

Decentralising Climate Funds (DCF)



Understanding local demand for resilient development

Near East Foundation consortium under the Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme



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List of Acronyms

BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
DCF	Decentralizing Climate Funds
DfID	Department for International Development
IED-Afrique	<i>Innovations Environnement Développement-Afrique</i>
IIED	International Institute for Environment and Development
NEF	Near East Foundation
NGO	Non-Governmental Organization
NRM	Natural Resource Management

Introduction

Working in Kaffrine, Senegal and Mopti, Mali, the Decentralizing Climate Funds (DCF) project supports communities to identify, fund, implement, and monitor investments that will help address challenges brought about by climate change. Through an iterative process, communities articulate their development priorities, framed

in the context of resilience-building, and identify investments in public goods that improve their resilience.

In this paper, we present findings from a survey designed to deepen our understanding of communities' existing practices and development priorities linked to resilience.

Methodology

DCF conducted a baseline survey of just over 600 households as part of project monitoring and evaluation work in November 2015. In June 2016, we conducted a follow-up survey on development experience in Mopti with 300 of the 400 households interviewed in the baseline. In December 2016, we conducted the follow-up survey in Kaffrine with 204 households, all but 6 of which were interviewed in the baseline. The remaining 6 were selected to replace households that were not able to be interviewed during the second visit; they were selected based on similarity to the missing household.

We asked about existing practices for coping with climate variability¹ and any assistance the households had received in developing these practices. Respondents were asked to rank the importance of various strategies and to present the degree to which they attribute different practices to having received outside assistance in terms of materials or training.

We also inquired into respondents' perspectives on the effectiveness of past assistance that they did receive. We seek to understand what, in their view, development has looked like in their local context. We ended the survey by eliciting their preferences for future assistance for improved resilience.

¹We note that climate variability is related to, but not the same as, climate change.

Results

In the study area, households largely rely on cultivation and livestock for their livelihoods. In our baseline survey conducted in 2015, eighty-two percent listed cultivation as their primary economic activity, while 9% identified livestock production and 2% reported fishing. For their secondary economic activity, 32% listed livestock production, 15% identified cultivation, and 2% reported fishing. Household livelihood strategies are generally diversified; the average household listed 2.5 different economic activities in their portfolio.

We opened the 2016 development survey by asking each respondent questions about a set of practices that they have used in the past five years to confront climate variability in their economic pursuits. Five years was selected to focus on any more recent adaptations. Table 1 present the percent of households in each country who responded that they had used a given practice and the percent of households who reported receiving any assistance from NGOs, government, or other organization associated with this practice.

There are some broad similarities across households in the two countries. In Mali, the most common practices are seed storage in household granaries and crop diversification. In Senegal, the most common practice for dealing with climate variability is crop rotation, with the application of organic fertilizer as a second most common practice. There also are a few notable contrasts. In general, the farmers in Senegal are more reliant on inputs and practice a more intense form of cultivation – for example, the heavier reliance on crop rotation, animal traction, and fertilizer. In Mali, farmers rely heavily on practices related to water management – reflecting both the common occurrence of drought and the importance of the water resources that are part of the Niger River and Inland Niger Delta farming system.

We also asked questions about practices for livestock production. In Table 2 we list both the reported practices (strategies households used to raise livestock in the past five years) and respondents' reported experience with development assistance (meaning training, materials, or any other kind of support received by the household to implement a given practice).

Both country samples indicate heavy reliance on vaccinations and animal fattening. Transhumance is more common in Mali, suggesting that mobility is a more important strategy among pastoralists there. While it is clear that there are similarities and contrasts in practices between countries, we also note that the role of assistance is again more pronounced in Mopti Region than it has been in Senegal's Kaffrine Region. Across all categories, respondents in Kaffrine reported little outside assistance from development agents.

We next asked about the impact on household well-being of any outside assistance experienced in the past 15 years. The longer time span was selected to capture their development experiences more broadly. We asked respondents to indicate whether they had experience with a range of development assistance activities. Respondents were asked to divide any 'no' responses into two types: 'no but I don't need it' or 'no but I need it'. We also asked them to divide 'yes' responses for when they had received assistance into the following categories: 'yes but negative impact', 'yes but no impact', 'yes with a small positive impact', and 'yes with a large positive impact'. Figure 1 illustrates the percent of households responding that they had received assistance with a particular activity ("yes" answers by category of yes answers.) for Mali; Figure 2 provides this information for Senegal.

