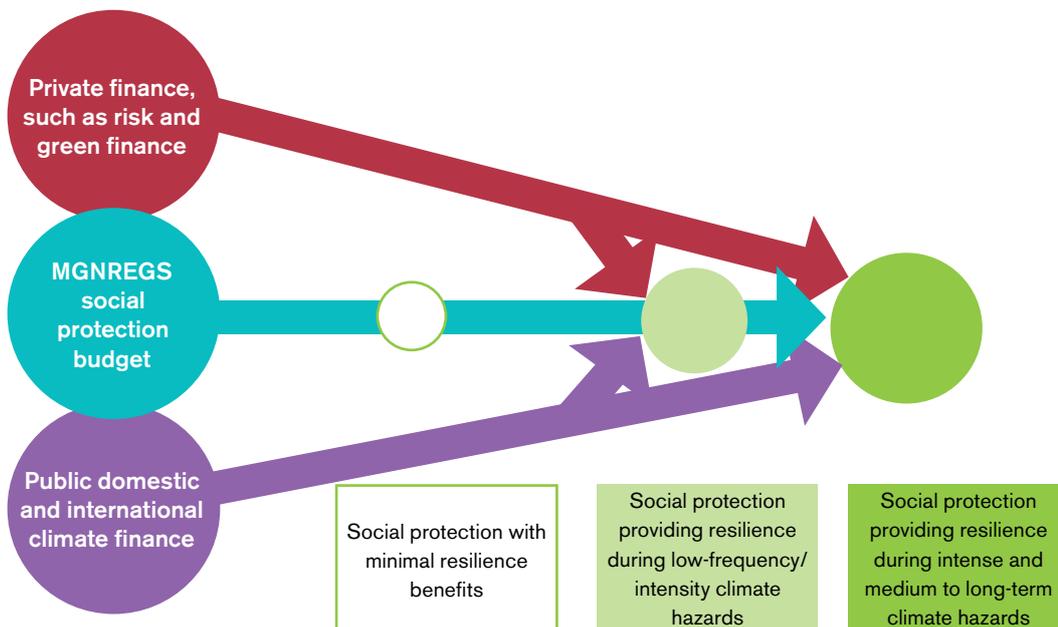
Financing sources for a resilient MGNREGS

Climate finance can help MGNREGS deliver resilience to significant populations of India's rural poor by covering some of or all the cost of designing, testing and fully implementing the nine climate resilience recommendations. Some or part of these recommendations may be suitable for private finance, which is yet to be mobilised at scale for climate adaptation. MGNREGS could also better use its own funds to help India meet its resilience objectives. As climate risks escalate, India could combine new and existing sources of finance to meet its rural climate ambitions.

There are three types of finance MGNREGS layer to deliver improved resilience outcomes to India's rural poor (Figure 4):

- **Social protection budget:** More effective use of the existing MGNREGS social protection budget for wages, material and administrative funds
- **Budget convergence:** Converging MGNREGS budgets with domestic and international public climate finance, and
- **Private finance:** Layering MGNREGS with private finance, such as insurance or debt finance through social impact or green bonds.

Figure 4. Potential for layering climate finance in MGNREGS to deliver resilience to India's rural poor



4.1 Social protection budget

MGNREGS could use its existing wage budgets once it has developed climate risk management tools. For example, with a trigger for climate hazards, the existing wage budget could deliver the extra 50 anticipatory labour days, unless climate impacts increase wage demand beyond the current budget threshold. Likewise, it could probably use its existing materials budget, but we do not yet know whether climate-resilient infrastructure designs will require an increase in materials budgets. The administrative budget, however, could be better used.

Indian states get a further 6% of their wage and materials budgets for training, awareness raising and administration. This allocation therefore depends on their projected wage and asset demand. Information, education and communication activities are meant to communicate the climate resilience benefits of MGNREGS – particularly for adaptation in agriculture and allied activities – to MGNREGS civil servants and workers (MORD 2018). Table 2 shows a huge underspend on this administrative budget. States would do better using it to design and deliver training to build new skills for climate-resilient and low-carbon livelihoods and to procure new information, communications and technology infrastructure, climate and weather information tools.

4.2 Convergence with public finance

Budget convergence is when budgets from different sources align to achieve a common objective. Convergence is a MGNREGS policy initiative; it aims to align with other policies and instruments that have common objectives. In this paper, we focus on two main opportunities for domestic budget convergence in India: the national missions on climate change and the National Adaptation Fund for Climate Change (NAFCC).

