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Taking Effective Community-based Adaptation to Scale: An assessment of the GEF Small Grants Programme Community-Based Adaptation Project in Namibia

Dr. Saleemul Huq, Director
Lucy Faulkner, Independent Consultant and Visiting Researcher

International Centre for Climate Change and Development (ICCCAD)

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Executive Summary

This report is an exploratory study on scaling up and scaling out the GEF SGP community-based adaptation (CBA) project, implemented by UNDP. Using Namibia in sub-Saharan Africa as a case study, this report identifies which processes used and results obtained are effective, and therefore hold the most potential for going-so-scale both in terms of scaling up (influencing higher level policy and in-country decision-making by mainstreaming community level planning and adaptation practice to climate change into national planning and programming systems) and scaling out (the horizontal expansion and replication of successful CBA within countries and between communities from local to national scale, as well as across national boundaries). A comprehensive roadmap for scaling up and out successful CBA project practices is included.

The underlying importance of this process is to show why this is necessary in the current landscape of CBA planning, programming and funding architecture: even effective CBA projects do not add up to much in terms of aggregated results and lasting adaptation impact if they are not taken to scale. The majority of CBA interventions to date are small stand-alone activities that if successful create localized benefits for a small number of project stakeholders at micro level. However, they will fail to contribute significantly towards building sustainable climate resilience across sectors and stakeholders at macro level if not scaled up and out. This shift in CBA operational practice is key if the Millennium Development Goals, and the delivery of development assistance that contributes towards supporting the long-term adaptation of climate vulnerable poor groups to uncertain climate change risk factors is to be realized.

Fieldwork results show that the UNDP/GEF SGP CBA project, implemented by local SGP grantee partner Creative Entrepreneurs Solutions (CES) in north-central Namibia, is effective – both through the processes used and the results obtained. It has strategically sown the seeds that focus on building "transformed resilience" at localized level across three key spectrums of scale to which scaling up and out are integral:

i) **Geographic scale**: Resilience is achieved beyond isolated CBA projects. CBA is mainstreamed into long-term institutional structures, and activities are replicated beyond immediate project boundaries.

ii) **Time scale**: Resilience is sustainable, with climate vulnerable poor communities continuing to maintain and build resilience after project activities have finished.

iii) **Beyond business as usual approaches**: Resilience-building challenges existing development and disaster risk reduction (DRR) approaches, and re-targets efforts towards building the adaptive capacity of the climate vulnerable poor to long-term uncertain climate and other risks, not just current risks.

As "transformed resilience" results in climate vulnerable poor communities being able to adapt to long-term uncertain future climate change impacts through sustainable adaptation strategies, these findings are significant. An entirely transformative approach to CBA has been undertaken, with no elements of this project considered 'business as usual.' This is valuable, as it means that progression beyond the delivery of conventional development and DRR approaches that largely lack the ability to build sustainable climate resilience in an uncertain adaptation environment have been used.

In practice, this means among others, that the key basic needs of the poorest and most marginalized people vulnerable to climate change have been addressed; project participants have been meaningfully engaged in project planning processes through strong participation and have been empowered to ensure that their knowledge and demands are reflected in project decision-making processes; access to scientific information on climate variability and climate change in an appropriate format and language has been used to support the development of community adaptive practice; effective project design has utilized spaces for knowledge sharing and knowledge transfer to support the scaling up and scaling out of effective CBA processes and practice; and moving beyond a short-term projectized focus to planning towards a longer

term vision that has considered scaling up from the outset, which has been supported through integrated approaches that have engaged with relevant institutions from local to national scale, has been achieved.

This has yielded strong results. This includes proven increased food security during national government declared severe drought contexts, and community perceptions of increased ability to cope with and adapt to increasing drought and flood conditions. Moreover, evidence reveals that scaling up and out of CBA strategies have occurred at micro level based on their strong success, with private sector and local institutional engagement backing community drive to take effective project components to scale. Progress is currently being made towards upscaling project components focused on conservation agriculture, CBA education in schools, the energy efficient EzyStove and the micro-drip irrigation system through strategic in-country coalition partnership building with like-minded allies, and where needed, the initiation of advocacy to key political institutional influencers of change to create a necessary enabling environment for scaling up and out to occur. Furthermore, results show that certain project components hold potential for scaling up and out not only at country level, but also at international scale in accordance with context specificity.

This on the ground reality shows that the UNDP/GEF SGP CBA project implemented by CES in Namibia holds potential capability to move from micro to macro level impact. However, despite these successes, the limitations of the project need to be recognized. Reaching initial project goals may be strong, but aggregating adaptation impact at sub-national, national and even potentially international level, is not as yet. There is only so much that can be achieved within existing institutional and fiscal boundaries that keep initiatives as small islands of success. For the UNDP/GEF SGP CBA project not to end up as a "pilot to nowhere," GEF SGP is presented with a golden opportunity to play a catalytic role in building upon the successes generated by the project, and thereby supporting scaling up and out of key effective project components that will strengthen national programme and policy impacts for adaptation by mainstreaming localized pilot project components into sub-national and national planning and programming systems.

To achieve this, a strategic shift in institutional mindset of the SGP and its funding-base is recommended. Although it is ultimately local actors that need to scale up successful CBA interventions, aid donors have a special responsibility to take a lead in supporting the scaling up agenda in order to achieve sustained adaptation impact at macro level. There may never be enough resources and funding available to support everyone that is vulnerable to climate change impacts, therefore SGP and its funding-base need to systematically review their operational policies and approaches and be strategic in terms of where and how efforts are to be focused if they are to move from operationalizing individual localized projects, to a pool of effective CBA interventions set within a landscape that can build more significant and sustained adaptation impact for an increased number of climate vulnerable people over time. To support this process, the following recommendations are made.

Recommendations for SGP and its funding partners

1. Follow an investment portfolio model. Small projects are good in themselves in that they fully consider the needs and fully utilize the assets of those that would be directly impacted. But as impacts and needs for community-based adaptation also cover large areas, there is need for scaling up and out. Thus CBA funding mechanisms should allow for a mix of support with 70% - 80% spent on small-scale community-based projects and 20% - 30% on strategic follow up activities that build upon successes gained and scaling them up and out. This latter approach is likely to achieve more desired ultimate outcomes by continuing to build on successful locally-generated CBA experience in different adaptation contexts with the required structure in place to support local implementing NGOs to scale up and out successful pilot strategies. This requires an institutional shift from having expectations to be praised for small successes with no clear proactive focus for scaling up and out, to focusing on the larger strategic landscape of programmatic objectives and resource utilization together with attracting future funding to reach ultimate goals across stakeholders and scales for transformative development impacts that embrace built-in resilience for sustainability of efforts. Looking at the Namibian context, the UNDP/GEF SGP CBA pilot project has

produced effective results with scaling up and out occurring based on its inherent focus on going to scale from the outset. Yet current funding mechanisms do not support expanding success in line with locally-driven demand. This investment portfolio model will therefore help shift effective micro level success into macro level impact that helps build sustainable climate resilience across a broader spectrum of sectors and stakeholders by mainstreaming local CBA effectiveness into business and usual institutional planning and programming systems.

2. In particular therefore, it would be excellent if **GEF's involvement in supporting CBA is mainstreamed into the GEF funding process to allow access for CBA investment from more established adaptation funds that are financed by other GEF windows and adaptation fund boards.** The UNDP/GEF SGP CBA pilot project in Namibia, as with all projects in other pioneer CBA countries under the overall UNDP/GEF SGP CBA project, was funded through the SPA window to facilitate bottom up lesson learning on effective CBA that can potentially support policy-level decision-making processes. This report supports that this objective can be achieved based on a strong empirical evidence-base, if fiscal support for CBA can be applied for and received from longer term funding sources so scaling up and out can take place. Going-to-scale is a long-term process that requires long-term funding commitment. As even effective CBA projects at small scale will not be able to evolve into stepping stones for deeper development and adaptation impact if not strategically scaled up and out over time, the next phase of funding for CBA should at most be from more long term established adaptation funds, such as the SCCF, LDCF, AF and GCF, in order for progress towards this goal to be made.

3. It is also expected that future SGP engagement on CBA projects should **move from a focal area funding approach towards a cross-sectoral impacts-based strategy.** Current core GEF funding to the SGP focuses on five fundamental focal areas (Biodiversity**;** Climate change (mitigation); Land degradation; Sustainable forest management; International waters; and Chemicals) with no specific references for phased out adaptation funding. Most ongoing adaptation projects, including those currently implemented in 38 SIDS countries, 10 geographically representative countries under the SPA project and in nine countries in Asia and the Mekong delta, are primarily resourced by co-financing sources that ideally require the matching of GEF funds in a more systematic way in the future for improved project effectiveness and efficiency. Moreover, the proposed approach for future CBA funding in the above two recommendations is supported by taking a cross-sectoral approach, while keeping adaptation to climate change as the entry point. This is because most activities at country level need to cut across many sectors in practice. Shifting funding focus from a focal area approach towards a cross-sectoral impacts-based strategy that cuts across the existing focal areas is therefore recommended.

In addition to the above recommendations, the following suggestions are made to assist UNDP/GEF SGP and its local grantee partner, CES, in facilitating further progress towards "transformed resilience" for the climate vulnerable poor groups they have worked with in Namibia. These recommendations focus on changes that will support the scaling up and out of improved CBA pilot project practice.

Recommendations for the GEF SGP CBA project implemented by UNDP in Namibia

1. **More regular and systematic UNDP Climate Change Toolkit training is needed at local level as confirmed by all stakeholders engaged in the pilot project.** The UNDP Climate Change toolkit used during the UNDP/GEF SGP CBA pilot project has provided a strong basis for generating useful climate change information for local stakeholders. This is because it merges scientific climate change information with that locally-generated by project participants to develop 'new' knowledge that moves towards transformative adaptation to climate change. It is this knowledge that will inform the design of feasible, credible and useful adaptation options. However, leveraging changes in knowledge and capacity in order to facilitate sustainable adaptation practice cannot be produced through a limited number of training sessions. More targeted climate change training is therefore needed at local level to support communities to develop more forward-thinking climate change foresight that incorporates a longer term time horizon. Moreover, it is recommended that training given is verified through appropriate assessment mechanisms. Understanding

that knowledge has been successfully imparted is important. This will facilitate the progression of stakeholders to undertake higher levels of training as their capacity increases over time.

2. **Empower climate vulnerable poor groups to articulate to the scientific community what information they require for future adaptation planning.** To strengthen the recommendation above and to blend local and scientific climate information on a more sustainable basis, the scientific community needs to be aware of what information is needed at the local level by different stakeholders engaged in different adaptation strategies. This recommendation would facilitate a bottom up approach to scientific climate data analysis that addresses community needs. Fieldwork results show that improved access to such climate change information is required by community stakeholders engaged in NSCT practice.

3. **Capacity build identified relevant scientific institutions to fulfill community climate knowledge demands.** This suggestion is required in order to achieve recommendation (2) above. If community demands are to be effective, identified scientific institutions need to possess the capacity to fulfil them. This follows on to a further key point for the Namibian context: investment in national-level capacity to generate locally appropriate evidence is vital. This requires harnessing national level expertise around vulnerability and climate science.

4. Empower climate vulnerable poor groups with tools to collect climate-related information for themselves. This recommendation will further support the generation of local climate knowledge. It is not just "what" is being done that is important, but "why" and "with what knowledge" that is key. As CBA is a community-driven process that is done by communities themselves, this suggestion will provide new insights into current and potential future risks that will force project participants to look beyond past experience and to consider the limitations of past adaptive solutions. This may include initiating and building upon existing community weather stations that track changes in climate over time.

5. More regular and systematic NSCT training is needed at local level as confirmed by all stakeholders engaged in the pilot project, including mainstreaming climate change knowledge into agricultural processes and practice. In addition to further UNDP Climate Change toolkit training, further knowledge and capacity building on NSCT is also stated to be required. This will support the development of transformative agricultural practice through enhanced understanding for those community stakeholders currently undertaking NSCT by copying practice. Scaling up and out of practice with new knowledge driving the change in practice reflects an adaptive paradigm rather than one focused on coping. Moreover, more advanced iterative training is required for farmers that have already mastered initial NSCT processes. Similarly, and linking with recommendation (2) above, climate change knowledge is also to be integrated into all existing NSCT processes and practices. Current evidence shows that this capacity is currently lacking by project participants with the need for it to be so articulated.

6. Follow up with established leads to continue moving forwards with scaling up and out on the ground. In order to continue building on the strong basis already developing for taking effective project components to scale, continue to look for partners in-country with the requisite skill set for either, or both, scaling up and out as required. This includes continuing to identify and engage with potential like-minded allies for coalition building with evidence from the existing pilot project to be used by them for policy advocacy. As highlighted through the scaling up and out framework in Part III of this study, this includes, for example, following up with the Ministry of Agriculture, Water and Forests Extension Officers who confirmed the improved pearl millet yield cultivated during severe drought contexts by project farmers who were responsible for disseminating this information to colleagues in Windhoek with greater influence over policy outputs.

Acronyms

ACC	Adaptation to climate change
ACV	Adaptation to climate variability
ARCAB	Action Research for Community Adaptation in Bangladesh
BAU	Business as usual
CA	Conservation Agriculture
CBA	Community-based Adaptation
CBA5	The Fifth International Conference on Community-based Adaptation
CCA	Climate change adaptation
CES	Creative Entrepreneurs Solutions
CONTILL	Conservation Tillage Project – Namibia
CoP	Conference of Parties
CVP	Climate vulnerable poor
DRR	Disaster Risk Reduction
ETSIP	Education and Training Sector Improvement Programme
FGD	Focus group discussion
GEF	Global Environmental Facility
GRN	The Government of the Republic of Namibia
ICCCAD	International Centre for Climate Change and Development
IPCC	Inter-governmental Panel on Climate Change
KII	Key informant interview
MDGs	Millennium Development Goals
MAWF	Ministry of Agriculture, Water and Forests
M&E	Monitoring and evaluation
MET	Ministry of Environment and Tourism
NGO	Non Governmental Organization
NSC	National Steering Committee
NSCT	Namibia Specific Conservation Tillage
PoN	Polytechnic of Namibia
RSA	Republic of South Africa
SHG	Self Help Group
SHG CCs	Self Help Group Cluster Coordinators
SGP	Small Grants Programme
SIDS	Small Island Developing States
SPA	Strategic Priority on Adaptation
TOC(s)	Theory (Theories) of Change
UN	United Nations
UNAM	University of Namibia
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNV	United Nations Volunteers
VRA	Vulnerability Reduction Assessment

Introduction

Shifting economies of scale for community-based adaptation and UNDP/GEF SGP

The topic of adaptation to the potential adverse impacts of climate change has grown in importance over the last decade first in developing, and then in developed country contexts, as evidence becomes clearer that climatic impacts are inevitable in the near term.

As adaptation planning started in different countries at different scales, from national to sectoral to local, the arena of community-based adaptation (CBA) became an important element in the adaptation landscape. Although still a relatively new field of study, CBA interventions are multiplying in quantity and quality as an increasing number of institutions and organisations become proponents of this bottom up approach that targets the climate vulnerable poor – the poorest and most marginalised people living in regions that are vulnerable to climate change and who have low adaptive capacity,[1] including those who may be tipped into poverty and vulnerability by climate change risk factors (Ayers and Huq 2013; ARCAB 2012).

In line with the ethos upon which CBA initiatives are built, in other words the identification, generation, implementation and management of community-driven adaptation strategies developed through active participatory processes that strengthen climate vulnerable poor adaptive capacity by addressing both climate change impacts and development deficits[2] (Ayers and Huq 2013; Reid et al. 2009), the majority of CBA interventions to date are small stand-alone activities that operate at a localised scale and often with isolated impact. Successful pilot initiatives create localised benefits for a small number of project stakeholders at micro level, but they will fail to contribute significantly towards creating a wider and more sustainable adaptation impact that builds climate resilience across sectors at macro level if not taken to scale (Linn 2012b). This shift in process is critical if the Millennium Development Goals (MDGs) and the delivery of development assistance that contributes towards supporting the long-term adaptation of climate vulnerable poor groups to uncertain climate change risk factors is to be realized.

The need to move the adaptation scaling up dialogue from strategic theory to concrete practical operationalization is therefore gaining strong momentum. Donor demands are increasingly warranting a change in focus from the project minutia to the bigger picture (Linn 2012c). What going-to-scale means in the context of CBA, and how it can be achieved, is of particular relevance for the Global Environmental Facility (GEF) Small Grants Programme (SGP) CBA project implemented by the United Nations Development Programme (UNDP).[3] The overall goal of this internationally implemented project is to encourage systemic change in national adaptation-related policy through the generation of evidence-based results of successful CBA at local scale. This provision of useful community-driven evidence of effective practice that demonstrates relevant and realistic in-country solutions is needed so that CBA can be taken up the policy agenda to support local to national decision-making processes around two distinct, but related dimensions that are key to characterizing the CBA debate: "scaling up" and "scaling out" (Ayers et al. 2013; Anderson et al., 2011).