Table 1: Percent of households practicing cultivation activities to cope with climate variability and the percent reporting that they had received assistance with the practice from NGOs, the government, or other organizations in the past five years in Mali and Senegal, with top five responses (by frequency of reporting) in bold.

Cultivation activities	Mali		Senegal	
	Practice	Assistance	Practice	Assistance
Seed Storage in Home Granary	70%	25%	73%	0%
Add a new crop (diversification)	67%	18%	53%	2%
Use organic fertilizer (green or manure)	67%	16%	92%	2%
Use traction animals	66%	24%	91%	0%
Increase the cultivated area	65%	23%	42%	0%
Use chemical fertilizer	64%	27%	80%	7%
Gardening in an enclosed irrigated area	63%	39%	29%	4%
Conserve and manage water (le zai, la demi-lune, le terrasse)	58%	24%	6%	0%
Replace one crop with another	57%	19%	51%	1%
Crop rotation	53%	20%	95%	0%
Use community grain storage facility	52%	18%	50%	1%
Protect crops from flooding	50%	16%	18%	0%
Grow grains in enclosed irrigated area	47%	25%	8%	0%
Adopt short cycle crops	46%	18%	59%	2%
Dig canals to bring water to rice fields in rainy season	44%	22%	1%	0%
Use other inputs (herbicide, fungicide, etc.)	43%	17%	47%	0%
Adopt improved seeds with higher yields	35%	16%	47%	5%
Disperse crops in the toposequence	24%	16%	59%	0%
Recessional flood cultivation	20%	24%	0%	0%

Table 2: Percent of households practicing livestock management activities to cope with climate variability and the percent reporting that they had received assistance with the practice from NGOs, the government, or other organizations in the past five years in Mali and Senegal, with top five responses (by frequency of reporting) in bold.

Livestock management activities	Mali Practice	Mali Assistance	Senegal Practice	Senegal Assistance
Livestock vaccination	79%	13%	77%	2%
Animal feeds for fattening	58%	21%	30%	0%
Animal manure contracts	57%	10%	10%	0%
Livestock loaning / entrustment / exchange	57%	0%	35%	0%
Animal seasonal migration	55%	8%	16%	0%
Animal feeds for milk production	36%	18%	30%	1%
Selective reproduction of animals	26%	12%	25%	0%
Growing animal fodders	25%	11%	24%	0%
Using bourgou areas	25%	8%	0%	0%
Modify sex composition of herd	24%	15%	27%	0%
Modify species composition of herd	23%	15%	27%	0%

There is some consistency across the two samples. In particular, we can see establishing and managing water points are in the top five most common development interventions for each country. This is also the case for primary education. In contrast, in Senegal vaccination of animals and secondary school round out the top five, while in Mali establishment of a health center and maternity are identified.

A few specific results merit further discussion. One, in both countries, a sizable share of respondents noted that climate information was something they had experienced, but felt it had little impact. One interpretation is that climate information needs to be coupled with the ability to act upon this information or it will have limited impact. If this is correct, this means in our programming we should ensure that we link practices and technologies to

climate information to ensure access to climate information is allowing households to adapt, avoid, or absorb changing climate conditions.

Another result to note is that for Mali, irrigated cultivation is not viewed as having delivered a large benefit to these communities in the past. As irrigated cultivation is one possible response to changing climate conditions, it is important to understand what has limited its impact, or even caused harm, in the past.

Finally, it is notable that many of the livestock production oriented items (feeds, feed storage, migration paths, grazing areas, and livestock markets) illustrate these kinds of activities have had mixed results in many cases, and do not deliver large positive outcomes to the extent one would have hoped given the prevalence of livestock production in these areas.

²For example, see UK's DFID KPI 4: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/328254/BRACED-KPI4-methodology-June2014.pdf

Figure 1: Percent of households in Mali reporting experience with categories of development assistance in the past 15 years and the impact on such assistance on their community's resilience.