National climate missions

The Indian government has set up eight missions to implement its National Action Plan on Climate Change (NAPCC). These are policy frameworks to guide investment in adaptation and mitigation through interventions in water, agriculture, forests, Himalayan ecosystem, renewable energy, energy efficiency, sustainable habitats and knowledge on climate change.

The national climate missions are funded through federal and state budget grants and implemented by government and quasi-government agencies. Three of the eight receive a specific budget allocation; the other five are funded through regular development expenditure. Total allocations for 2018–19 are outlined in Table 3.

Table 2. Potential for increasing budget allocation for information, education, communication and training

ADMINISTRATIVE BUDGET	FINANCIAL YEAR (US\$ MILLIONS)				
	14/15	15/16	16/17	17/18	18/19
Total budget	258	278	495	434	465
Underspend	24.8	23.0	32.0	13.7	30.1

Source: <http://mnregaweb4.nic.in/netnrega/MISreport4.aspx>

Table 3. Budget allocation to the NAPCC missions, 2018–19

NATIONAL MISSION	SUB-COMPONENTS/SCHEMES	BUDGET OUTLAY (US\$ MILLION)
National Missions for Sustainable Agriculture	National project on agroforestry	10.59
	National project on organic farming and value chain development for North East Region	22.60
	Paramparagat Krishi Vikas Yojana (organic farming)	50.85
	National project on soil health fertility, including soil health card	57.48
	Rainfed area development programme	33.06
Green India Mission	National afforestation programme	22.60
	Forest fire prevention and management	7.64
National Water Mission	Implementation of National Water Mission (research and development)	13.42

Source: MOF (2018)

Convergence with any of the eight national climate missions could support a range of resilience recommendations. In particular, they could provide funding to cover the additional material cost of making existing infrastructure assets climate-resilient or creating new low-carbon and climate-resilient assets and building the new skills needed for this.

The guidelines for converging MGNREGS with the Ministry of Environment, Forest and Climate Change's (MoEF&CC) Green India Mission outline how integrated planning between the two initiatives will improve the scale and quality of afforestation efforts and MGNREGS asset planning. It will also generate green and sustainable employment. By pooling budgets and using similar institutional arrangements, convergence should result in effective and efficient use of resources and improved governance (MoEF&CC 2015).

Convergence between MGNREGS and the National Mission for Sustainable Agriculture has resulted in the joint implementation of organic farming interventions and created climate-resilient soil and water conservation infrastructure and modern food storage facilities.

Ongoing pilots under the National Mission on Sustainable Habitats are using MGNREGS workers for solid waste management. Convergence with these missions will enable MGNREGS workers to move into fundamentally new livelihood opportunities that are less sensitive to climate change.

The 2018–19 budget allocation to the National Mission for Sustainable Agriculture, Green India Mission and the National Water Mission is already supporting resilient assets and strengthening capacity, aligning with current MGNREGS public and private asset categories (see Box 3). This includes:

- US\$165 million for creating climate-resilient infrastructure through better natural resource management, including afforestation and soil and water conservation practices
- US\$35 million for strengthening the climate resilience of agricultural assets through improved farming practices, such as organic farming
- US\$8 million for research on integrated natural resource management practices that can build resilience to climate change, and
- US\$115 million for capacity-strengthening activities.

These national missions and their budgets can integrate climate risk management into existing and new infrastructure categories.

National Adaptation Fund for Climate Change

Established in 2015, the NAFCC funds adaptation programmes aligned with the eight national missions. NAFCC investments aim to promote a paradigm shift towards low-emission and climate-resilient development pathways, with a focus on agriculture and rural development.

The NAFCC can finance interventions that build adaptive capacity at community, national and trans-boundary levels, including those that support climate-responsive decision making through climate and vulnerability scenarios and capacity building. Its investment portfolio includes agriculture, livestock, coastal resource management, water management and forest and ecosystems initiatives (NABARD and MoEF&CC nd).

The NAFCC receives earmarked funding for climate adaptation projects from the MoEF&CC. Capitalised annually during the budget planning session, it has received US\$98 million to date. The fund can allocate up to US\$3.8 million a year directly to each state; states can then expand this funding with co-financing from other sources. Twenty-seven states have received at least one tranche of funding from the NAFCC. The National Bank for Agriculture and Rural Development (NABARD) is the NAFCC's implementing entity, overseeing and accountable for the management of NAFCC funds.