Vertical "scaling up" refers to sharing lessons and thus influencing higher level policy and decision-making within countries based on community grass-root level experience in planning and adapting to climate

[1] The Intergovernmental Panel on Climate Change (IPCC) defines adaptive capacity as: "The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, and take advantage of opportunities, or to cope with the consequences."

[2] In development deficit situations, people do not have access to the basic assets, institutions and services they need to fulfil their basic capabilities. Addressing the development deficit is therefore a first step in enabling people to cope with and manage the additional stresses presented by climate variability and climate change.

[3] For further details of the UNDP/GEF SGP CBA project, see Part I of this report.

change.[4] This is to be achieved by systematically mainstreaming[5] CBA into government structures, policies and planning processes - a notion that is beginning to become increasingly important in a number of countries. "Scaling out" refers to the horizontal expansion and replication of successful CBA processes and results within countries and between communities, as well as across national boundaries. This may also include adding additional areas of engagement to an existing project (Hartmann and Linn 2008a).

Even though these two activities are mutually compounding and reinforcing, a programmatic or portfolio strategy is required for both scaling up and scaling out in order to foster larger impacts from small scale projects. Immersing CBA initiatives into government systems from local to national level will aid the wide scale expansion and replication of successful initiatives, as they will be systematically supported as part of larger government processes. Nevertheless, the kind of knowledge packaging and dissemination required may differ for each process. By focusing on the replication of a successful model, scaling out would necessitate tools revolving around how to implement activities based on an original example in light of context specificity. Conversely, scaling up would require additional kinds of evidence along with that of a successful model to convince policy makers to change existing policies or institute new ones based on a rigorous critique of the existing policy landscape. Thus the skill set required for drawing lessons for scaling up CBA are different from those required for scaling it out.

With this in mind, scaling up and out CBA efforts need to be strategic if they are to be effective. Laying the right foundations starts with a change in organizational mindset that uses a climate lens to re-think the way existing projectized CBA is done. For CBA to be effective, it needs to build resilience at scale, resulting in climate vulnerable poor communities being able to successfully adapt to long-term uncertain future climate change impacts through sustainable adaptation strategies (ARCAB 2012). This ultimate impact, referred to as "transformed resilience," comprises of building resilience at scale across three key components to which scaling up and out are integral:[6]

- **Geographic scale**: Resilience is achieved beyond isolated CBA projects. CBA is mainstreamed into long-term institutional structures, and activities are replicated beyond immediate project boundaries.
- **Time scale**: Resilience is sustainable, with climate vulnerable poor communities continuing to maintain and build resilience after project activities have finished.
- **Beyond business as usual approaches**: Resilience-building challenges existing development and disaster risk reduction (DRR) approaches, and re-targets efforts towards building the adaptive capacity of the climate vulnerable poor to longer term, uncertain climate and other risks, not just current risks. Among others, this requires bringing on board new knowledge and information that is integrated into decision-making processes across scales, particularly improved scientific information on future climate change impacts blended with community-driven knowledge on past climate trends and links with vulnerability.

To make progress towards "transformed resilience," organisations operationalizing CBA need to focus less

[4] These definitions of "scaling up" and "scaling out" build on Hartmann and Linn (2008a) and have been refined for the CBA landscape during the fifth international conference on community-based adaptation (CBA5). CBA5 was held in Bangladesh in April 2011 with the conference theme being "Scaling Up CBA: Beyond pilots." The aim of the conference was to capture current lessons emerging from project activities to assess what information, skills and tools would be required to ensure that planned responses to climate change reach and benefit climate vulnerable communities on a wider scale than was being achieved at that point in time.

[5] There are many definitions of "mainstreaming." This study uses one proposed by Ayers et al. (2013), that sees mainstreaming as resulting in the *"informed inclusion of relevant climate vulnerability concerns into the decisions and institutions that drive national, sectoral, and local development policy, rules, plans, investment and action. This can be achieved in part through development cooperation – and mainstreaming adaptation into donor portfolios would be part of the alignment process – but the target of mainstreaming is national and sub-national level processes, and the key agents of mainstreaming are national and sub-national government and non-government stakeholders."*

[6] The following text is adapted from ARCAB 2012.

on what their projects do, and more on what their projects leave behind. To establish the long-term legacy of a project, the processes used to deliver CBA and undertake activities and outputs, and the results obtained that indicate whether the implementation of project plans have achieved the desired impact, are key. For example, have the climate vulnerable poor been meaningfully engaged in project planning processes as agents driving adaptation planning design, rather than as recipients of uniform adaptation investments? Have local institutions identified as relevant by the climate vulnerable poor for delivering adaptation services at the local scale been successfully engaged and capacitated to support CBA? Likewise, has the CBA initiative achieved a reduction in vulnerability and an increase in livelihood resilience at scale for climate vulnerable poor groups? Has the project contributed to creating an enabling environment for adaptation beyond project boundaries?

Scaling up and out should only take place after the pilot conducted on a limited scale has been evaluated and found to be effective and efficient. After adapting, and where appropriate simplifying, the pilot is to focus on those aspects critical to its successful scaling up and out (Cooley and Kohl 2005). Further important key questions to be considered are therefore: What if the CBA pilot project works? What then? (Linn 2012c) An assessment of key "drivers"[7] and enabling conditions to be created, including political, policy and partnership "spaces"[8] that ensure that if the pilot project is successful, it can move forwards along planned scaling up and out pathways, is vital from the outset (Hartmann and Linn 2008a). As scaling up and out CBA is also about processes and principles and not just replicating a particular technology or technique that works (Steele et al. 2008), it needs to be planned for from the time of the initial investment. Failure to do so increases the chance that a scaled up and out activity may fail (AusAID 2012). If a project is scaled up and out prematurely without evidence of its beneficial impact and potential for going-to-scale, failure and a waste of resources may result in "scaling down" (Hartmann and Linn 2008a).

To what extent these strategic elements have been addressed forms a core component of this study, which will be discussed in further detail below. Nevertheless, scaling up and out is central to the UNDP/GEF SGP CBA operational mandate. They are fundamental objectives that provide the opportunity to build on best practices and lessons learned in order to expand the reach and impact of its grant-making portfolio.[9] This includes the fundamental role of the voluntary and multi-sectoral SGP National Steering Committees (NSC) in each country. The NSC multi-stakeholder make-up, which includes government agencies, UNDP, the private sector and civil society organizations, supports the advancement of the scaling up and out agenda through its strong network-base. Similarly, the UNDP/GEF SGP CBA project set up utilizes CBA demonstration sites from which other communities, government officials and relevant actors can learn.

Yet, translating these strategic components into a systematic upscaling agenda for CBA on the ground remains challenging. A concerted effort to do so within the global CBA landscape at large is stated to be missing, with no blueprint for when and how to take an intervention to scale (Linn 2012a). To date there is a lack of systematic attempts to convert pilots into larger scale initiatives that bring multiplier development effects, including policy traction at local, national and international levels to secure additional adaptation funding opportunities and to mainstream CBA into national and sectoral plans and programmes (Rossing et al. forthcoming). This may be in part due to the difficulties presented in expanding CBA into new environments due to the highly contextual specificity of projects (Hartmann and Linn 2008a). Nevertheless, knowledge and lessons learned from scaling up development, let alone CBA processes that may have occurred, are not sufficiently documented and disseminated (UNDP 2011).

Moreover, although it is ultimately local actors that need to scale up successful CBA interventions, aid

[7] "Drivers" are the forces pushing the scaling up process forward. For further details of those relevant to the UNDP/GEF SGP CBA project implemented by CES in Namibia, see Part III of this report and Appendix 6.
[8] "Spaces" are the opportunities that can be created, or potential obstacles that need to be removed to open up the space for an intervention to grow. For further details of those relevant to the UNDP/GEF SGP CBA project implemented by CES in Namibia, see Part III of this report and Appendix 6.
[9] http://sgp.undp.org/index.php?option=com_content&view=article&id=117&Itemid=19

donors have a special responsibility to take a lead in supporting the scaling up agenda in order to achieve sustained adaptation impact at macro level (Linn 2012a). In addition to a change in organizational mindset for the delivery of effective CBA that makes progress towards building "transformed resilience," a change in donor mindset also needs to be considered if CBA interventions are to move beyond achieving their specific localized project goals to aggregating development impact at country or even global level (Hartmann and Linn 2008a). Careful consideration of whether and how to support scaling up of successful interventions is a key challenge in the design and implementation of development assistance that is often too neglected by both small and large donors, with two types of errors in scaling up identified: Type I Error is not to scale up where needed. Type II Error is to scale up inappropriately (Linn 2012b). There may never be enough funding and resources available to reach everyone considered most vulnerable to climate change impacts, therefore donors need to systematically review their operational policies and approaches and be strategic in terms of where and how efforts are to be focused if they are to contribute effectively to scaling up CBA impacts (ibid).

For UNDP/GEF SGP CBA projects not to end up as "pilots to nowhere," supporting their evolution into stepping stones that with the right ingredients can progress from micro to macro level impact that helps build sustainability and adaptability of results at sub-national, national, and even potentially international scale is required. In light of the global challenges of food security and rural poverty, scaling up and out is especially important for agriculture, rural development, and nutrition (Linn 2012a). As shall be discussed in this report using the case study of Namibia that is set within this context, fieldwork undertaken shows that the UNDP/GEF SGP CBA pilot project is effective, both through the processes used and the results obtained. It has successfully sown the seeds that focus on building "transformed resilience" across the above three spectrums of scale at localized level. To build upon these successes, GEF SGP is presented with a golden opportunity to play a catalytic role in supporting scaling up and out of key effective project components that will build and strengthen national programme and policy impacts for adaptation by mainstreaming localized pilot project components into sub-national and national planning and programming systems.

Structure and reasoning behind this report

This report is an exploratory study on scaling up and out the UNDP/GEF SGP CBA project in one of its implemented country case study locations, Namibia. It aims to use a scaling up lens to recommend a strategic shift in existing institutional thinking processes and funding architecture mechanisms. This is required if UNDP/GEF SGP CBA operational practice is to be successfully converted from micro to macro level, moving from individual localised projects to a pool of effective CBA interventions set within a landscape that can lead to more significant and sustained adaptation impact for an increased number of climate vulnerable people over time. To support this objective, this report is divided into four sections:

- **Part I** provides background to the CBA project and methodology used for this study.
- **Part II** explores the effectiveness of the process used and the results achieved by the UNDP/GEF SGP pilot CBA project "*Harnessing Coping Strategies via a Holistic Approach for Community Adaptation to Climate Change,"* implemented by local partner Creative Entrepreneurs Solutions (CES) in north-central Namibia. The ARCAB M&E for CBA methodology is used to generate evidence on CBA effectiveness for the six components that form the project, to determine what works and why, and how far "transformed resilience" has been achieved.
- Using the above evidence as a base to explore what can and should be scaled up, **Part III** presents a framework for thinking about how to scale up two effective components of the UNDP/GEF SGP CBA project in order to foster greater adaptation impacts that link local action to national development policy. To achieve this, ARCAB's Theory of Change approach is used together with the scaling up framework devised by Hartmann and Linn (2008) that specifies the key dynamics that allow scaling up to take place.
- **Part IV** presents conclusions and recommendations for next steps.

This study aims to contribute to existing knowledge gaps by offering examples of how to potentially mainstream CBA into sub-national and national development planning and programming systems. In addition, it may also support the work of the new UNDP programme initiated in 2010, “Scaling up local innovations for MDGs and Human Development.” This programme is developing a series of country case studies to strengthen the UNDP knowledge-base on scaling up by detailing how to potentially take local initiatives to a larger scale to support developing countries progress with achieving the MDGs by 2015 (UNDP 2011).

Part I- Background

The GEF Small Grants Programme

Established in 1992, the year of the Rio Earth Summit, the GEF Small Grants Programme embodies the very essence of sustainable development by "thinking globally acting locally". By providing financial and technical support to projects that conserve and restore the environment while enhancing people's well-being and livelihoods, SGP demonstrates that community action can maintain the fine balance between human needs and environmental imperatives.

SGP recognizes that environmental degradation presents life-threatening challenges that endanger us all. However, poor and vulnerable communities –SGP's primary stakeholders- are most at risk because they depend on access to natural resources for their livelihoods and often live in fragile ecosystems.

The programme provides grants of up to $50,000 directly to local communities including indigenous people, community-based organizations and other non-governmental groups for projects in Biodiversity, Climate Change Mitigation and Adaptation, Land Degradation and Sustainable Forest Management, International Waters and Chemicals.

The GEF Small Grants Programme is funded by the Global Environment Facility(GEF) and implemented by the United Nations Development Programme (UNDP) and is currently operating in 125 countries.

The objectives of the GEF SGP are to:[10]

- Develop community-level strategies and implement technologies that could reduce threats to the global environment.
- Gather lessons from community-level experience and share successful community-based strategies and innovations among CBOs, NGOs, host governments, development aid agencies, GEF and others working on a regional or global scale.
- Build partnerships and networks of stakeholders to support and strengthen community, NGO and national capacities to address global environmental problems and promote sustainable development.
- Ensure that conservation and sustainable development strategies and projects that protect the global environment are understood and practiced by communities and other key stakeholders.

Within each of the above focal areas, the GEF SGP approach aims to include the following components:[11]

- Capacity building
- Community empowerment and participation
- Poverty reduction
- Gender mainstreaming
- Indigenous and disabled people's involvement
- Youth and children participation
- Knowledge management
- Replication and up-scaling
- Policy impact.

[10] The GEF SGP corporate brochure.
[11] http://sgp.undp.org/

The GEF SGP Community-based adaptation (CBA) project

378[12] GEF SGP CBA pilot projects have been implemented globally since 2008 across 10 countries: Bangladesh, Bolivia, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Niger, Samoa, and Vietnam. Following the successful results of CBA programming generated from the pilot activities undertaken in these 10 countries, an additional 38 Small Island Developing States (SIDS) have been included in the GEF SGP CBA programme since 2010. The GEF SGP CBA project seeks to enhance the resiliency of communities, and/or the ecosystems on which they rely, to climate change impacts.[13] It aims to create small-scale policy laboratories and generate knowledge about how to achieve effective adaptation at the local level in order to encourage systemic change in national adaptation-related policy through the generation of evidence-based results of 'what works' in CBA.

The GEF Small Grants CBA Programme in Namibia

The GEF SGP CBA portfolio in Namibia, in sub-Saharan Africa, comprises of two overall projects implemented by two different local partners:

1. "Adjusting Agricultural Practices to Reduce Climate Change Risk in Omusati Region," implemented by local NGO OIKE.

2. "Harnessing Coping Strategies via a Holistic Approach for Community Adaptation to Climate Change," implemented by local NGO Creative Entrepreneurs Solutions (CES).

This study focuses on the second CBA project above. The overall aim of the project was to develop and pilot adaptive strategies and practices that respond to the specific climate change impacts[14] experienced in the local project sites in order to arrive at sustainable models that can be codified and replicated at local, national and even international scale (CES, 2009).

Local community member undertaking sun-rays exercise to map their local vulnerabilities to climate change.

[12] http://sgp.undp.org/
[13] http://www.undp-alm.org/projects/spa-community-based-adaptation-project
[14] Further details of current and potential future climate change impacts can be found below in this section of the report.

This project targeted 12,600 beneficiaries in 2,075 households in eight villages in Omusati, Ohangwena, Oshikoto, Oshana and Kavango regions in north-central Namibia. The target project stakeholders were primarily female subsistence farmers and youth who depend highly on agriculture and natural resources for livelihood well-being and income. Youth project stakeholders also included orphans and vulnerable children from Ohangwena constituency who received training on self-sustaining integrated farming systems and other related activities from the Oonte Orphans and Vulnerable Children Organisation.

Focusing on the GEF focal areas of (1) climate change (mitigation and community-based adaptation) and (2) land degradation, the project focused on six inter-linking local strategies designed to improve target stakeholders' adaptive capacity to current and potential future climate change risk through a holistic risk-transfer approach that was operationalized across a landscape paradigm:[15]

- **Awareness building on climate change and nutrition needs through the establishment of Self Help Groups (SHGs).** This is the first activity implemented in the project based on its participatory elicitation and inclusive analysis of project stakeholder needs and therefore relevant input on what CBA training and strategies are required. The purpose of the SHG is to ensure project planning, coordination and implementation is driven from the bottom-up and that SHG members become self reliant. The SHG model used was adapted from a successful model operationalised in India. 14 SHGs were initially established, with each SHG formed of 5-20 people possessing similar socio-economic backgrounds and sharing a common vision of working towards sustainable economic development in light of climate change risk. Each SHG has a Cluster Coordinator, who is chosen by the community and is responsible for communicating with the regional task teams (relevant government line ministries, traditional and local authorities, farmer organisations, NGOs, CBOs and national institutions of higher learning) and the lead agency (CES). The institutions within the regional task teams are engaged in the project to support community members as required. Each SHG Cluster Coordinator (SHG CC) received training in community mobilization and SHG methodology. Training models included (1) social training (social mobilization, group formation, conflict resolution, self-confidence building); (2) finance training, including savings and accountancy skills; (3) enterprise creation, including models on quality control, pricing and marketing; (4) sector specific climate change training; (5) UNDP CBA/Climate Change Toolkit training; and (6) nutrition training. The role of the SHG CC is to share this training with their SHG and community counterparts to ensure the successful dissemination of information and corresponding practice. This training was also provided for other relevant key local stakeholders at the same time and together with the SHG CCs, including relevant government ministries, Traditional Authority representatives, Chief Clerks, UNV and CES themselves. The above training was facilitated by CES' partner NGO, Hand in Hand - Republic of South Africa (RSA). The UNDP Climate Change Toolkit training was facilitated by the project's dedicated UNV.