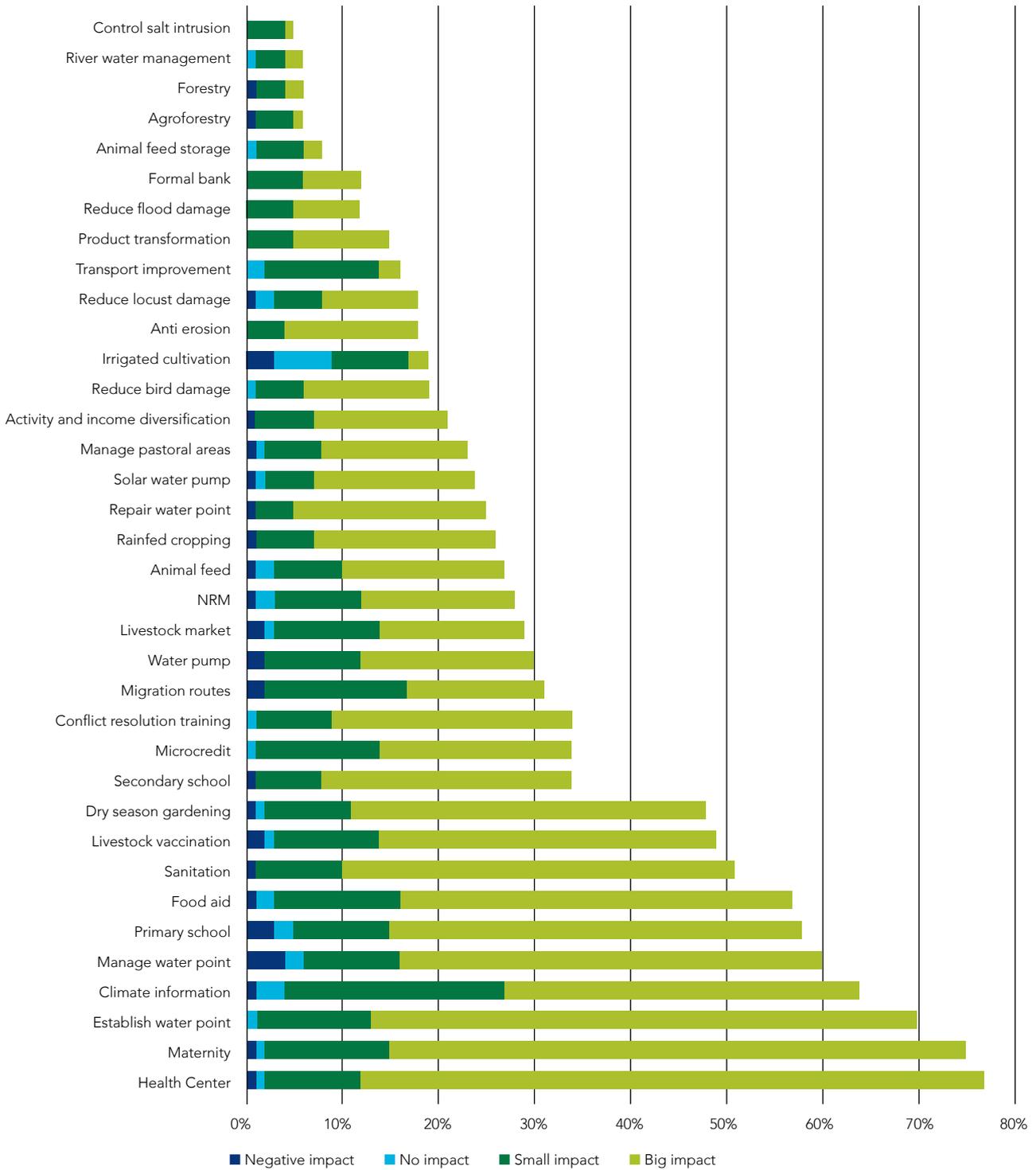