Budget convergence between MGNREGS and the NAFCC could support interventions across our nine recommendations as both of their primary objectives are to deliver improved climate resilience.

Climate-resilient infrastructure: States have used US\$67 million from the NAFCC to create climate-resilient infrastructure by implementing activities related to integrated soil and water conservation, landscape management, climate-proofing existing natural resource management infrastructure and improving water efficiency. The NAFCC has also implemented activities to create climate-resilient agricultural infrastructure, including agroforestry, kitchen gardens, technology transfer, gene banks and strengthening climate-resilient agricultural practices such as pest management. It has also invested funds to create new infrastructure assets, such as renewable energy infrastructure and zero power consumption cold storage facilities.

Climate-resilient institutions: The NAFCC has invested around US\$7 million to create climate-resilient institutions in states, providing climate information services and weather-based insurance products for farmers among other initiatives.

Strengthening market and institutional linkages: The NAFCC has invested US\$3 million in developing climate-resilient skills among project beneficiaries and service providers. This includes skills to implement climate-resilient agriculture and access climate information services.

4.3 Private finance

Unlocking private finance for adaptation will be crucial to deliver the US\$300 billion required each year to enable developing countries to adapt to climate change from 2030 (UNEP 2016). MGNREGS reaches most rural households in India with interventions that range from individual wages to rural infrastructure projects. Given the scale at which it operates and the variety of interventions at its disposal, it provides opportunities to aggregate climate investments into volumes that could attract private investors.

Although these sources of finance are in their early stages of development in India, they provide two benefits. By reducing the budget burden, they allow the government to more efficiently distribute development resources in the face of the rising cost of climate change. They also give the government the opportunity to be a front-runner in showcasing how private finance for adaptation can be unlocked at scale. We explore two categories of private finance: risk finance and green debt.

Risk finance

Large commercial financial institutions provide risk finance to help others cover the financial effects of potential losses – including climate losses.

Governments, businesses and households can use risk finance – in the form of insurance instruments – to sustain investment in climate-resilient assets in the event of a climate shock. Layering risk finance with MGNREGS could cover the potential rising demand for MGNREGS wages, including the extra 50 days. Even if external finance is available to support the design of anticipatory wage employment or a climate-responsive wage rate, wage demands may exceed MGNREGS budget in the event of rising intensity and frequency climate hazards. Risk finance could also allow job cardholders, states and the central government to transfer the financial risks of climate to shocks to the private sector.

Weather-based insurance may be most useful. This type of insurance can operate at household level – where the household takes out insurance cover for their own personal climate risk – or at the sovereign level, where the government takes out climate risk insurance to fund disaster responses. These solutions (see Box 3) can support stakeholders to better plan for and recover from climate hazards.

BOX 3. CASE STUDIES OF RISK FINANCE APPLICATIONS FOR CLIMATE RESILIENCE

Linking land-holding job cardholders to insurance in India

Crop insurance has been around in India since the 1970s, with schemes using a yield-based approach. Private insurance company ICICI Lombard piloted **WBCIS** in 2003. It became a national scheme in 2007, with the government partially underwriting the premium to reduce the cost to households. Unlike the earlier schemes, WBCIS estimates losses by measuring local weather parameters – such as rainfall, humidity, wind speed and temperature – and comparing them against historical trends. Automated weather stations capture the data in each implementing unit and send it to the insurance companies. When a pre-determined threshold is passed, all farmers in the unit are eligible for insurance payouts, which they receive directly into their bank accounts. Each crop has different thresholds and claim amounts vary according to the severity of the impact beyond the threshold (Steinbach et al. 2016).

Linking rural households to insurance in exchange for time and labour contributions in Ethiopia

R4 Rural Resilience is an innovative scheme providing insurance and institutional support to beneficiaries of Ethiopia's Productive Safety Net Programme so they can reduce, transfer and absorb climatic risks. It offers long-term weather-based insurance to poor farmers and rural households in return for time and labour contributions to climate-resilient public work programmes. The insurance is designed to transfer risks, while the public works programme helps reduce risks. The scheme protects farmers' investments during bad seasons and increases agricultural productivity by enabling investment in seeds, fertilisers and new technologies. R4 also provides credit to enable risk-taking and

encourages small-scale savings so farmers can build risk reserves.