- **Water security** (flood and rainwater harvesting) **and food security** (sustainable agricultural practices including fish farming and anti-land degradation methods). This also included the following methods:

- **Irrigated vegetable production.** This activity primarily supported HIV/AIDs affected families using a micro drip irrigation system that is supported through the use of harvested flood and rain water. The micro drip irrigation system:

    - Improves soil quality within the poly bag cultivation system so that vegetables can be grown for up to eight years in the same poly bag facilitating high production output;

[15] The source for the following project information is 'CES Full Proposal for the UNDP/GEF SGP CBA Programme' and 'CBA Project Progress Report and Grant Disbursement Request' document for the period covering 1/12/2009 – 13/7/2010.

- Enables households to save water, as the system enables irrigation directly to the roots of vegetables; and
- Is mobile enhancing ability to change location of vegetable production, for example during flood episodes.
-

- **Improved dry land crop production.** This included soil conservation techniques, including composting, bio char, crop rotation and conservation agriculture (CA).

  - CA is a farming method that promotes sustainable land management. This is achieved through methods of ripping and furrowing of soil, crop residue retention and incorporation, plus the application of minimal soil disturbance, permanent soil cover and crop rotations. Adopted from Zambia based on its effective results, CA has been implemented in northern Namibia prior to the UNDP/GEF SGP CBA project in 2005 under the Namibian Conservation Tillage (CONTILL) project in conjunction with the Ministry of Agriculture, Water and Forestry (MAWF).[16] The UNDP/GEF SGP CBA project integrated CA into its initiative based on community-driven requests for the continuation of CA implementation.

- **Flood and drought resistant crops and new crops.** This included promoting the increased use of improved drought resistant pearl millet varieties (the national staple food known as *mahangu*), rice, mushrooms and sweet stem sorghum. This latter crop is used as a source for human nutrition as well as fodder for livestock, chicken and fish to improve access to protein nutrition while simultaneously increasing household income levels.

- **Energy efficient stoves and agroforestry.** The purpose of this activity was to promote locally-female designed improved cooking stoves in order to improve health through less indoor air pollution; reduce local deforestation and desertification impacts by reducing pressure on wood reserves; reduce household income spent on wood/fuel; reduce greenhouse gases emissions; and improve household cooking efficiency.

Vulnerability Reduction Assessment

The UNDP/GEF SGP CBA project implemented by CES in Namibia, along with all other CBA interventions implemented through the wider GEF SGP CBA platform, used the UNDP Vulnerability Reduction Assessment (VRA) tool. Designed for the overall UNDP/GEF SGP CBA project and linked to GEF criteria of global environmental benefits, the participatory VRA process is an integral project component that aids community-driven planning, and participatory monitoring and evaluation (M&E) of project results.

Example of community map used in VRA exercise.

Incorporated in to the SHG process described above, the VRA approach focuses on generating community perceptions of vulnerability to climate change risk in light of local context specificity, and community capacities to adapt, through a series of four indicator questions posed during community meetings held at

[16] The CONTILL project was implemented by the Golden Valley Agriculture Research Trust, the Namibian Agronomic Board, the Namibia National Farmers Union, and Namibia Resource Consultants.

regular intervals throughout the CBA project period. Responses to questions are given a numerical score by project participants, with repeated evaluations providing evidence of project effectiveness through stated changes in vulnerability levels compared to project baseline values.[17]

Expected climate change impacts in the UNDP/GEF SGP CBA project in Namibia

Namibia is classified as being highly vulnerable to climate change impacts (INC 2002 cited in MET 2011). This is due to a combination of vulnerability risk factors characterized by its arid landscape; variable climatic conditions with frequent droughts episodes; low economic growth; high poverty levels; high dependence on climate sensitive natural resources, including rangeland, arable land and biodiversity; and high dependence on corresponding natural-based sectors, including agriculture and fisheries (MET 2011). Historical trends of the Namibian climate from 1960 to 2006 reveal an increase in the number of days with maximum temperatures, and a decrease in the number of days with minimum temperatures (Dirkx et al. 2008 cited in MET 2011). Similarly, rainy seasons are shown to be starting later and lasting for shorter periods of time, leading to longer dry season periods. Potential future climate change impacts are uncertain. Further increases of up to 2°C in temperature are however predicted in certain parts of Namibia by 2100, leading to a potentially drier and more humid climate with increased evaporation rates of 5% per degree of warming (Turpie et al., 2010; INC 2002 both cited in MET 2011). Likewise, more variable rainfall patterns are predicted. This includes more intense rainfall periods, and a reduction in current rainfall levels of 10-30% by 2050 and 2080 respectively (MET 2011). Moreover, an increase in frequency and intensity of flood and drought conditions is suggested.

These impacts in regions in north-central Namibia where the UNDP/GEF SGP CBA project is implemented by CES, will potentially be a contributing factor towards the following impacts on key livelihood sectors:[18]

- **Crop farming:** Lack of rainfall and persistent drought enhancing reduction in harvest productivity. Increasing flood episodes affecting crop damage, coupled with increasing pest damage due in part to changing climatic scenarios also impacting upon stored grain supplies.
- **Livestock farming and animal health:** Increasing temperatures affecting productivity of livestock breeds, including potential decrease in meat and milk production. Increasing rainfall patterns potentially yielding beneficial impacts through improved rangeland resources and availability of fodder if access to productive pasture is available.
- **Fisheries:** Increasing flood events bringing fish that can be harvested during rainy seasons, resulting in increased food supply and potential income if sold.
- **Water resources:** Potential increased scarcity in availability and quality of safe water resources, with existing poor groundwater quality increasing lack of water security.
- **Forest resources, wildlife and biodiversity:** Distribution of wild plants used for food sources and traditional medicine potentially affected.
- **Public health:** Increasing threats of water-borne diseases in extreme flooding scenarios and particularly in densely populated areas where disease transmission rates are high. Also, access to health services potentially restricted in flood contexts, especially for rural households.
- **Infrastructure and public services:** In addition to the above, flood damage to homesteads, schools, and access routes potentially problematic.

Why Namibia?

The UNDP/GEF SGP CBA project in Namibia has been selected as the key case study for this report as it contains the seeds for a successful scaled up intervention (Mehrotra and Swain 2013). For example, project

[17] For further details on the VRA process, visit: http://www.undp-alm.org/projects/spa-community-based-adaptation-project/monitoring-and-evaluation.

[18] The following information is adapted from the UNDP Climate Change Toolkit devised for stakeholders in the CBA project area.

M&E undertaken prior to fieldwork for this study showed that autonomous scaling out through the spreading of good ideas and practices by and between local project stakeholders of their own accord was already occurring. Similarly, the project had existing demonstrated success of linking effective local level action with the global climate change community of practice (Nyandiga, pers comms. May 2013). Among others, this has included the project's recent success in the UNFCCC Momentum of Change Initiative at COP 18 in Doha.[19] This is particularly relevant for this report, as the EzyStove developed under the project that won this award had to fulfil two key criteria for award selection: to have proven to be effective and to have the potential to be replicated in other countries and communities.

This does not however infer that other GEF SGP CBA projects have not yielded strong results. For example, evidence highlights success of CBA activities in Morocco with local NGO partner AMSING awarded the Equator Initiative Prize in RIO+20 for its strong project results at local level, including the incorporation of CBA activities into six local government development plans (UNDP/GEF SGP CBA Annual report, 2012). Similarly, in Vietnam, effective environmental solutions have been mainstreamed into provincial government programmes. Moreover, successful results related to gender mainstreaming in Bangladesh have supported increasing female resilience to climate change risk through the establishment of Women's Resource Centres. For further examples from all pioneer pilots in all countries under the GEF SGP CBA project, please visit: http://www.undp-alm.org/projects/spa-community-based-adaptation-project

Farmer showing the results of conservation tillage

[19] At COP18 in Doha in December 2012, the United Nations Climate Change secretariat presented nine public-private "lighthouse activities" in developing countries "which either help to curb greenhouse gas emissions or help people adapt to climate change, while at the same time benefit the urban poor." This award forms part of the UNFCCC Momentum for Change Initiative funded by the Bill & Melinda Gates Foundation. (http://sgp.undp.org/index.php?option=com_content&view=article&id=315&catid=36&Itemid=186).

Methodology

Framework for measuring CBA effectiveness

The methodology developed to assess the effectiveness of the UNDP/GEF SGP CBA project in Namibia implemented by local partner CES - *"Harnessing multiple coping strategies enhanced via a holistic approach towards community adaptation to climate change"* - is based on a new monitoring and evaluation framework for community-based adaptation (M&E for CBA). In line with current frameworks under development at the international level for successful adaptation M&E, this M&E for CBA framework is contributing to the existing gap in adaptation evaluation knowledge on (1) what constitutes effective CBA, and therefore (2) 'what' is needed to be measured, and (3) 'how' is it to be measured.

This M&E for CBA framework was initially developed for a new long-term action research programme aimed at generating longitudinal evidence on CBA effectiveness: Action Research for Community Adaptation in Bangladesh (ARCAB).[20] However, this framework is universal in application and use. The ARCAB M&E for CBA approach has been adopted for this study based on its rapid recognition and uptake by the international community. The framework's practicability and accessibility to stakeholders in different adaptation contexts is currently supported through its use in CBA projects across differing ecosystem and livelihood zones in Bangladesh and Africa.[21]

[20] ARCAB is a long-term action research programme on community-based adaptation in Bangladesh that is operational under ICCCAD, the International Centre for Climate Change and Development. ARCAB works with 12 partners who implement CBA projects across Bangladesh's five ecosystem/livelihood zones: ActionAid Bangladesh, CARE, Concern Worldwide, Save the Children, Oxfam, WaterAid, Christian Aid, Islamic Relief Worldwide, Caritas, Plan, Practical Action and International Federation of the Red Cross/Bangladesh Red Crescent Society.

[21] The ARCAB M&E for CBA methodology has been developed in close conjunction with the above ARCAB INGO partners. It is in the process of being utilised in ARCAB INGO CBA project sites in Bangladesh. Prior to being operationalised in Namibia for this study,

The purpose of using the ARCAB M&E for CBA framework is to evaluate the process used and the results obtained by the above UNDP/GEF SGP CBA project in supporting climate vulnerable poor groups move towards "transformed resilience." As discussed in the introduction of this report, this means achieving resilience at scale, resulting in the climate vulnerable poor being able to successfully adapt long term to uncertain future climate change impacts through sustainable adaptation strategies (ARCAB 2012).

Prior to undertaking fieldwork, key indicators were identified to evaluate what role the UNDP/GEF SGP CBA project has contributed to delivering current and potential future adaptation benefits for target stakeholders, including the poorest, most marginalised and women. This process was based on an extensive literature review and strong collaboration with UNDP/GEF SGP CBA staff to ensure indicators selected were locally relevant, meaningful and context specific.

In light of climate and other risks identified as important at the local level, indicators formed the following outcome areas:

- Indicators assessing the knowledge and capacity of climate vulnerable poor community stakeholders to improve their long-term adaptive capacity through the following pre-requisites for adaptation: good development coupled with access to and ability to use information related to climate and non-climate risks.
- Indicators assessing mainstreaming and institutional capacity to demonstrate if local institutions have the knowledge, capacity and incentives to provide climate risk management and deliver adaptation benefits to climate vulnerable project participants.
- Indicators of evidence that people and institutions are adapting to climate change risk through changing practice as a result of improved adaptive capacity and access to adaptation services.

For the full list of indicators used during fieldwork, please see Appendix 2. For further information on the outcome indicator areas used in the ARCAB M&E for CBA framework, please see Appendix 3.

Framework for analyzing CBA effectiveness

To support the use of the above key indicators identified, this study uses another component of the ARCAB M&E for CBA system. The ARCAB CBA Resilience Scale provides a framework for analysis that can be used to explore, unpack and assess the process used and the results obtained by the UNDP/GEF SGP CBA project in Namibia implemented by CES. As transformative adaptation to climate change requires a long-term focus, this consideration is emphasized through the CBA Resilience Scale, requiring a long-term agenda from both organisations implementing CBA, and donor institutions facilitating this implementation. For further details, please see Appendix 4. How the CBA Resilience Scale has been used in practice is shown in Part II of this report.

Framework for taking effective project components to scale

This report merges two complimentary approaches to present how to scale up and out certain components of UNDP/GEF SGP CBA project effectiveness in Namibia. These two approaches consist of the use of proven frameworks developed through: (1) a Theory of Change (TOC), and (2) a scaling up framework devised by Hartmann and Linn (2008a). Together, these approaches develop a comprehensive scaling up plan that includes (a) a realistic assessment of the prospects and parameters for scaling up, and (b) a road map for getting to scale (Cooley and Kohl 2006).

A clearly defined and usable TOC is an important component of any successful project and a vital element to the scaling up and out of successful initiatives. Scaling up CBA interventions is not just the replication of

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the framework has been operationalised in Somaliland and Ethiopia with Save the Children International.

ideas, but a process that requires a well articulated strategy and an operational framework that anchors effective CBA practice in and around a relevant social change framework (Mehrotra and Swain 2013). A TOC is therefore a useful tool for scaling up and out CBA project design, because it is a specific and measurable description of a social change initiative that maps the casual chain from inputs to outcomes and impact and test the underlying assumptions that link one outcome to another. For further details on the TOC process, please see Appendix 5.

Community consultation at project site

Hartmann and Linn's framework (2008a) compliments this TOC approach through the identification of key "drivers" and "spaces" required for each TOC, to bring about change that supports the successful scaling up and out of the chosen project components. In other words, it defines the critical elements within the UNDP/GEF SGP CBA project in Namibia that lay out the dimensions and pathways for scaling up and out (Linn 2012). For further details of these "drivers" and "spaces", please see Appendix 6. How they have been used in practice is shown in Part III of this report.

Key steps in the scaling up and out process

In order to develop the overall scaling up and out framework and plan presented in this study, the following steps were undertaken:

- **Step 1:** The scale of the issue to be addressed along with the appropriate scale of intervention and a suitable time horizon were identified forming the ultimate impact to be achieved.

- **Step 2:** Working backwards from the ultimate impact identified above, individual outcomes to achieve this goal were systematically identified, including how to scale up and out (the methods to be used) and organisational roles (who is to be involved in scaling up and out processes).

- **Step 3:** To support TOC design, appropriate "drivers" and "spaces" for scaling up and out were established.

Data collection in the field

Mixed methods of data collection were employed during fieldwork at the UNDP/GEF SGP CBA project sites in north-central Namibia. This included qualitative and quantitative measurements of evidence, as well as primary and secondary data sources. Where possible, research validity was strengthened through the triangulation of data sources.

Primary data was collected as a result of fieldwork undertaken by co-author of this report: Lucy Faulkner,

with support from UNDP/GEF SGP and its local implementing partner CES from April 2 to 13, 2013. Data collection methods comprised of focus group discussions (FGDs), key informant interviews (KIIs), participant observation, field notes and TOC development. Questions asked were framed using language and terms understood by respondents. For a complete list of stakeholder details and fieldwork locations, please see Appendix 1.

In addition to the secondary data sources collected prior to fieldwork to support indicator development, supplementary secondary evidence was collated during fieldwork to support information required for the results of CBA effectiveness. This primarily consisted of information from UNDP/GEF SGP and CES project documents. Moreover, since fieldwork was completed, regular communication between CES and the authors of this report has provided additional key evidence that is useful for project results and scaling up TOC development.

Research challenges

A key challenge to this study was that the researcher undertaking data collection did not speak the local dialect at the field study areas. Complete reliance on translation of respondent information from UNDP/GEF SGP and CES staff was therefore depended upon. Possible interpretation of questions and therefore answers due to language differences is acknowledged for all respondents and translators. Similarly, the researcher experienced that respondents' cultural make-up did not always facilitate reflective responses to fieldwork questions. Support from the local field team aided this capacity. In addition, the time allocated to undertake data collection was limited with fieldwork taking place in a restricted number of sites. Moreover, this study does not include evidence of the UNDP/GEF SGP CBA project implemented by local partner OIKE. This research therefore is not representative of all project stakeholders within the UNDP/GEF SGP CBA Namibia country portfolio. Likewise, the time available for fieldwork meant that a strategic decision was taken to focus on TOC development for scaling up and out of only two out of a total six components of the UNDP/GEF SGP CBA project in Namibia implemented by local partner CES. Further details on these components are presented in Part III of this study.