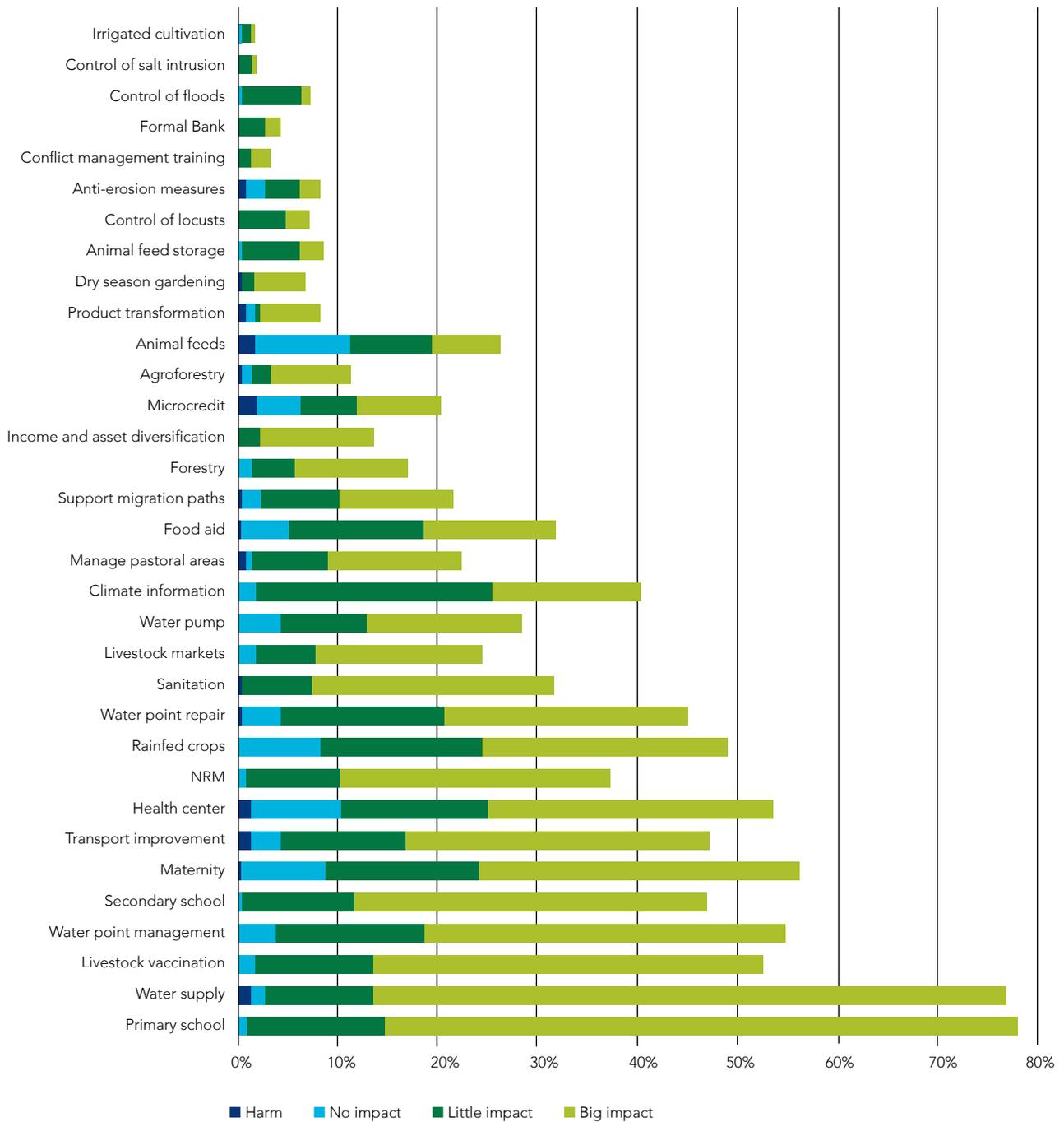