Using digital solutions to deliver insurance products to poorer households in India

With technical support from the German government, an Indian Fintech company is piloting innovative climate risk insurance solutions to make insurance products more accessible and affordable to poor and vulnerable people. The project uses Fintech-based solutions to bring together a network of product and distribution partners offering demand-oriented financial bundled products to low-income customers. It is also piloting a blockchain-based farm income protection plan to increase transparency, traceability and trust within the value chain and developing a satellite-based flood index insurance (Cosgrove 2017).

Enabling the state to better plan and manage climate-induced financial risks in Kenya

Kenya has developed shock-responsive services under its social protection programme. It has increased the number of households benefiting from cash transfers in the event of a drought shock, through direct payments into the bank accounts of pre-identified households. Kenya took a sovereign drought risk insurance product from Africa Risk Capacity (ARC), naming the social protection scheme as the route for payouts. ARC is an Africa Union facility that pools drought risk across Africa, with donor public finance capitalising the facility with a 20-year, interest-free loan; African governments paying the premiums; and private risk finance covering the insurance payouts. Kenya's social protection programme has not received a payout yet from ARC as the parametric trigger has not been met.

To expand access to **household insurance** products, MGNREGS can consider further innovation, including linking land-holding job cardholders to the farmers' Weather Based Insurance Scheme (WBCIS) India. WBCIS could provide rural households with insurance in exchange for time and labour contributions to build local climate adaptation assets.

The central government could pool the climate risks faced by all Indian states and take out **sovereign weather-based insurance** to transfer the costs of increasing MGNREGS employment days entitlement

in anticipation of climate shocks or increasing wages to match food cost rises in the event of a climate shock. As weather patterns differ across the country, the cost of drought insurance should be less for the country than for most individual states. Basing the insurance on carefully specified parametric triggers – so payments are made swiftly once a condition is met – would reduce the bureaucracy involved in declaring a state drought prone and increasing the MGNREGS employment entitlement, making it quicker and less political. It would also support budget predictability at

the central and state levels, as the insurance company would cover the costs, shifting the financial risk onto the global reinsurance market.

Green debt

Green or climate debt instruments are used to raise money and deliver return on investments specifically from climate or environmental projects.

There has been an increasing rise in global investment in green debt instruments. These are predominantly green bonds, which have risen from under US\$50 billion issuances in 2014 to over US\$150 billion in 2018 (CBI 2019). In India, green bond issuance has risen from roughly US\$1 billion in 2015 to US\$4 billion in 2017 (CBI 2018). Although little green debt investment is flowing into adaptation or resilience (Buchner et al. 2017), there is potential for MGNREGS to aggregate rural assets and finance new asset categories for low-carbon and climate-resilient development that can demonstrate a return on investment.

Green bonds: Corporates, governments, financial and other large institutions can issue green bonds. Guidelines describe investments in sustainable water, waste management, sustainable land use, renewable and energy-efficient infrastructure, clean transportation and climate change adaptation as green (SEBI 2015). All of these are either in line with MGNREGS investment priorities or support the recommendation that MGNREGS should invest in new infrastructure categories for low-carbon and climate-resilient development. The Indian government could consider issuing a green or resilient bond to leverage private sector investment in climate-resilient infrastructure created under MGNREGS.

Four entities in India have issued green bonds, raising US\$3.3 billion for investment in renewable energy and sustainable transport systems (Table 4). All have been oversubscribed, indicating investor appetite for green initiatives in India.

Development impact bonds (DIBs): Also increasingly used to stimulate private debt investment into social and environmental initiatives, DIBs are results-based payments by public investors to encourage private sector innovation. Development partners and governments can use DIBs to incentivise private investors to invest in interventions that achieve agreed social and environmental outcomes, with the public investor paying an agreed amount to the investors upon these being delivered. These are public-private partnerships, where private investors raise capital upfront for projects or services that deliver defined improvements in environmental or social outcomes.

Rajasthan launched the world's first DIB for the health sector in 2017, with a US\$8 million DIB from USAID supporting better maternity care provision outcomes in rural areas.¹

The Indian government can use DIBs to encourage private sector investors to scale up investment in clearly defined and measurable resilience outcomes, including creating climate-resilient infrastructure and skills. The Ministry of Housing and Urban Affairs has already issued municipal bonds to raise capital to invest in smart cities.