Ethical considerations

False expectations of research outcomes were addressed by voicing clear intentions and conditions under which fieldwork was to be administered to respondents before data collection began. The right to not participate was adhered to, and for those that chose to contribute to this report, time allocation kindly given was subject to respondents' discretion to ensure livelihood and household activities were respected. All photographs were taken with permission.

Part II

Results and analysis of CBA effectiveness

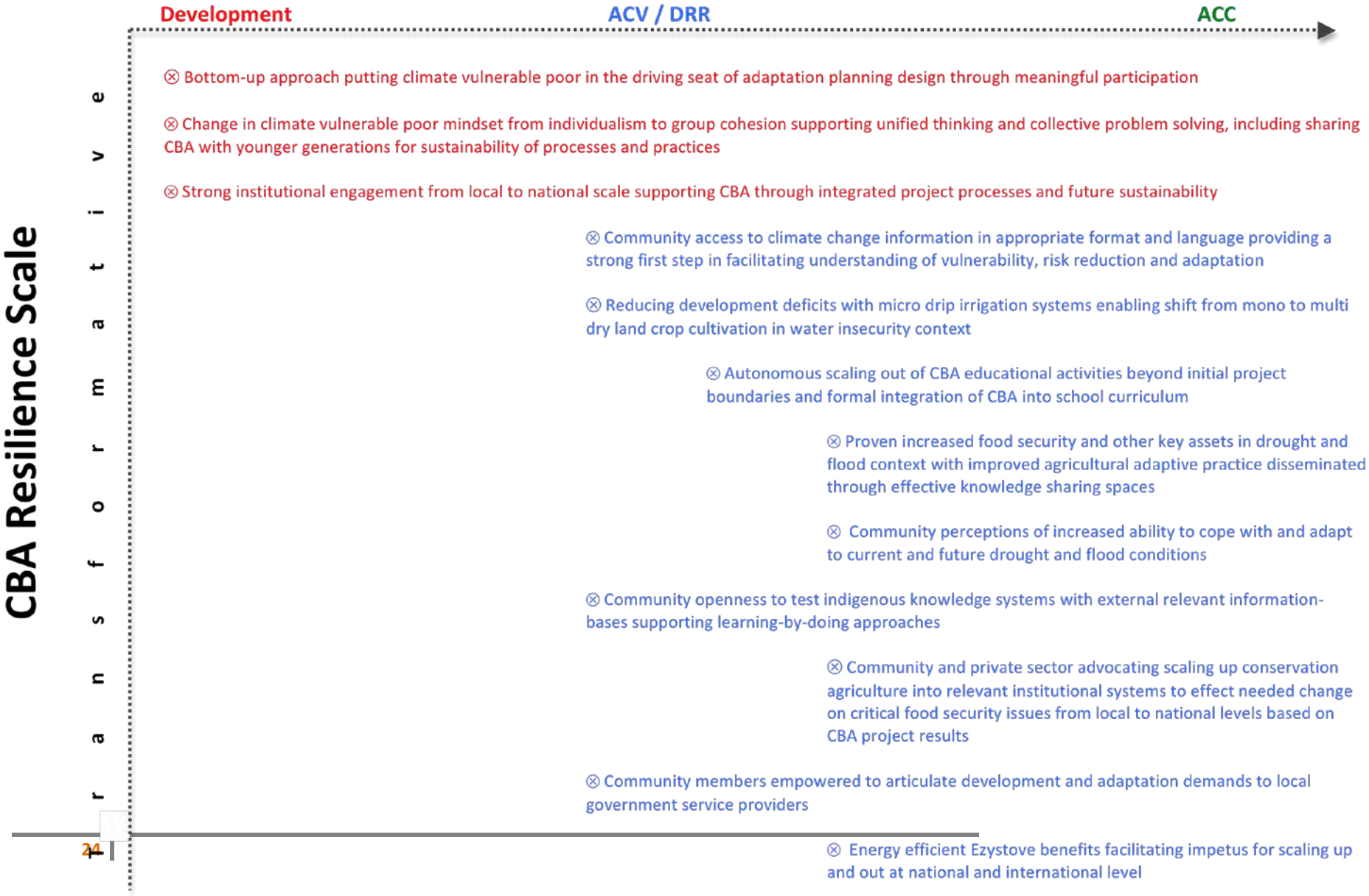
Based on fieldwork findings, the following assessment (figure 1 below) of the UNDP/GEF SGP CBA intervention "*Harnessing Coping Strategies via a Holistic Approach for Community Adaptation to Climate Change,"* implemented by local partner CES in Namibia, has been developed to provide insight into how far progress towards "transformed resilience" has been made. In other words, how far project processes used and results obtained have built resilience at scale, resulting in climate vulnerable poor communities being able to successfully adapt to long-term uncertain future climate change impacts through sustainable adaptation strategies (ARCAB 2012). To achieve this, the analysis presented below presents project results using the ARCAB CBA Resilience Scale. Background information on this methodology is provided in Appendix 4.

These results are to be viewed as 'headline reflections' of findings that are responsive to the indicators identified prior to fieldwork (Appendix 2). Due to the substantial number of indicators identified for evaluation, UNDP/GEF SGP CBA project results below do not necessarily present one result for each individual indicator. Rather, indicator findings have been combined where deemed relevant and summarised to produce more targeted results that facilitate discussion to support project analysis. However, this does not mean that individual indicator findings are not drawn upon. They are used when describing the results found under each headline reflection below on which analysis is based.

Please note, the analysis below does not consider some components more transformative than others. All transformative components hold the same value. To aid differentiation between 'transformative development' and 'transformative adaptation to climate variability (ACV)/DRR' headline reflections, different colours have been used. Transformative development headline reflections are in red. Transformative ACV/DRR headline reflections are in blue. Justifications to support why fieldwork results are placed in each position on the CBA Resilience Scale are provided below.

Conservation tillage demonstration to farmers

Figure 1: Assessment of effectiveness of the UNDP/GEF SGP CBA project in Namibia, implemented by CES, in building transformed resilience to climate change risk for project participants



Bottom-up approach putting climate vulnerable poor groups in the driving seat of adaptation planning design through meaningful participation.

The UNDP/GEF SGP CBA project in Namibia, implemented by CES, has adopted a rights-based approach to CBA. This means that the processes used have empowered project participants to actively drive CBA planning and implementation design as agents of adaptation rather than as recipients of uniform adaptation investments. The Self Help Group (SHG) methodology focuses on the inclusive analysis of community needs and therefore implementation of relevant and locally-meaningful CBA strategies. This is transformative, as it has facilitated a bottom-up approach that has enhanced project stakeholder adaptive capacity through the process itself, as well as through the outcomes of it. Strong participatory processes have been utilized, along with a flexible approach to planning that has actively involved community stakeholders in decision-making processes that affect them. This process used mirrors the opposite of top down planning design where CBA is done to or for communities in line with business as usual (BAU) development mechanisms. Correspondingly, this finding is placed under 'transformative development' on the CBA Resilience Scale in figure 1 above, as it forms one key component in supporting progress towards longer term adaptation to climate change risk for climate vulnerable poor groups.

The above result links to the next headline reflection: **Community empowerment enabling change from individualism to collective group cohesion with a change in mindset supporting unified community thinking processes and collective problem solving including sharing CBA with younger generations for sustainability of processes and practices.** Fieldwork findings show that project participants have united together to collaboratively share knowledge, identify issues and strategise to form solutions. For example, respondents stated that the SHG methodology has "*empowered us to stand and work together as a team.*"[22] Similarly, it has allowed "*us to share ideas together so we can learn from each other" and "we now speak as one voice not as individuals.*"[23] Furthermore, it has *"opened our minds so we can now share information with others."*[24] The creation of this space to discuss and generate knowledge necessary for adaptation is transformative, and provides a strong basis upon which to address the challenges of future

[22] Fish farming FGD, 8 April 2013.
[23] Fish farming FGD, 8 April 2013.
[24] Drip irrigation FGD, 6 April 2013.

climate change. Creating forums for community learning and deliberation often goes overlooked in the design of development and climate change support. It is not enough to provide climate vulnerable poor groups with information they may require. Enabling spaces where information is to be debated by project stakeholders is needed, so communities can decide what works for them and what does not. This is moving beyond BAU processes; hence this result is placed on the CBA Resilience Scale under 'transformative development.' Moreover, fieldwork results show that community members are sharing group decision-making processes with children and other younger stakeholders. This supports potential scaling out of effective practice. It is also transformative as it aims to build project sustainability over time by initiating generational knowledge transfer mechanisms. This result also therefore supports its placement under 'transformative development' on the CBA Resilience Scale.

Strong institutional engagement from local to national scale supporting CBA through integrated project processes and future sustainability.

This result also supports potential project sustainability, but this time through the engagement of strong institutional processes. Adaptation does not happen in a vacuum but in an institutionally rich context, hence developing an enabling institutional environment supportive of CBA is central to scaling up and out. The UNDP/GEF SGP CBA project is not implemented in isolation; key stakeholders from a spectrum of institutions from local to national level have been engaged through a twin-track approach to support project participants in reaping intervention benefits beyond the end of the project cycle. This includes a multi-stakeholder support system to aid the community SHG structure with access to relevant knowledge and capacity to inform change in adaptive practice on the ground. This institutional support in aiding communities make decisions that are right for them reflects the facilitative role that implementing agencies should be undertaking for effective CBA. Likewise, by project participants analysing the (local) governance context to ensure that relevant institutions deemed important for adaptation by them is also effective practice.

In addition, the voluntary multi-sectoral National Steering Committee (NSC) Of the Small Grants Programme plays a fundamental role in enabling support for scaling up opportunities through existing networks and potential influence yielded at national policy level (//Gaseb pers comms April 2013). The GEF SGP CBA project set up has therefore intrinsically created space for sustained project growth through political and operational partnerships with other like-minded actors sharing similar longer term objectives – a transformative approach that forms in part the backbone for scaling up and out, hence its placement under 'transformative development' on the CBA Resilience Scale. This outcome provides a strong basis to build upon when considering mainstreaming CBA project components across scales as part of transformative adaptation to climate change, as will be discussed in further detail below.

Community access to climate change information in appropriate format and language providing a strong first step in facilitating understanding of vulnerability, risk reduction and adaptation.

As part of the SHG methodology, project participants received climate change training. This process used the UNDP Climate Change Toolkit, which was translated into project participants' local dialect ensuring accessibility to scientific[25] information on current and potential future climate change impacts in a language and format suitable for respondent needs – one component towards a transformative approach for effective CBA on the Resilience Scale. However, relying on scientific expertise is not enough. Being informed that adaptation contexts are becoming more uncertain in general terms is not overtly useful for local stakeholders. A lens that provides more certain information on possible outcomes is therefore

[25] This is based on national level planning documents including climate change strategy documents, government missions/visions and national communication with the UNFCCC (Nyandiga, pers comms. May 2013).

required, hence merging scientific climate change information with that locally-generated by project participants that provides insights into what matters to local people is needed, which is what the UNDP Climate Change Toolkit training strives to achieve.

This process is transformational; but not just because the UNDP Climate Change Toolkit is providing access to new climate change information, but because the process used also draws upon both of the above knowledge-bases (scientific and local) that are needed in order to develop 'new' knowledge that moves towards transformative adaptation to climate change. It is this knowledge that will inform the design of feasible, credible and useful adaptation options for project participants, hence the placement of this result under 'transformative' on the CBA Resilience Scale. As fieldwork findings show, the UNDP Climate Change Toolkit training has been useful for SHG project participants, as it enabled community members to "*open our minds to not pollute, cut our trees, not slash and burn land that destroys soil"* as well as *"teach us how to protect ourselves during heavy rain*."[26]

With the UNDP Climate Change Toolkit already translated into Namibia's seven national dialects, this process shows that is can be replicated and scaled out to reach a larger number of people in different areas and in different forums (including SHGs at community level and in schools, as has occurred through the project). At present, this training has occurred on a relatively small scale (in terms of number of people targeted by it). To move this result further towards transformative ACC on the CBA Resilience Scale, this new climate change knowledge is to be scaled up and out across a larger landscape so more people are actively generating and using this new kind of climate change knowledge-base and climate change forecasting in their decision-making processes to avoid mal-adaptation. It is not just *what* is being done that is important, but *why* and with *what knowledge* that is key.

Although the UNDP Climate Change toolkit provides a strong basis for generating useful climate change information for local stakeholders, the following recommendations are made to further strengthen this process. First, leveraging changes in knowledge and capacity in order to facilitate sustainable adaptation practice cannot be produced through a limited number of training sessions. More regular and systematic UNDP Climate Change Toolkit training is needed at local level, as confirmed by all stakeholders engaged in the project. This will support communities with more forward-thinking climate change foresight that incorporates a longer term time horizon, and which will facilitate transitioning understanding of adaptation from current climate variability towards this longer term goal. Moreover, it is recommended that training given is verified through appropriate assessment mechanisms. Understanding that knowledge has been successfully imparted is key for transformative ACC. This will facilitate the progression of stakeholders to undertake higher levels of training as their capacity increases over time.

Second, to blend local and scientific climate information on a more sustainable basis, the scientific community needs to be aware of what information is needed at the local level by different stakeholders engaged in different adaptation strategies. To move further towards transformative ACC, it is recommended that the GEF SGP CBA project, implemented by UNDP, capacitates and empowers climate vulnerable poor groups to articulate to the scientific community what information they require for future adaptation planning. This would facilitate a bottom up approach to scientific climate data analysis that addresses community needs. Fieldwork results show that improved access to such climate change

[26] Self-help group (SHG) FGD, 9 April 2013.

information is required by respondents engaged in agricultural practices.[27] This also therefore requires the simultaneous capacity building of identified relevant scientific institutions to fulfil community demands made.

Third, it is recommended that project participants are empowered with tools to collect climate-related information for themselves. This may, for example, include initiating community weather stations that track changes in climate over time.

Reducing development deficits with micro drip irrigation systems enabling shift from mono to multi dry land crop cultivation in water insecurity context.

Community training on this system of cultivating vegetables in self-contained poly bags at homesteads and schools has generated multiple benefits:[28]

- *"This system is helping with household food levels as we now get adequate food."*
- *"If we have a good harvest, we sell surplus vegetables for extra income. This helps us pay for our children's education, builds up our savings and pays for water supply for irrigation system."*
- *"This is needed in our community where people are struggling with water. If no rain, you can't grow vegetable in the ground, but with little access to pond or traditional water source you can still grow vegetable with the drip system."*
- *"We are not growing any new vegetable types, but we are growing many more varieties than before."*
- *"It has brought changes to our community. People did not believe you could grow vegetable in plastic bags before the project. People didn't know you could grow vegetables in this area due to the conditions."*
- *"This has not only brought food to the table, but has empowered communities through education. Children are taking care of vegetables after school and communities are working together to share bigger vegetables gardens where they can share resources to afford bigger drip irrigation systems on their own. It is creating employment and reducing poverty."*[29]

Based on these benefits, this result is placed on the CBA Resilience Scale under transformative ACV/DRR. It is transformative as it is community-driven enabling local empowerment through successful knowledge transfer systems on new adaptive practice that supports household food security levels. It is ACV/DRR as it is supporting respondents adapt in the current context of climate variability, with development needs addressed as a first step towards adaptation. This is important – without access to basic assets needed to fulfil basic capabilities, people are unlikely to be able to cope with and manage the additional stresses presented by climate variability and climate change. The success of this activity is resulting in its autonomous replication to other community members, and also into schools, as shall be discussed below.

Although replication to date is small in scale, the important point here is that it is occurring, and occurring through the spread of good practice of its own accord without planned project support. This indicates therefore that this activity holds the potential to be scaled out to reach a larger number of people (with necessary funding to replicate the successful practice model) based on its effectiveness at local scale.[30]

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[27] KII, 5 April 2013 with Johannes Keshongo.
[28] The following quotes are from the micro drip irrigation FGD, 6 April 2013. For photos of the micro drip irrigation system, see those in the next headline reflection below on CBA in schools.
[29] KII George Haufiku, Agricultural Extension Technician, MAWF, 5 April 2013.
[30] As an aside, there is a key point to note here regarding mal-adaptation. Respondents stated it is becoming more challenging to find traditional water sources to use in the drip irrigation system during drought periods, with not all community members able to afford piped water supply at home. Although the practice itself is beginning to generate income for respondents, the sustainability

Autonomous scaling out of educational CBA activities beyond initial project boundaries and formal integration of CBA into school curriculum.

Photos (left to right above): Land preparation for conservation agriculture at Onamulunga Combined School, Olukonda constituency, Oshikoto region, North-Central Namibia; students from the same school setting up a micro drip irrigation system; students learning how to thin vegetables from their micro drip irrigation system four weeks later.