Figure 2: Percent of households in Senegal reporting experience with categories of development assistance in the past 15 years and the impact on such assistance on their household well-being.



We followed this question by asking respondents an open-ended question to identify and rank the types of support that they thought had been for enhancing the resilience of members of their community in the past 15 years, and then to identify those that would be the most helpful

for enhancing the resilience of members of their community over the next 15 years. Because this question was open-ended, we categorized the responses into certain thematic groups. Figure 3 compares these interventions for Mali; Figure 4 for Senegal.

Figure 3. Ranking of categories of intervention that have (dark green) and will (light green) best support community resilience over 15 year periods for Mali. The ranking is normalized on a [0,1] interval, where 0 means a strategy was not placed in the top five, 1 means it was ranked highest, and a fraction is allocated to other items in the top five that are not the top ranked.*

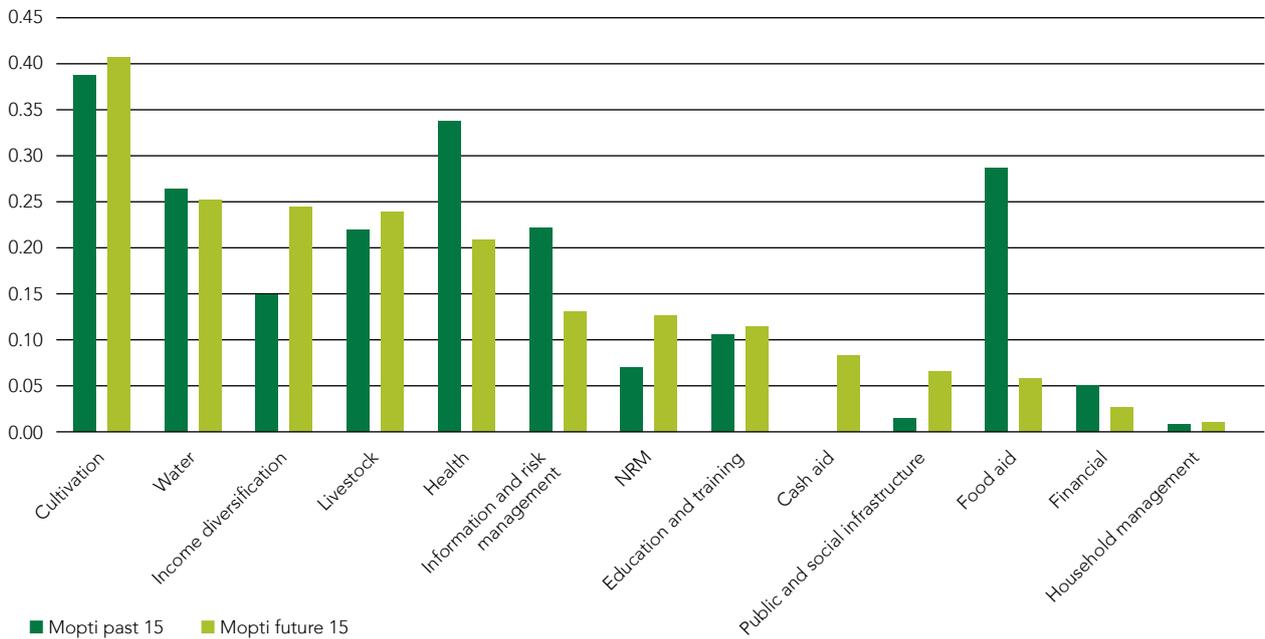
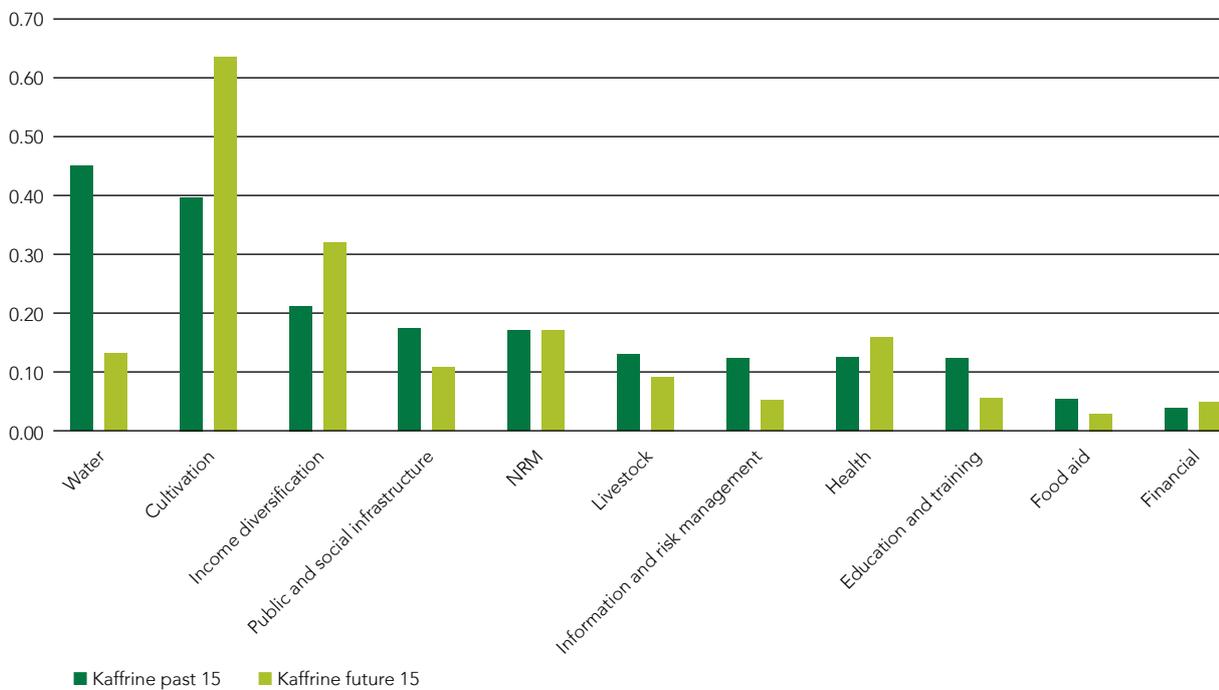