Table 4. Green bonds in India

ENTITY	CAPITAL RAISED (US\$)	TIME	INVESTMENT
Yes Bank	1.41 billion	2015–2025	Renewables: solar, wind and biomass
Yes Bank	44.5 billion	2015–2025	Renewables: solar, wind and biomass
CLP India	84.78 billion	2020	Wind
EXIM Bank of India	500 million	2015–2020	Sustainable transport projects in Bangladesh and Sri Lanka
IDBI Bank	350 million	5 years	Renewables and energy efficiency, sustainable water, land, waste management and transport

¹ www.usaid.gov/cii/indiadib

5

Conclusion

Growing public sector investment in social protection programmes across the world has helped reduce poverty, increase financial inclusion, improve ecosystem services and empower rural labour. Such programmes can play an important role beyond helping households and communities cope with poverty and marginalisation. By integrating climate risk management into social protection provision, they can also play a central role in helping households and local economies absorb the effects of climate risk, adapt to climate impacts and transform their ability to address escalating and future climate stresses (Agrawal et al. in press).

There is a significant shortfall in the quality and quantity of climate finance, especially that reaching the local level (Soanes et al. 2017 and 2019). Social protection programmes like MGNREGS provide the financial mechanisms and planning processes to empower vulnerable rural households, allowing them to absorb, adapt or even transform their resilience to increasingly frequent and intense climate hazards (Kaur et al. 2019).

MGNREGS' bottom-up and transparent planning aims to empower vulnerable women-led, tribal and scheduled caste households to prioritise when they should undertake paid labour and what rural infrastructure to build. There are also other innovative design features that could help climate finance deliver improved resilience outcomes.

This report identifies the possible sources of climate finance and more effective ways of using them to ensure MGNREGS can use nine resilience-strengthening recommendations to deliver benefits to India's rural poor and maximise development outcomes despite climate change.

Scaling up MGNREGS' contribution to climate resilience will require climate finance, delivered through its existing financial architecture to the centre, state or directly to households to:

- Build and package weather and climate information services to support anticipatory wage employment, climate-resilient asset creation and strengthening MGNREGS decision making and planning
- Strengthen M&E systems to monitor the climate benefits delivered through MGNREGS development interventions
- Top up wage and material budgets to deliver climate-responsive wages and assets respectively, and
- Top up or complement administrative funds to build climate-resilient and low-carbon skills among MGNREGS functionaries and job cardholders.

There needs to be further research to better understand the improved use of existing budgets and new financial sources and products MGNREGS can best layer to deliver efficient and cost-effective resilience. But our initial findings suggest the finance could come from:

- **Existing administrative budgets:** States can make more effective use of MGNREGS administrative funds, especially to support new skills among functionaries and job cardholders.
- **Domestic climate finance:** Funds allocated to India's national climate missions under the NAPCC and adaptation finance under the NAFCC are already providing finance to interventions that cross over with MGNREGS tools and resilience opportunities. Converging these domestic sources of finance could help improve India's climate finance spend and MGNREGS' development outcomes.
- **Private finance:** There is a wide range of possible private finance sources and instruments that MGNREGS could use. Initial mapping indicates that the existing MGNREGS architecture could deliver risk finance in the form of insurance to the rural poor at increasing scale, which would help pool the risk of increasing demand in the face of escalating climate risks. Emerging sources of green finance – including green bonds and associated development impact bonds – could also leverage new sources of private finance, particularly for creating new low-carbon, climate-resilient assets.

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Acronyms

DIBs	development impact bonds
DFID	UK Department for International Development
fintech	financial technologies
IIED	International Institute for Environment and Development
M&E	monitoring and evaluation
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MoEF&CC	Ministry of Environment, Forest and Climate Change
NABARD	National Bank for Agriculture and Rural Development
NAFCC	National Adaptation Fund for Climate Change
NAPCC	National Action Plan on Climate Change
WBCIS	Weather Based Insurance Scheme

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is already delivering climate resilience to India's rural poor. This report investigates how MGNREGS can use climate finance to deliver improved resilience and maximise its development outcomes to reach the rural poor at scale, enabling better spend of India's climate finance. It also explores how MGNREGS can unlock new sources of private finance for low-carbon, climate-resilient development that is owned and delivered by rural households.

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