Evidence shows that CBA activities in schools (including conservation agriculture for dry land crops, soil improvement techniques, certified seed usage and the micro drip irrigation system for vegetable production), have produced transformative results on the CBA Resilience Scale on two fronts. First, its practical and iterative application, that has supplemented the existing textbook-based syllabus, has improved student interest and grades in agriculture under the subjects of *Life Sciences* and *Agriculture*. This has lead to CBA being formally integrated into the school curriculum of the initial school engaged in the project, enabling students from two classes (approximately 80 students in total) to benefit from this learning-by-doing approach (Box 1 below). Second, the verification of the need for CBA in schools is characterized through the replication of the above activities beyond project boundaries based on successful autonomous information sharing between project participants. This scaling out has been supported through the initial project design, where school sites were showcased as demonstration sites for CBA education. Mirroring the Namibian culture of "seeing is believing,"[31] this has resulted in CBA being integrated into the curriculum of 15 other schools in the region catering to 1200 students.[32]

Box 1: Successes yielded by integrating CBA into local formal school education systems

From the students' perspective, results include:
- *"Changing our attitudes about learning agriculture in a positive way."*
- *"Helps improve our grades at school through practical learning-by-doing application of new knowledge."*
- *Similarly, the micro the drip irrigation systems facilitating multi-vegetable cultivation is "saving water" and "generate additional income for the school through selling excess vegetables in our local community of up to US$ 500 profit."*

From the teacher's[33] perspective, results include:

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of this practice requires adequate and ongoing income sources to ensure piped water supply can be paid for by micro drip irrigation users. This needs to be considered as key concern if scaling out is to be considered.

[31] KII Marie Johansson, 7 April 2013.

[32] This source of evidence is from CES M&E project documentation.

[33] Johannes Nelongo, Life Science & Agriculture Teacher, Onamulunga Combined School, Oshikoto region, North Namibia, KII 4 April 2013.

- "Enhancing teachers' ability to teach agriculture that is key to supporting students "become skilled and more productive agriculturalists."
- "Prior to the project it was challenging to teach this subject area with students not able to understand the lesson as totally textbook-based, so students were having poor performance."
- "CBA makes learning more simple for students and has made students more interested in the subject with students experimenting with agriculture themselves at home with family and other friends."
- "Student performance has greatly improved based on CBA iterative teaching style."
- Also, "the profit gained from selling excess crops [through the micro drip irrigation system] is paying for school tours on CBA-related subjects."

Onamulunga Combined School, Olukonda constituency, Oshikoto region, North-Central Namibia.[34]

Fieldwork findings show that this project process and outcome is therefore both transformational and scalable – both 'out' to expand coverage to a wider number of people (as has already occurred), and also 'up' through mainstreaming CBA into educational systems (which has also already occurred at local level, and both within a relatively short timeframe). The project offers a strong foundation of what works that can be built upon and taken to scale with the necessary enabling environment and resources available, as educating current and future generations on climate change adaptation in light of existing and potential future climate and non-climate contextual risks is crucial. What is needed, and how climate change adaptation (with a focus on CBA) can be mainstreamed into education systems from local to sub-national and national level (and even beyond), which will support progress towards transformative adaptation to climate change, is presented in Part III of this report.

It is important to highlight that what is presented in Part III is based on activity that is actually happening on the ground in real time, driven by local stakeholder mobilisation. Although the UNDP/GEF SGP CBA project in Namibia implemented by CES may be regarded as implementing processes and actions that are initially small in scope, its results indicate that they hold the potential for facilitating larger scale progress towards a bigger impact picture to support effective CBA reaching a larger number of people over time. As will be discussed in further detail below, this has occurred in part based on the strategic scaling up vision developed by the UNDP/GEF SGP CBA project, and its implementing partner CES, during project design.

Proven increased food security and other key assets in drought and flood context with improved agricultural adaptive practice disseminated through effective knowledge sharing spaces.

During data collection for this study, the Government of the Republic of Namibia declared a national drought situation and reaffirmed their commitment to drought assistance to vulnerable households.[35] As a result, pearl millet production was expected to fall 28% below average and 47% lower than last season's harvest, with "the food security situation weakening."[36] Despite, or in light of this, the CBA project component focusing on conservation agriculture (CA) has produced very strong results that are proving key to household and community resilience-building (Box 2 and 3 below).

Latest findings show that **4660 kg** of pearl millet per hectare have been harvested when using the CA technique in an *existing drought context*, compared to **300 kg** per hectare under the current nationally-promoted disc harrowing approach in a *non-drought context*.

[34] Student FGD, 6 April 2013.
[35] New Era, 4 April 2013; The Namibian, 9 April 2013.
[36] ibid.

Box 2: Conservation Agriculture Case Study

"I started CA with a demonstration plot three years ago. My neighbours told me that I'm wasting my time as I'm wasting my land as I wasn't planting crops on all parts of the ground. But I told them just wait. I called my neighbours when my crops starting to grow. They now want to do CA and the ripping system. At harvest I get a much greater yield when using the rip and furrow system compared to the traditional disc ploughing approach. If we can receive land preparation service early, we will meet government half way – they won't have to distribute drought relief.

I have shared my knowledge with other farmers on CA by showing them my farm [Box 3 below]. *I have showed 170 farmers, including my whole village and all members in our local savings group, who are based all over the area. They are spreading the message to others, as it is our duty to share information on how to reduce poverty and increase crop yield through CA.*

The best impact of CA is good germination, good healthy plants that give good quality seeds. In the CA system plant roots are deeper and stronger. We sell surplus crops to others so my income has increased a lot. Before using CA in 2009, I used to sell one silo of pearl millet for 3000 Namibian dollars. In 2012, I could sell three silos for a higher price of 5000 Namibian dollars each. Using disc ploughing I could get four silos of crop from five hectares of land. Using CA, I now get four silos from three hectares. If five hectares of land are all ripped by CA methods, two hectares will provide enough household food for a year, with 3-5 hectares giving surplus food."[37]

Johannes Keshongo, farmer, Okakoto village,
Omuntele constituency, Oshikoto region, central-northern Namibia.

In addition to the comments above, other respondents stated that the increase in pearl millet cultivation facilitates positive change in livelihoods, assets and social networks:[38]

- *"No poverty"*
- *"No hunger"*
- *"With CA we have strong, already growing, more healthy plants where non-CA plants are still struggling"*
- *"Traditionally we plant mixed crops together, but not good yield. With CA, we have five lines for each crop, so better yield as better crop rotation…no competition with other plants in one area"*
- *"CA shows us to plant early in August to October rather than later so benefit from rain. As farmer needs to be prepared, CA acts as a warning system for farmers"*
- *"This year no rain…CA hectare still growing crop compared to other non-CA areas. Maize and sorgum still fresh under CA but dead under disc [harrowing]"*
- *"CA is the only option for drought. Nothing else will work"*
- *"As long as early preparation undertaken, will help with flooding due to furrow. Disc not good for flooding"*
- *"No need to buy food at high prices as we have enough so we save money and have peace at home"*
- *"Children not sleep at school as not hungry anymore"*
- *"We use extra crops to pay for Church confirmation [instead of money]"*

[37] KII, 5 April 2013.
[38] CA FGD, 5 April 2013.

Box 3: Scaling Out Conservation Agriculture

"There are no words to say. I could faint right here! Johannes has to give this information to other farmers based on his talent. Our fields don't look like this. We have nothing. We use disc harrowing and animals for ploughing. We want to start CA. There is no rain here, but still there is enough food. We will share what we have seen with others in our area."[39]

Titus Nashima and Freda Uunona, farmers, Omusati region, central-northern Namibia.

Photos (left to right): Pearl millet cultivated under CA in a drought period; pearl millet cultivated under the disc harrowing approach in a non-drought period (both on Johannes Keshongo's farm).

This result has been placed closer towards 'transformative ACC' on the CBA Resilience Scale based on its production of increased crop yields leading to increased household food security and income levels *in an existing drought context*. It therefore provides (and even exceeds) the basic food security needs of climate vulnerable poor groups in the existing context of climate variability. Moreover, this result is transformative based on the set up of the farmer demonstration plots. As discussed above, this component builds on the success of project design of creating spaces for knowledge sharing and knowledge transfer to support the scaling out of effective CBA practice. The project initially engaged 40 farmers in CA practice. By the end of the project cycle, 310 known farmers were undertaking CA.[40]

As with CBA education, the same conclusion is relevant here: this project process and outcome is both transformational and scalable – both 'out' to expand coverage to a wider number of people (as has already occurred), but in this case, also 'up' through mainstreaming CA into relevant national policy systems (which is not yet occurring due to certain capacity and political constraints, although the evidence below shows desire from both local farmers, private sector and other local institutions is pertinent with activity progressing towards navigating the current challenges presented already underway). How mainstreaming CA, or a certain component of CA known as Namibia Specific Conservation Tillage (NSCT),[41] can be potentially achieved will be discussed in Part III below, which will require a different approach to mainstreaming CBA education based on the political space presented within which mainstreaming would need to occur. Nevertheless, mainstreaming, and all the components that are needed for this to transpire, is required for this result to move further towards transformative ACC on the CBA Resilience Scale.

[39] KII, 5 April 2013. These farmers were visiting Johannas' farm from a different region to see the benefits of CA first-hand.
[40] This source of evidence is from CES M&E project documentation.
[41] NSCT refers to ripping and furrowing; crop rotation; using maximum soil cover with minimum soil disturbance; incorporating plan residue to increase soil fertility (Johansson pers comms. April 2013).

Photos (left to right): Pearl millet root system under CA (48 cm deep); pearl millet root system using the disc harrowing approach (26 cm deep and plants 105 days from germination).

Community perceptions of increased ability to cope with and adapt to current and future drought and flood conditions.

The above evidence on CA supports this result that is placed under transformative ACV/DRR on the CBA Resilience Scale, based on its proven outcome of supporting community adaptation to current climate risk and especially drought situations. In regards to community ability to cope with and adapt to flood conditions, the UNDP/GEF SGP CBA project component focusing on fish farming is also relevant. Fieldwork findings show that increased flood episodes over recent years have enabled communities to become opportunistic in their adaptive practice: "*The more it floods the more fish for us*."[42] Through appropriate skills training, community members have increased the number and size of ponds available to them in order to increase the number of fish they can harvest during flood situations. This is important for improving household income and food security levels, with community members using innovation to take advantage of new opportunities and maximize these benefits. A certain number of ponds are constructed for fish selling at the local market for SHG income sustainability, with a further number of ponds built specifically for household food security.[43]

Similarly, evidence also shows that the SHG methodology has improved community preparedness against flood and drought impacts through strengthened community support networks. *"If one member of the group is suffering, we work together to help each other."*[44] Likewise, social mapping skills learnt during SHG training has *"helped us identify where the problems are and we work together with seasons compared to before."*[45]

Moreover, this result is supported through evidence of outcomes from the VRA process led by project participants. This highlights community perceptions of reduction in vulnerability to drought and flood episodes. The VRA process itself also aids the transformative value of this headline reflection. The VRA approach drives participatory M&E processes from the bottom up, which means they are inclusive of and based on adaptation metrics defined at local scale by project stakeholders. This strategy is very much needed in the landscape of current M&E practice to support policy and investment that is relevant (Ayers et al. 2012). Many business as usual M&E approaches largely dominating the current CBA landscape set

[42] Fish farming FGD, 8 April 2013.
[43] Fish farming FGD, 8 April 2013.
[44] SHG FGD, 9 April 2013.
[45] SHG FGD, 9 April 2013.

M&E adaptation priorities that are often inappropriate to local community needs as institutional perceptions of adaptation benefits are easier to demonstrate that priorities that respond to the needs of the most vulnerable on the ground.

Photos (left to right below): UNDP/GEG SGP CBA project participants in Namibia digging a pond for fish farming in the local ephemeral flood water way system before the start of the rain season in November 2010; Outreach officers from the Ministry of Fisheries assisting community stakeholders with harvesting fish; the biggest catch of the day with that day's catch weighing a total of 552 kg.

This evidence also links to the following headline reflection: **Community openness to test indigenous knowledge systems with supportive external relevant information-bases supporting learning-by-doing approaches.** This result is considered transformative and closer to ACV/DRR than development. This is because this capacity is supporting improved practice in the current context of climate variability by building on and merging traditional knowledge-bases of past practice with more expert information from relevant institutions engaged in the project. Moreover, fieldwork findings show that the UNDP/GEF SGP CBA project structure has facilitated learning-by-doing approaches. This is important in the context of adaptation, as not all future climate change impacts are known, so learning about what adaptation works and what does not will need to be iterative. Likewise, new skills and capacities are taught and shared with community members through action, enhancing community ownership of knowledge. This is important for practice sustainability.

Community and private sector advocating scaling up conservation agriculture into relevant institutional systems to effect needed change on critical food security issues from local to national levels based on CBA project results.

Due to the strong results yielded by CA as discussed above, project participants stated that other farmers across Namibia need to access the necessary knowledge and capacity on CA to also reap the strong results shown – in other words for CA to be institutionalised from local to national level. Similarly, fieldwork findings show strong private sector desire to integrate CA into national policy:

- *"For communities in northern Namibia with no income, they have the knowledge to make a huge difference to their lives through CA. With little funding and good organization, Namibia can shift from being grain importers to becoming grain exporters in five years if we do it right. We need to triple Namibia's pearl millet production levels for the country to be self-sufficient. The results we already have [from the UNDP/GEF SGP CBA project] prove the vital role smallholders can play in national food security, and that we can double our existing production over ten times."* [46]

[46] This quote, and all of the quotes presented in this section are from KII with Gerard Baufeldt, 12 April 2013. This first quote is

- *"This approach will increase yields by 1000 per cent over five years."*
- *"CA will increase the window of success in agriculture even if the climate changes. CA is not a method set in stone. It can be adapted to prevailing circumstances as time progresses. The machinery needed for CA will also adapt too. CA is not going anywhere; it is here to stay."*
- *"If you want to reverse urbanization, CA will take people back to the fields and increase their income levels. If CA started in an organised way, it will generate employment that can snowball. Poverty Reduction Programmes do not work, as they are not based in reality. CA is and it will help the poorest farmers evolve into commercialized farmers over time."*

For the multiple reasons outlined above, this result is placed closer towards transformative ACC on the CBA Resilience Scale. Evidence shows that CA is highly effective in drought and flood contexts, proving its status as the best model for agricultural practice in Namibia. These results combined with locally-driven desire to scale CA up and out at national level to support country-wide food production and food security levels in line with government policy, illustrates that this practice is needed and holds the potential for going-to-scale. However, government capacity and political will is needed to facilitate this goal. A suggested roadmap of how this can be achieved is presented in Part III of the study below. It is also important to highlight here that project results show that the CA model is effective, suggesting it also holds potential for replication outside of Namibia and in countries experiencing similar agro-climatic risk factors. This may include Kwa Zulu Natal province of South Africa, and certain parts of Australia and Ethiopia (Nyandiga and Gaseb, 2010).

Community members empowered to articulate development and adaptation demands to local government service providers.

Following on from the success of CA, project participants are for the first time actively demanding [CA tractor] services from the MAWF in line with government provision allocating each farmer three hectares of subsidized land preparation services.[47] A direct consequence of CA effectiveness has manifested in empowering climate vulnerable groups, through knowledge, capacity and practice, to become active citizens able to demand better services and benefits needed for adaptation from local government and associated service providers. This is transformative and it is placed so under the CBA Resilience Scale. Similarly, this result links back to the institutional engagement fostered through the project, providing project participants with access to relevant key governance structures needed for the delivery of adaptation benefits – another illustrative transformative element. However, this outcome is placed under ACV/DRR on the CBA Resilience Scale because empowering climate vulnerable poor groups to articulate their demands will only be truly effective if those local institutions deemed important for adaptation by them are responsive to their demands made, including having access to the resources needed and the mandate and political will to do so. This forms an important component of scaling up, and is key to supporting the mainstreaming of CBA project components into institutional processes. This shall be explored in further detail in Part III of this report below, as this is central to facilitating the scaling up and out of effective CA practice.

Energy efficient EzyStove benefits facilitating impetus for scaling up and out at national and international level.

The following quotes illustrate the benefits of using EzyStove[48] at community level:

- *"The stove is very good as it is reducing deforestation. We are using tonnes of wood a week at the*

supported by information disseminated by the initial CONTILL project that first introduced CA into Namibia prior to the UNDP/GEF SGP CBA project.

[47] This allocation is an output stipulated through the MAWF Rain Fed Crop Production Programme.

[48] The EzyStove was developed by CES together with Ergonomidesign, a Swedish design company.

open market to cook for our customers. That wood is coming from our forests that are disappearing at an enormous rate." [49]

- *"It is so effective as water boils in no time and produces much less smoke. You can boil two litres of water in less than six minutes."*
- *"With the stove I save money on buying fuel wood - around 260 NAD[50] a month."*

Moreover, EzyStove also reduces greenhouse gases emissions, with each EzyStove reducing at least one metric ton of CO2 emissions every year.[51]

Photos from left to right above: UNDP/GEF SGP CBA project participants testing the EzyStove at Ondangwa Open Market; project participant, Ms Selma Shituna, lighting the EzyStove.