Figure 4. Ranking of categories of intervention that have (dark green) and will (light green) best support community resilience over 15 year periods for Senegal. The ranking is normalized on a [0,1] interval, where 0 means a strategy was not placed in the top five, 1 means it was ranked highest, and a fraction is allocated to other items in the top five that are not the top ranked.*



* If there are 5 items ranked, 1=1, 2=.8, 3=.6, 4=.4, 5=.2. If there are 4 items ranked 1=1, 2=.75, 3=.5, 4=.25, and so on.

In both Mopti and Kaffrine, assistance in cultivation and water management are the dominant priorities for future assistance, and also the most highly valued type of past assistance in terms of resilience. Similarly, the income diversification and livestock categories were ranked highly for future potential in both countries. In addition to highlighting the central importance of access to water, the stated priorities suggest that households link their community's resilience to the health of the regions' dominant economic sectors – agricultural and livestock – which underpin both economic well-being and food security. But they also value support for diversifying sources of household income. Given the linkages among production, income, food security, and resilience at the household level and among functioning markets, food availability, and resilience at the community level, these priorities are perhaps unsurprising.²

In the context of the DCF project, which establishes local climate adaptation funds that support public goods investments, these results suggest a need to consider how public goods can support economic resilience (e.g., markets, water infrastructure, management systems, vaccination parks etc.) – both in existing economic sectors and in growth areas. In both countries, the greatest future concern was for investment in cultivation. There are aspects of cultivation – demonstration plots, irrigation infrastructure, seed and grain storage facilities, training about knowledge about improved inputs and techniques – that can be designed to be non-exclusionary and non-rival (and therefore fit the public goods criterion associated with the local climate adaptation funds).

A second finding worth noting is that, in both countries, there are categories that are ranked higher for the past than for the future. In Mali this is visible for Food Aid and Health. The food aid pattern may indicate that if investment is made

in cultivation, livestock keeping, and income diversification, there will be less need for food aid. For the health result, it is possible that the change in ranking from the past to the future indicates that the needed basic health investments have been made. In Senegal this pattern is most pronounced for water. This can be explained by the major investments that have been made in Senegal over the past 15 years in water systems. It is visually evident when visiting villages in Kaffrine that the old village wells have been decommissioned and sealed, replaced by a system of taps.

Interestingly, access to financial services was listed among the categories for future support, but it was among the lowest ranked categories. We interpret this result as indicating some in these communities have had limited experience with financial services such as formal banks. However, it is also true that microfinance is identified by a reasonably large share of the sample in both Mali and Senegal. In discussion with DCF project teams in Mali and Senegal they noted that in some cases, households have taken out microcredit loans to cover consumption needs and fallen behind in repayment. In some cases (notably the dark blue shaded area of figure 2) microfinance is associated with 'harm'. This merits further investigation to more fully interpret these results.