This evidence has supported the extensive piloting of the EzyStove in various regions across Namibia through The Environmental Investment Fund of Namibia and the private sector institution, the Pupkewitz Foundation. The project initially engaged 50 project participants to use the EzyStove, with 1200 households benefitting from its use by the end of the pilot project cycle.[52] Based on this success, both institutions are interested in supporting further scaling up and out at national level: *"EzyStove is easy to use, portable, efficient and on high demand. After attending Namibia's biggest Trade Fairs & Shows, it was evident how the general public was interested in buying the EzyStove".*[53] Similarly, with the Pupkewitz Foundation wanting to diversify into more community-based work to support their institutional interest in food security issues in Namibia, fieldwork results show that scaling up and out the successful practice model provided by EzyStove can be achieved. The Pupkewitz Foundation is ready to move forwards to achieve the goal of distributing EzyStove through their institutionally-owned household/hardware outlets nationwide, with interest in potentially distributing the micro drip irrigation system also expressed.[54] Moreover, due to the above evidence of its effectiveness, EzyStove has won five prestigious internationally acclaimed awards,[55] supporting its strong marketing value.

[49] This quote, and all quotes presented in this section are from the Ezystove FGD, 7 April 2013.
[50] NAD stands for Namibian Dollar.
[51] CES, 2013.
[52] This source of evidence is from CES M&E project documentation.
[53] This quote is from The Environmental Investment Fund of Namibia – source: CES.
[54] KII Dennis Reissner, Corporate Services, and Meryl Barry, Co-Administrator, The Pupkewitz Foundation, 12 April 2013.
[55] These awards are: (1) The UNFCCC Momentum for Change Lighthouse Activity Award 2012; (2) Design-S Award 2012; (3) Industrial Designers Society of America (IDSA) International Design Excellence Awards® (IDEA) Curator's Choice 2012; (4) Red Dot Best of the Best Design Award 2012; and (5) iF International Forum Product Design Gold Award 2012.

Furthermore, voluntary carbon market finance opportunities to scale up subsidized EzyStoves to 400,000 households in Namibia are under discussion. At the time of writing this report, CES is in communication with the African Bio-energy and Bio-fuels Business Assessment (ABBBA) project,[56] which connects private sector investors with low carbon project developers.[57] ABBBA have expressed interest in supporting EzyStove production start-up for 28,000 stoves in one year. Lastly, recent changes in the EzyStove design (now to be made of stainless steel meaning the stove's combustion chamber will last for longer time period of five years compared to 2-3 years) and benefits yielded from carbon off-setting (its price can be subsidized to hold a low retail price of N$ 30 or US$ 3.5), an even lower start-up capital investment is needed – adding to the existing appeal of the scalable potential of this project component, if adequate funding can be secured. Based on this evidence, this result has been placed closer towards transformative ACC on the CBA Resilience Scale based on its potential replication at national, and even international level if appropriate funding mechanisms to support production and export costs can be secured. The above evidence shows that the EzyStove can be replicated internationally.

The above analysis of the UNDP/GEF SGP CBA project implemented by local partner CES in north-central Namibia, shows that an entirely transformative approach to CBA has been undertaken with no elements of this project considered business as usual. Transformative approaches are key as they re-target efforts towards building the adaptive capacity of climate vulnerable poor groups to long-term climate and other risks. This is needed if CBA practice is to make progress towards, and be responsive to, potential future climate change impacts and not just current climate variability risk. This project has therefore moved beyond business as usual development and ACV/DRR approaches through some of the following ways:

[56] The ABBBA project is based in Stockholm and supported by the Swedish Government.

[57] This information was shared through email communication between the authors of this report and CES Director, Marie Johansson on 4 May 2013.

- BAU development approaches have been re-visited to ensure that the key basic needs of the poorest and most marginalised people vulnerable to climate change have been addressed, most notably food and income security

- The climate vulnerable poor have been meaningfully engaged in project planning processes through strong participation and have been empowered to ensure that their knowledge and demands are reflected in project decision-making processes

- Iterative CBA practice has ensured community ownership of new knowledge

- Spaces have been created for knowledge sharing and knowledge transfer to support the scaling up and scaling out of effective CBA processes and practice

- Moving beyond a short-term projectised focus to planning towards a longer term vision that has considered scaling up from the outset, which has been supported through integrated approaches that have engaged with relevant institutions from local to national scale, and

- Access to scientific information on climate variability and climate change in an appropriate format and language has been used to support the development of community adaptive practice.

The above analysis of processes used and results obtained by the UNDP/GEF SGP CBA pilot project show that various outcomes on the ARCAB Theory of Change (TOC) have been targeted. The ARCAB TOC is useful here, as it provides a roadmap of how transformed resilience for CBA can be built, which means achieving resilience at scale, resulting in climate vulnerable poor groups able to successfully adapt long term to uncertain climate change impacts through sustainable adaptation strategies. The ARCAB TOC presents four pathways to achieve this, which are presented below. A discussion on project results, and suggestions for what is needed to move further up each pathway, is also provided.

Figure 2: UNDP/GEF SGP CBA pilot project mapped against the ARCAB TOC "scaled out" pathway.

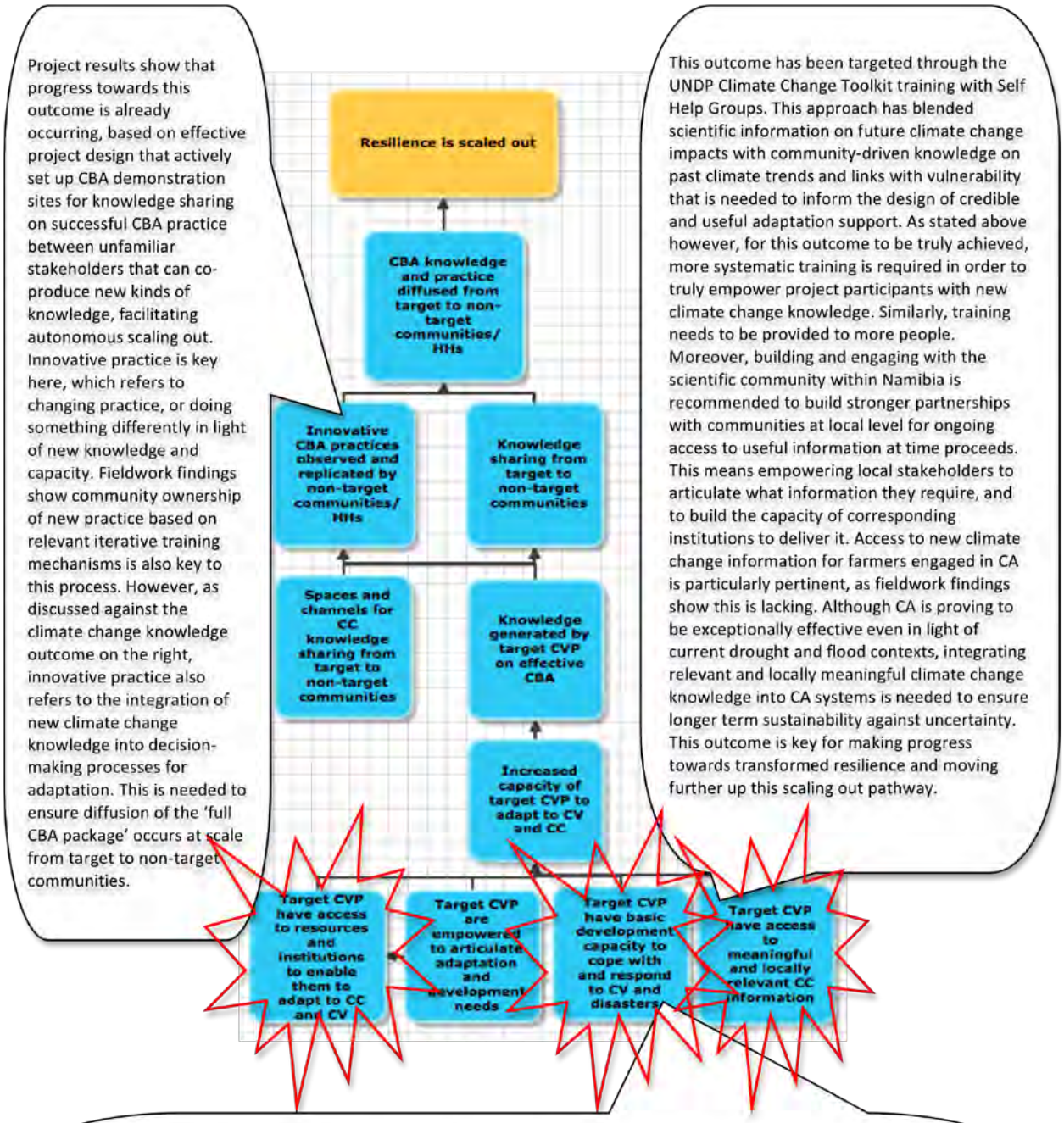
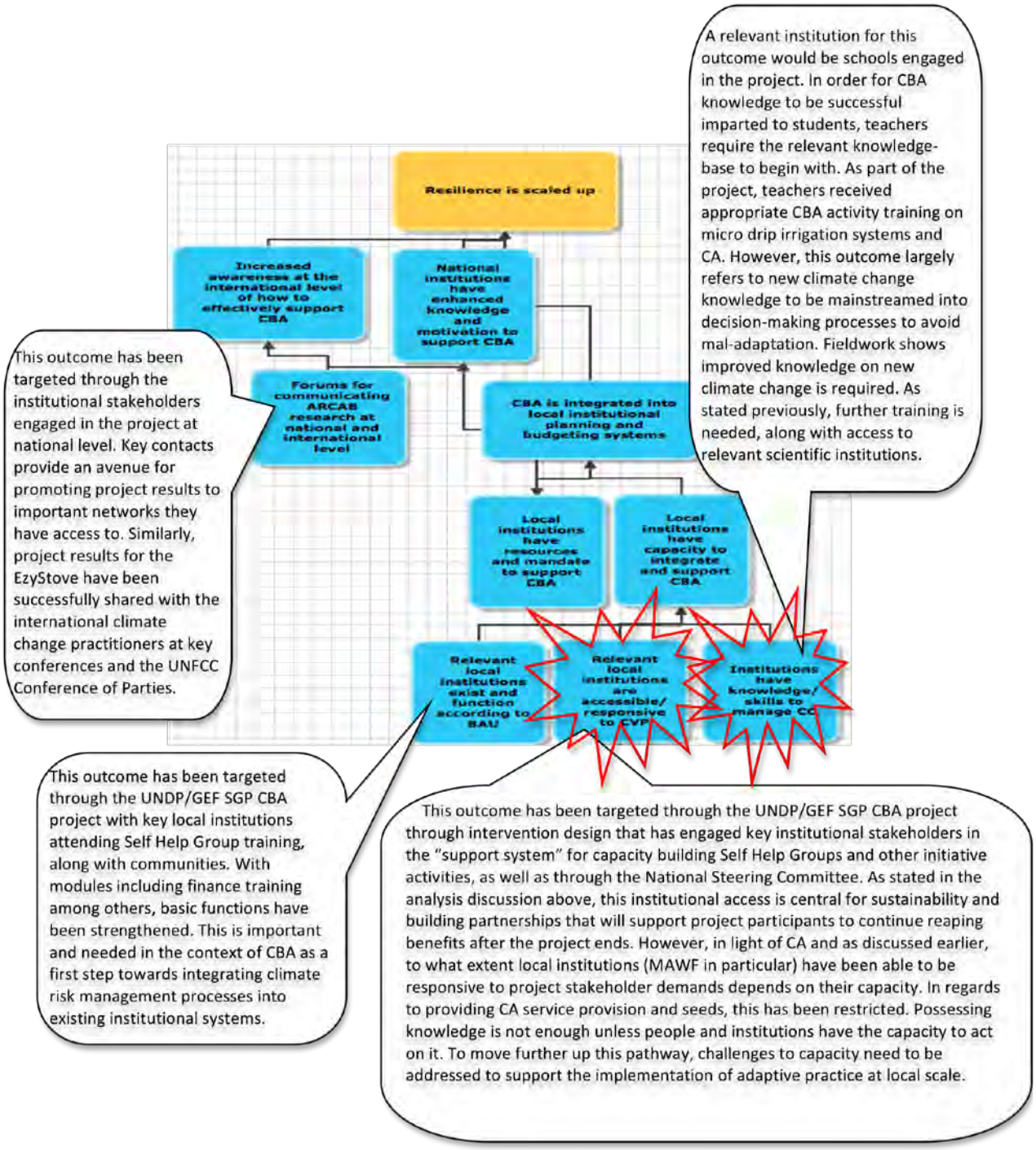


Figure 3: UNDP/GEF SGP CBA pilot project mapped against the ARCAB TOC "scaled up" pathway.



The above pathways of scaled out and up facilitate the next two pathways: 'resilience is transformative beyond BAU development/DRR', and 'resilience is sustainable over time.' However, without all outcomes in the above pathways addressed, the additional pathways cannot be reached. Both of these additional pathways require the same outcomes, so only one of the pathways is shown in figure 4 below to highlight what is needed to reach "transformed resilience." As is shown by the outcomes below, it is not to say that some of the transformative components utilised and achieved by the UNDP/GEF SGP CBA pilot project in Namibia are not reflected here – rather that these outcomes refer to these pre-conditions taking place across a much wider landscape than is currently achieved by the pilot project. However, if effective components of the project are scaled up and out in line with their potential to do so as discussed above, and if certain components of the pilot project are strengthened through the recommendations given, especially in regards to new climate change information so what is scaled up and out is a revised robust package required for building resilience at scale that results in transformative adaptation to climate change, then progress towards these higher level pathways is likely to be made. The UNDP/GEF SGP CBA project implemented by CES in Namibia embodies the essence of all four ARCAB TOC pathways highlighting its focus is in the right direction with the key strategic groundwork for going to scale made. However, the necessary capacity and resources are now required so current impact levels can move from micro to macro level, and can be scaled up and out to create a wider and more sustainable development impact for more people over time.

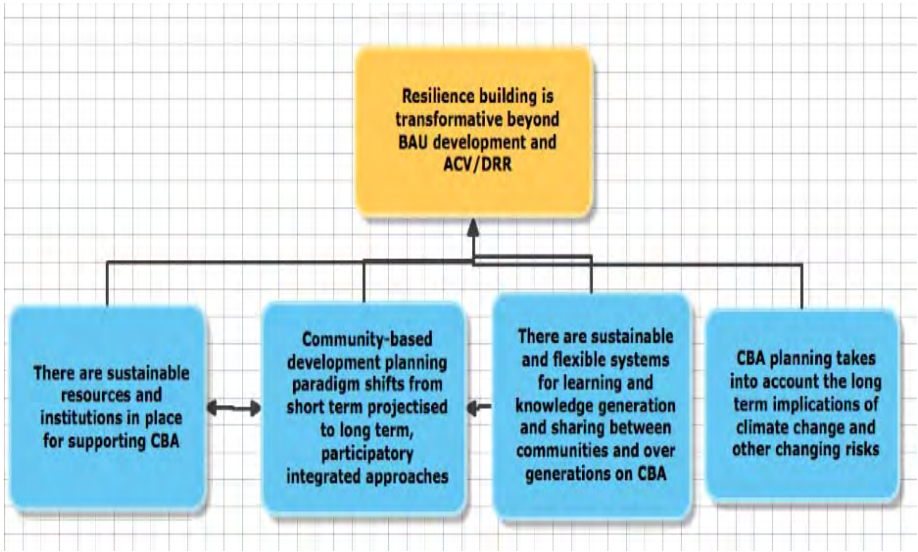


Figure 4: ARCAB TOC pathway "transformative beyond BAU development/DRR," with the same outcomes for ARCAB TOC pathway "sustainable over time."

In sum, with climate change providing an opportunity to re-target development processes towards long-term transformational change, it requires organisations to focus less on what their CBA project "does," and more on what their project "leaves behind." In other words, what is the long-term legacy of the project? The above analysis of results shows that the UNDP/GEF SGP CBA project implemented by CES in Namibia has reduced vulnerability for their project participants, leaving behind a legacy of empowered and capacitated people more able to adapt to current climate variability risk through transformational processes, with strong progress towards transformational adaptation to climate change made. This latter reflection is largely based on the potential of scaling up and out of successful project components from local to national level, and in some instances with potential for international replication as well.

These results are not haphazard; yielding the potential for taking an intervention to scale from an initial pilot requires a strategic scaling up agenda to be in place at the outset of project activity. Project processes

utilized highlight this, including the use of demonstration sites and the strong institutional engagement for capacity building and networking at higher policy levels, as discussed above. In addition however, it is interesting to show the social change mechanism that effectively mobilized change through project activities undertaken at different stages of the intervention and how this drove community needs and desire for upscaling successful adaptation practice (figure 5 below).

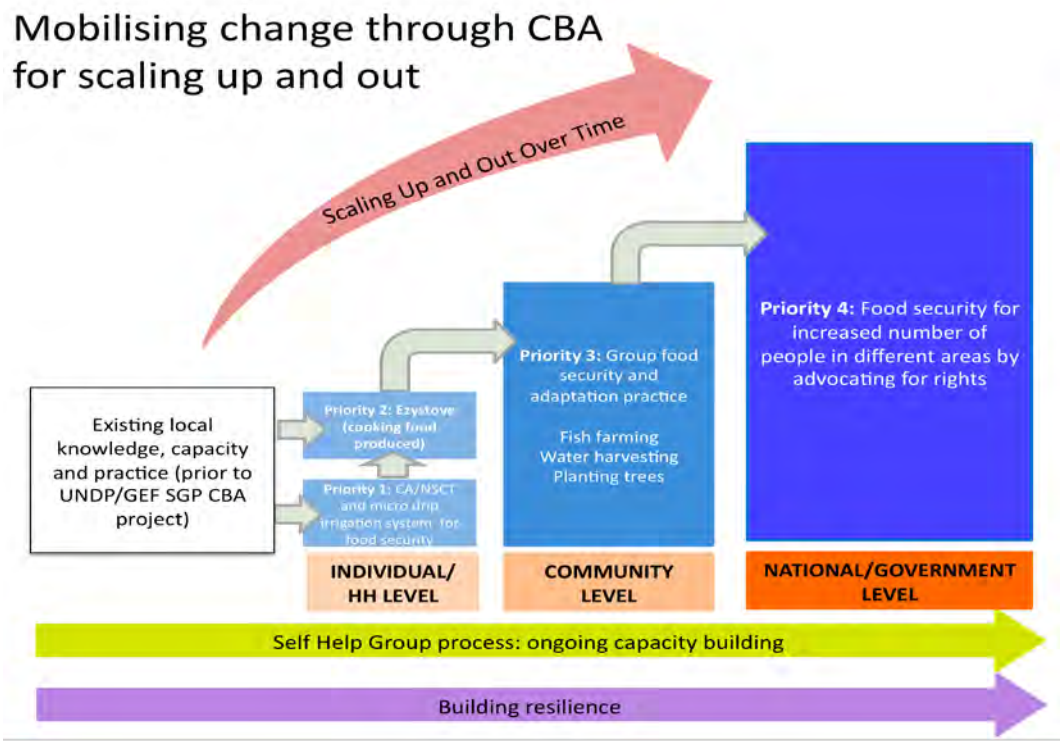


Figure 5: A conceptual presentation of the social change process within the UNDP/GEF SGP CBA project implemented by CES in Namibia.

As shown in figure 5 above, the UNDP/GEF SGP CBA project implemented by CES in Namibia has in part facilitated its strong results through a three-stage process of social change initialisation for CBA. First, by addressing key development deficits through enabling individual and household food security through CA and the micro drip irrigation system, combined with EzyStove implementation providing a more effective means for cooking food produced. Second, once individual/household food security has stabilised, project participants shifted their focus to also include wider community engagement, which saw the initiation of group adaptation activities undertaken, such as fish farming. Third, mobilisation of group empowerment facilitated advocacy for development rights at government level for increased adaptation benefits for a larger number of people based on a strong evidence-base of effective localised practice. Underpinning this overall process is the SHG mechanism, with social mobilisation proving an important component for yielding impetus for scaling up and out at local level.

The UNDP/GEF SGP CBA project implemented by CES in Namibia is indicative of many pilot CBA projects to date, in that it is short-term in length (3 to 5 years) compared to the longer term challenge provided by climate change and the support required by local stakeholders to adapt. However, results show that in a short-time frame, the project has affected change in key transformational areas that hold strong potential for facilitating longer term sustainable change not only for project participants, but also for a larger number of people at sub-national and national level if certain project components can be taken to scale. In other words, the UNDP/GEF SGP CBA project implemented by CES in Namibia has provided a strong a 'stepping

stone' that constitutes the successful ingredients to progress from micro to macro level impact if provided with the necessary and adequate institutional and donor support required for this evolution.

The aim of this section of the study was to show what can and should be scaled up based on evidence of 'what works' at local level, and how and why it is important. To build upon the very strong basis evident in the UNDP/GEF SGP CBA project implemented by CES in Namibia, and to move further towards transformative ACC and further up the ARCAB TOC, looking in further detail at how successful components of this project can be scaled up and out in practice to create a more sustainable and lasting adaptation impact is needed.

Part III

Scaling up and out effective CBA

This section of the report focuses on how to scale up and out two effective components of the existing UNDP/GEF SGP CBA project implemented by CES: (1) Namibia Specific Conservation Tillage (NSCT)[58] and (2) CCA education (with a focus on CBA). These two components have been chosen based on their strong project results generated through empirical evidence of CBA effectiveness at local level as a pre-condition to support advocacy for upscaling CBA. They have also been chosen based on community, private sector and local institutional desire to drive these elements forward and take them to scale. Both components hold the potential capacity to build and link local action to national development priorities that aim to support an increased and sustained adaptation impact for a larger number of people, in line with the overall goal of the UNDP/GEF SGP CBA programme to encourage systemic change in national adaptation-related policy through the generation of local CBA effectiveness. Scaling up NSCT is critical for national food security, especially in light of increasing climate risk. CCA education (with a focus on CBA) is central to building adaptation knowledge at national level for children, youths and adults across all levels and forms of educational systems, but particularly for Namibia's future generations who are most likely to experience increasing affects of climate change risk in the near term (over the next two to three decades).

It is important to highlight that this does not mean that it is not possible to scale up and out the other components of the UNDP/GEF SGP CBA project implemented by local partner CES, or even OIKE, in Namibia. As discussed in the previous section of this study, progress towards taking the EzyStove (and potentially the micro drip irrigation system) to scale through strategically chosen private sector institutions is in motion. However, to build on this and to achieve replication of this successful model, the necessary funding support for production and export is needed. Even so, this presents what could be considered a more straight forward scaling up and out model.

In comparison, NSCT and CCA education (with a focus on CBA) warrant a different approach to scaling up and out to be taken, which require additional components to be added to the initial pilot project and for other kinds of evidence needed to convince policy makers to change existing policies or institute new ones based on a rigorous critique of the existing policy landscape. Moreover, in light of the priority of food security from local to national scale, NSCT and CCA education are mutually beneficial with these components attracting increased attention from stakeholders within and outside of project boundaries, showing impetus for scaling up and out of CBA project components is increasingly likely to occur if strategically driven by local stakeholders from the bottom up. Similarly, this also reflects the issue of timing for taking project components to scale. Not all project components necessarily need to be taken to scale at the same time, but rather in accordance with their relevance for adaptation and development planning. Scaling up NSCT and CCA education (with a focus on CBA) is key to the current context within Namibia, with catalysts presented on the ground to facilitate this progression, as shall be discussed in further detail below.

For successful scaling up and out, a clear roadmap of scaling up pathways needed to move NSCT and CCA education from small pilot to impact at scale, and an assessment of the needed drivers and spaces for this process is required. Both of these components are presented in this section of the report. The former through a TOC approach, and the latter through the adoption of relevant drivers and spaces for the

[58] As discussed in the previous section of this study, NSCT is a specific component of CA that refers to ripping and furrowing; crop rotation; using maximum soil cover with minimum soil disturbance; incorporating plan residue to increase soil fertility (Johansson pers comms. April 2013).

Namibian context from the Hartmann and Linn (2008b) scaling up framework.

Although scaling up and out of NSCT and CCA education require different pathways and ingredients for potential success based on the context specificity in which they are required to go-to-scale, several elements running through each TOC are common. First, both Theories of Change (TOCs) are primarily based on fieldwork results and are therefore based in local evidence yet aimed at national policy level. Fieldwork results have contributed to strengthening the initial pilot components where necessary in order for subsequent steps needed to systematically replicate and scale up what has worked to occur. Second, both have a clear long-term goal with a 10-year focus. A long-term timeframe is required to reach ultimate impacts, with this long-term objective of scale impact set as part of the intervention concept from the beginning as a key component of effective scaling up and out (Linn 2011). Third, national coverage was decided as the optimal size for both scaled up interventions. Desirable size is an important issue for projects based on participatory processes (Hartmann and Linn 2008a), which is key to the essence of the UNDP/GEF SGP CBA project. How to move beyond the scope of the community is therefore central to this section of the report, with the TOCs below illustrating a case study for how mainstreaming in the context of CBA may be achieved in practice.

A Theory of Change for taking NSCT to scale

The long-term goal

The ultimate desired outcome for mainstreaming NSCT into national-level development policy is: *Resilience of natural-resource based communities in Namibia to climate change risk enhanced.*

This is a 10-year goal. Current understanding within the Namibian agricultural sector shows that in 10-15 years time, if soil erosion levels continue in the same vein they are currently due to climate (increased drought and flood episodes) and non-climate risk factors (impacts from using the current nationally-pushed disc harrowing approach), it is unlikely that undertaking agricultural practice in Namibia will be possible.[59]

High level outcomes

In order for the above long-term goal to be achieved, the NSCT TOC proposes that there is one necessary high level precondition: *NSCT practiced in over 400,000 hectares across Namibia.*

This gives rise to outcomes that form three main pathways of change:

- Pathway 1: *NSCT in practice* (figure 6)
- Pathway 2: *Political advocacy* (figure 7), and
- Pathway 3: *NSCT value chain* (figure 8).

[59] KII Marie Johansson, 7 April 2013; KII Gerard Baufeldt, 12 April 2013. Moreover, this 10-15 years time frame is also calculated in light of evidence from scaling up CA in Zambia, where CA was originally operationalized prior to Namibia. In this context, it took over 18 years to scale up CA to 180,000 farmers (KII Marie Johansson, 7 April 2013).

Figure 6: NSCT TOC Pathway 1: NSCT in practice

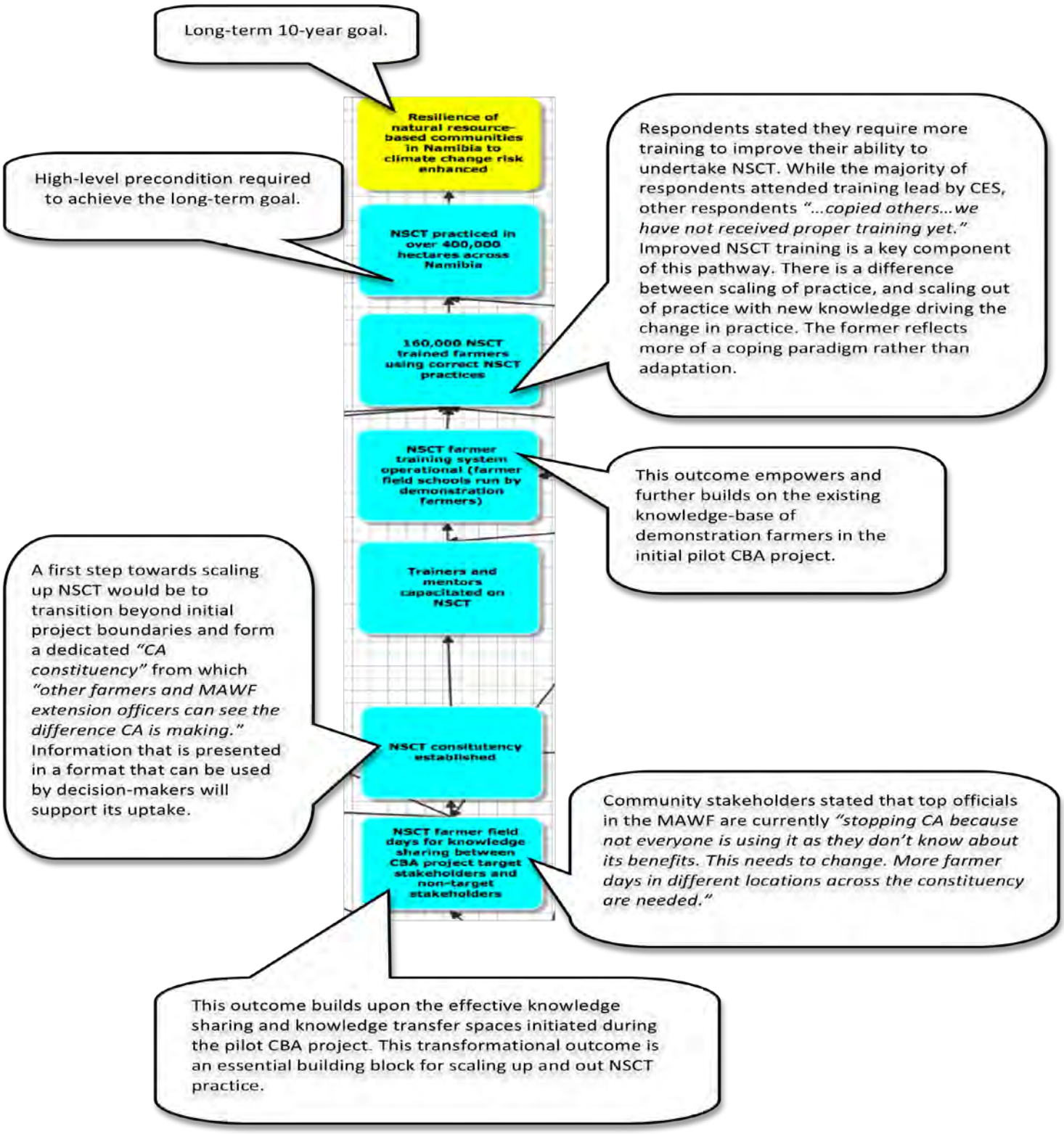


Figure 7: NSCT TOC Pathway 2: Political advocacy.