Natural resource management lies near the center in both countries. As evidenced in a related study of these sites (McPeak and Abdella, 2017), there is a great deal of diversity in the use of natural resources, as well as the assessment of the degree to which the management systems function. Climate information falls into the risk management category and is in the middle of the ranks for both countries. Overall there is some desire to have information that allows actions which reduce risk exposure.

Conclusion

These analyses begin to shed light on the experience of local communities with past development interventions, and the diversity of their demand for future assistance to build resilience. Future analyses of these data will explore the extent to which variation in assessments of past project impact and future development priorities

varies at the individual, household, or community level. To what extent are priorities shared within these communities? This diversity of experience and demand is important and can inform efforts to identify and support public good investments that build resilience at the community level.

References

McPeak, J and J Abdella (2017) Resilience and its correlates. NEF, NY.

Organisations



Near East Foundation (NEF)

For over 30 years, NEF has developed sustainable, community-based approaches to manage forests, fisheries, rangelands, and agricultural lands in Mali. Operating out of a principal office in Sévaré, the NEF team of approximately 40 development professionals works to implement programs that are consistently community-based, participatory, and multi-sectoral.

NEF also coordinates a national-level working group on climate adaptation and assists Mali's government in climate policy – including participating in Mali's official delegation to international climate negotiations. NEF's headquarters in Syracuse, United States, provides overall project management and governance oversight to the consortium.



Innovation, Environnement, Développement (IED Afrique)

IED Afrique is an independent not-for-profit organisation based in Senegal. The organisation builds on fifteen years of experience in francophone West Africa and works on issues related to sustainable development and citizenship in Africa by prioritising methodological and participatory innovations.



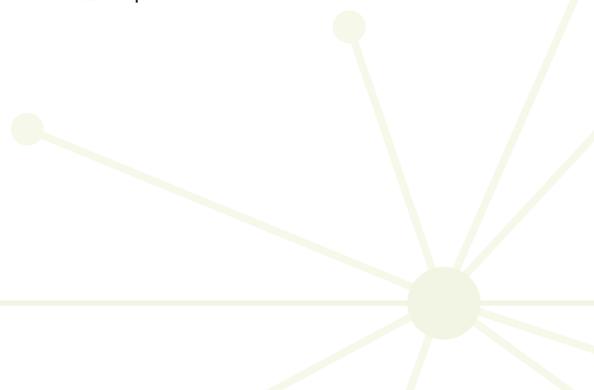
International Institute for Environment and Development (IIED)

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.

Published by Near East Foundation, December 2017

McPeak, J (2017). Understanding local demand for resilient development. NEF, New York.
www.near-east.org/download/materials_center/WorkingPaper_Local_Demand_En.pdf

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Syracuse, New York 13202 USA
Printed on recycled paper with vegetable-based inks.



Decentralising Climate Funds (DCF)

Decentralising Climate Funds (DCF) is an action-research and advocacy project supporting communities in Senegal and Mali to become more resilient to climate change through access to locally-controlled adaptation funds. It is part of the UK government-funded BRACED programme and is implemented by the Near East Foundation (NEF) with Innovation, Environnement et Développement en Afrique (IED Afrique) and the International Institute for Environment and Development (IIED).

To find out more:

We will be sharing lessons and experiences from this project through a variety of different publications which will be made available online:

www.neareast.org/braced

Further reading:

Case Studies: Building resilience at the local level: community-prioritised investments in adaption
http://www.neareast.org/download/materials_center/Case_Studies_En.pdf

Policy Brief: Family portraits: a tool for understanding local adaption strategies
http://www.neareast.org/download/materials_center/Family_Portraits_Senegal_brief_En.pdf

Working Paper: Tools for resilience assessments and climate-sensitive local planning
http://www.neareast.org/download/materials_center/EV_Senegal_Working_Paper_En.pdf

Accessing resilience: reconciling community knowledge with government planning – Policy Brief
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Decentralisation of climate adaptation funds in Mali – Fact Sheet
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December 2017

Working
Paper



This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.