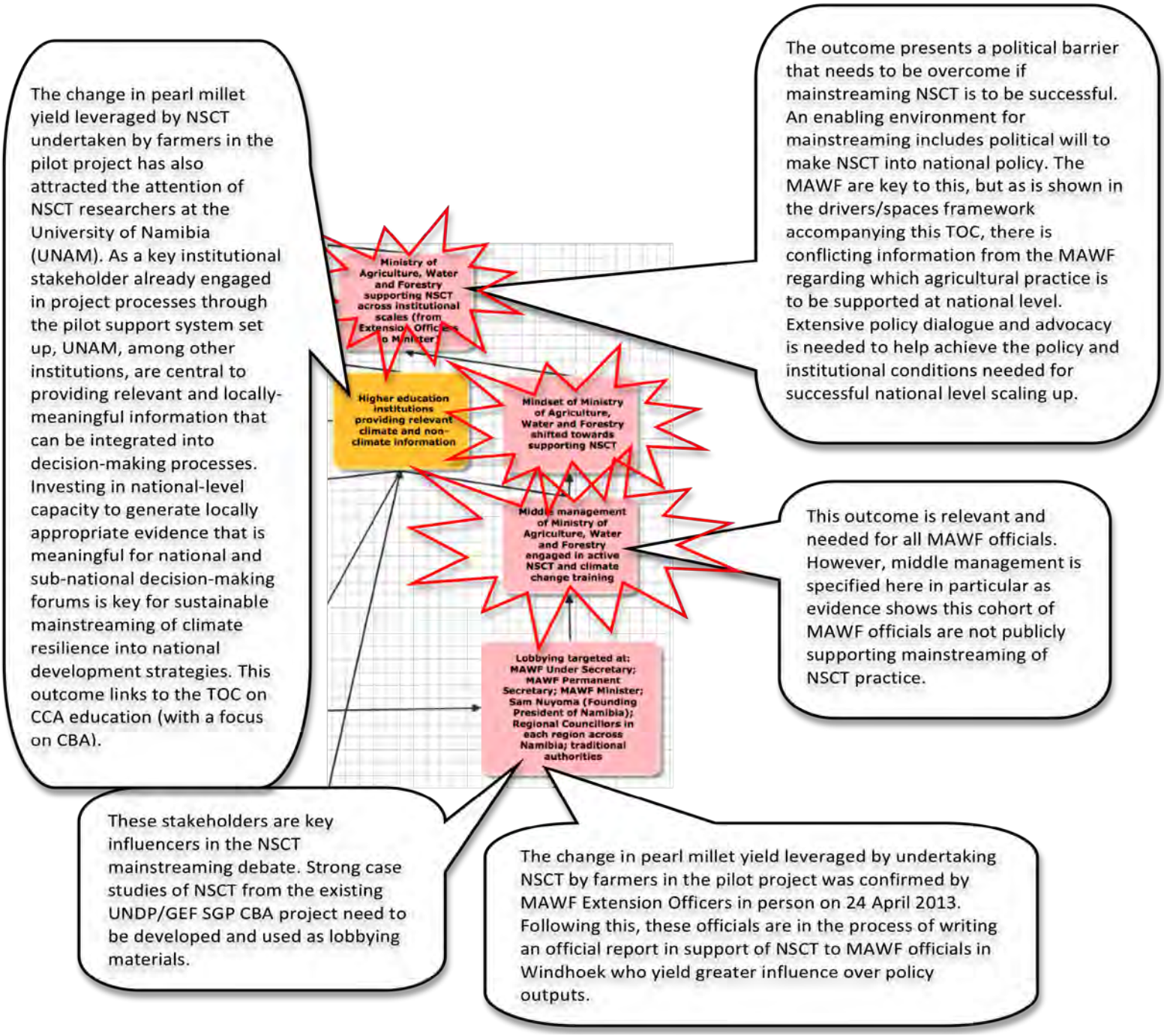


Figure 8: NSCT TOC Pathway 3: NSCT value chain

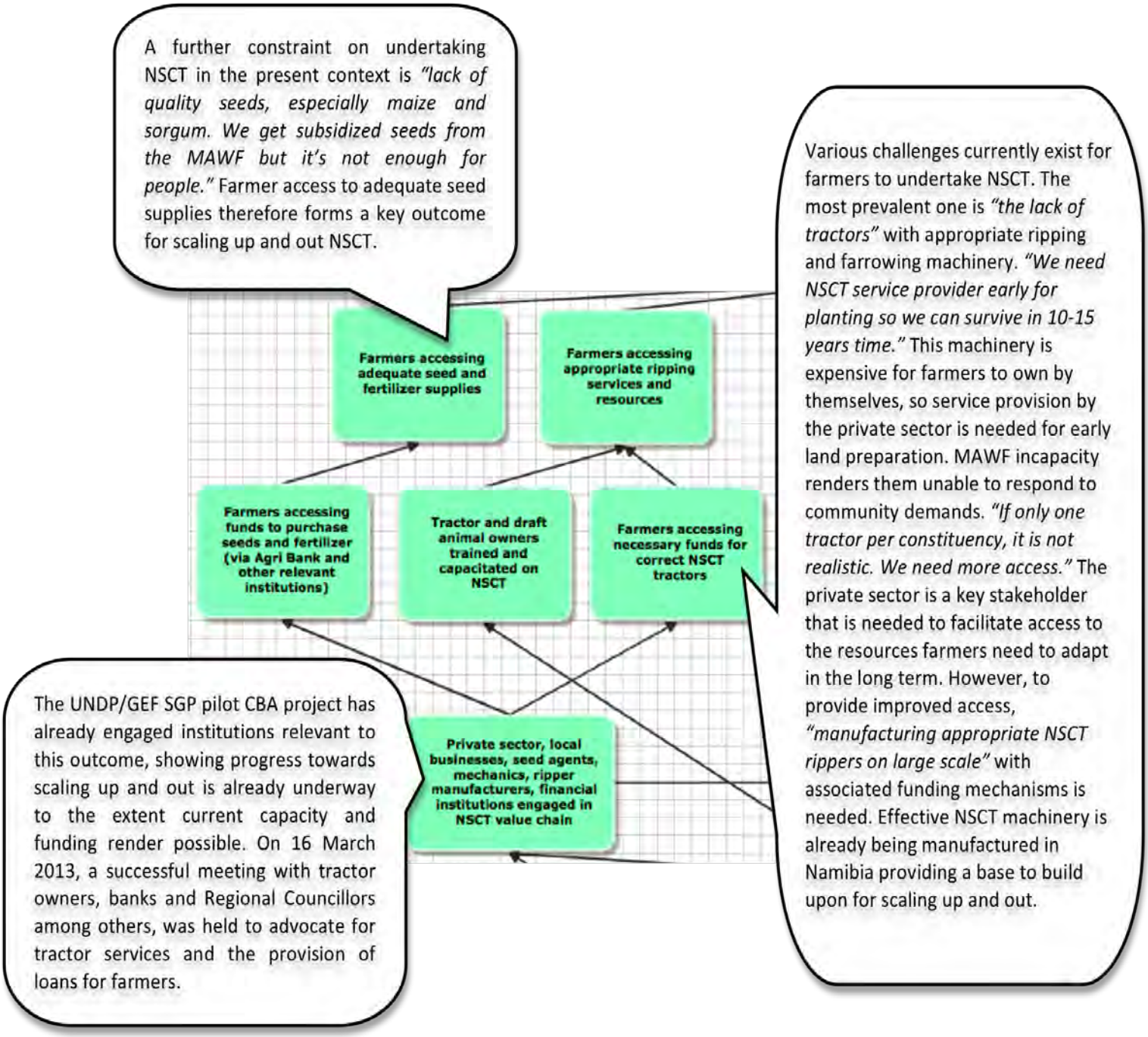
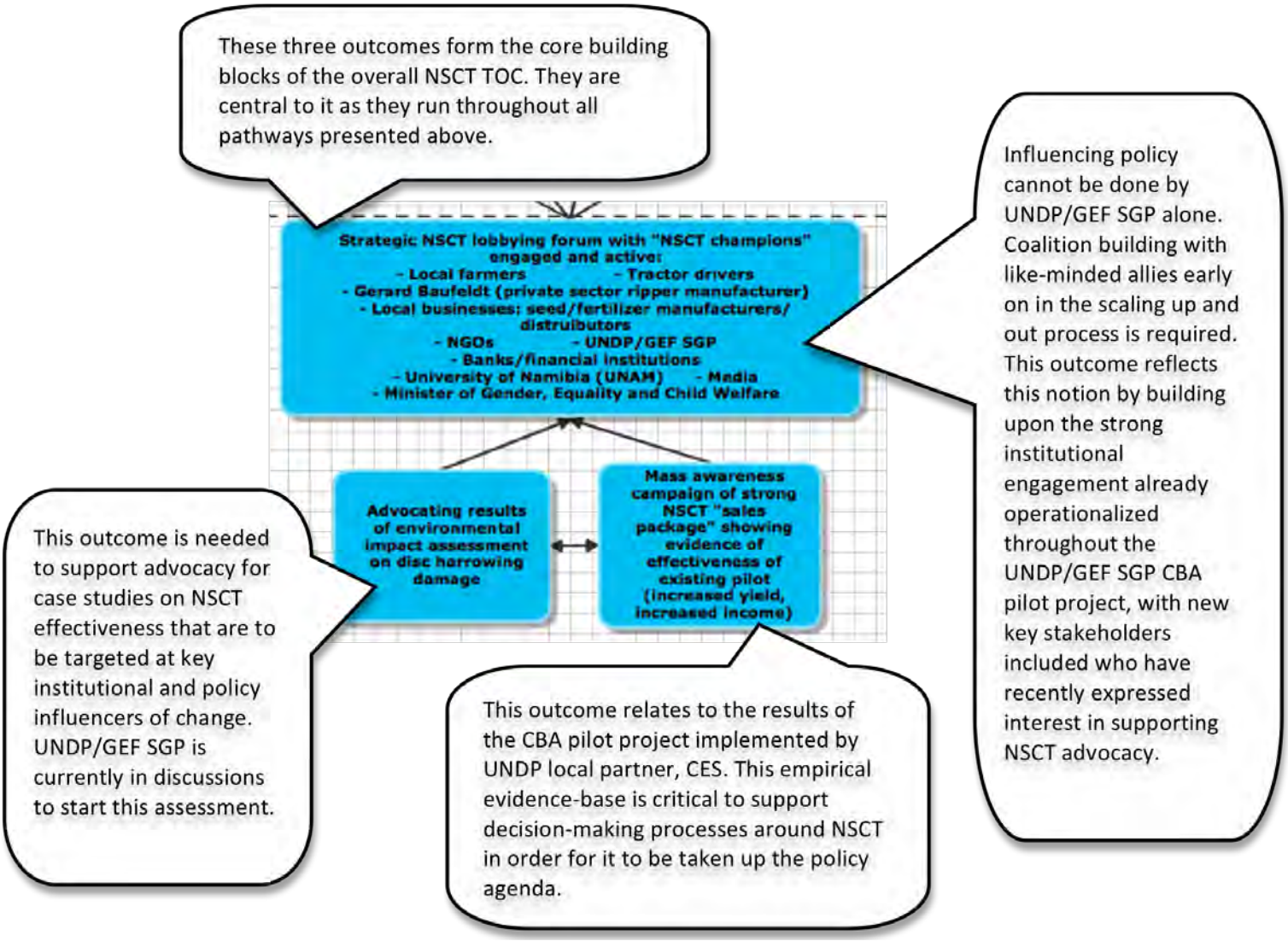


Figure 9: Core building blocks of the NSCT TOC



The full NSCT TOC is presented next. After this, the “drivers” and “spaces” scaling up framework developed during fieldwork to support NSCT TOC development is presented. The drivers and spaces presented in this framework are those adopted from the Hartmann and Linn (2008a) approach, which have been deemed as relevant for taking NSCT to scale by the field team.

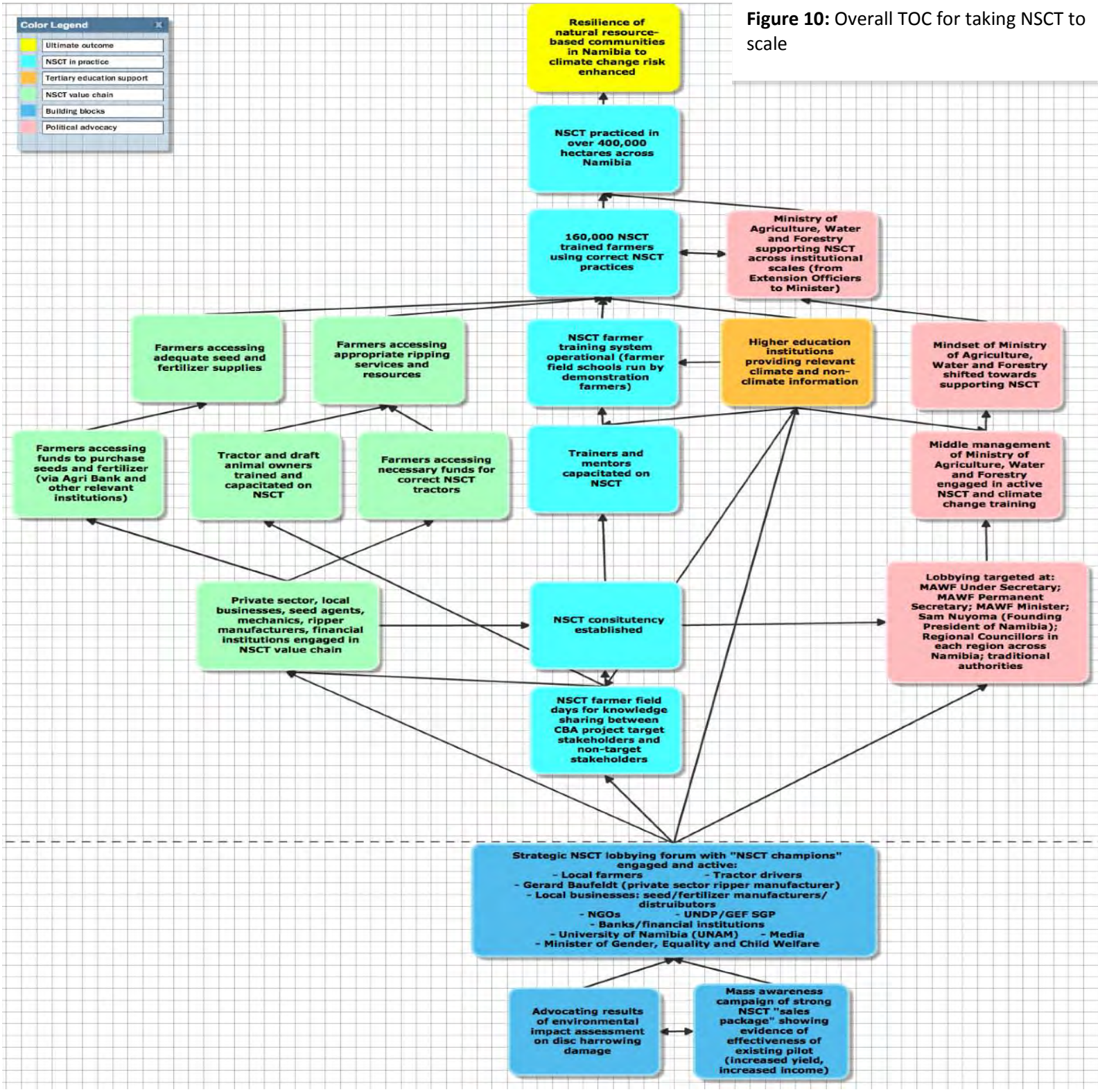


Figure 10: Overall TOC for taking NSCT to scale

Table 1: Drivers and spaces for taking NSCT to scale (adapted from Hartmann and Linn 2008a)

Drivers and Spaces for Scaling Up and Out Namibia Specific Conservation Tillage (NSCT)			
Drivers		**Spaces**	
Ideas, vision, leadership	President of Namibia states need to increase national food security and is in support of NSCT (he uses the NSCT method on his own agricultural land); numerous Ministers also use NSCT on their land.	**Fiscal**	GEF funding key for sustainability, yet financial model remains to be fully determined. Funding required for farmer capacity building for 10-15 years (like Zambia training model); for appropriate rippers for tractors and animals; for farming inputs (seeds, fertilizer, manure).
Vision of scale	Nationwide coverage of NSCT in agricultural areas in 10 years (160,000 households, 400,000 hectares).	**Political**	MAWF middle management resistant to NSCT and decentralization of MAWF.
External factors / catalysts	State of national food (in) security. Current and potential future impacts of climate change; soil erosion; land degradation; increasing water scarcity; consecutive drought periods. Prime Minister Office desire to build household resilience and reduce dependence on drought relief. National Policy on Climate Change for Namibia (2011); National Development Plan IV; Rain fed Crop Production Programme under MAWF; and National Agriculture Policy all support promotion of NSCT. Conflicting information issued/action undertaken by MAWF on support for NSCT (E.g. January 2013 Minister of MAWF stated support for NSCT in Namibia[60] but April 2013 middle MAWF management held meeting declaring NSCT is not to be used and a new agriculture technique from Argentina (that is not yet tested in Namibia) is to be implemented) Demand for NSCT from farmers, tractor owners, the private sector, national banks (providing soft loans), development micro loan institutions, MAWF line extension officers engaged in existing CBA pilot project, and Ministry of Gender (food security for women and children). Existing low levels of farmer knowledge on agricultural systems and loss of traditional knowledge (historical factors, contract	**Policy**	Numerous supportive policies for NSCT exist but need to be upgraded in light of climate change risk and implemented: National Policy on Climate Change (2011); National Development Plan IV; National Poverty Reduction Policy (links with food security); National Agriculture Policy.

[60] New Era newspaper, January 31 2013: "The government realizes there is considerable potential to increase crop yields for rain-fed agriculture by combining mechanized agriculture with proven, Namibia-specific, conservation agriculture (CA) practices. As a result, the agriculture ministry has taken a step to introduce tractors drawing rippers/furrows" in article entitled 'Crop programme still needs tweaking' by Irene Hoaës.

	labour systems put in place following apartheid). CLUSA (US-AID).[61] SAREP (South African Regional Environment Programme).		
Internal factors (UNDP/GEF SGP)	Management and staff Potential GEF funding opportunities	**Institutional / organisational**	Need to capacity build MAWF middle management long-term Need to increase capacity of CES to be able to respond to increasing demand for NSCT training
		Partnership	Good cooperation with existing CBA project implementing partners: selected schools; School Boards. New partnerships suggested: school environmental clubs; CBOs; other NGOs; Namibia Development Trust; Rural Development Programme; WIMSA (Working Group for Indigenous Minorities in South Africa); Shackdwellers Federation Namibia; Urban Trust Namibia
		Cultural	Challenges to engage nomadic community members exist based on lack of proactive interest/desire to help themselves
		Learning	Effective M&E, including participatory M&E, and knowledge management systems that facilitate learning from and for change need to be set up and implemented
		Natural resources	Exposure to current and potential future climate change impacts critical; soil erosion critical (strong winds, floods, over grazing of livestock, use of outdated agriculture machinery); water scarcity critical; consecutive drought periods critical.

[61] Based on strong pilot project results, USAID has provided funding, through CLUSA International, to scale out NSCT to 10,800 Namibian smallholder farming households.

A Theory of Change for Taking CCA education (with a focus on CBA) To Scale

The long-term goal

The ultimate desired outcome is: *CCA (including CBA) mainstreamed into national formal and informal education systems at all levels in Namibia by 2030.*

Climate change is a cross-cutting issue necessitating the requirement for adaptation education across all types of education systems and structures to ensure maximum exposure to relevant and meaningful knowledge nationwide. This ultimate impact supports the Ministry of Environment and Tourism (MET) strategy on "Education, training, capacity building and institutional strengthening" in the Republic of Namibia National Policy on Climate Change (2011). It also supports Vision 2030 on the "attainment of strategic national development goals and the facilitation of transition of Namibia to a knowledge-based economy." If mainstreaming is to be successful, supporting existing government institutional structures and policies is important for building national capacity and sustainability of outcomes to be achieved. This will also provide better opportunities for linking CBA from local to higher institutional levels.

High level outcomes

In order for the above long-term goal to be achieved, the CCA Education TOC proposes that there are four necessary high level preconditions:

(i) *Active uptake of CCA in informal adult education systems*
(ii) *Active uptake of CCA in general education (grades 1-12) in schools nationwide*
(iii) *Active uptake of CCA in tertiary education*
(iv) *Active uptake of CCA in teacher training institutions*

This gives rise to outcomes that form four main pathways of change:

- Pathway 1: *Informal adult education* (figure 11)
- Pathway 2: *General school education* (figure 12),
- Pathway 3: *Tertiary education* (figure 13), and
- Pathway 4: *Teacher training institutions* (also included in figure 13).

Figure 11: CCA Education TOC Pathway 1: Informal adult education

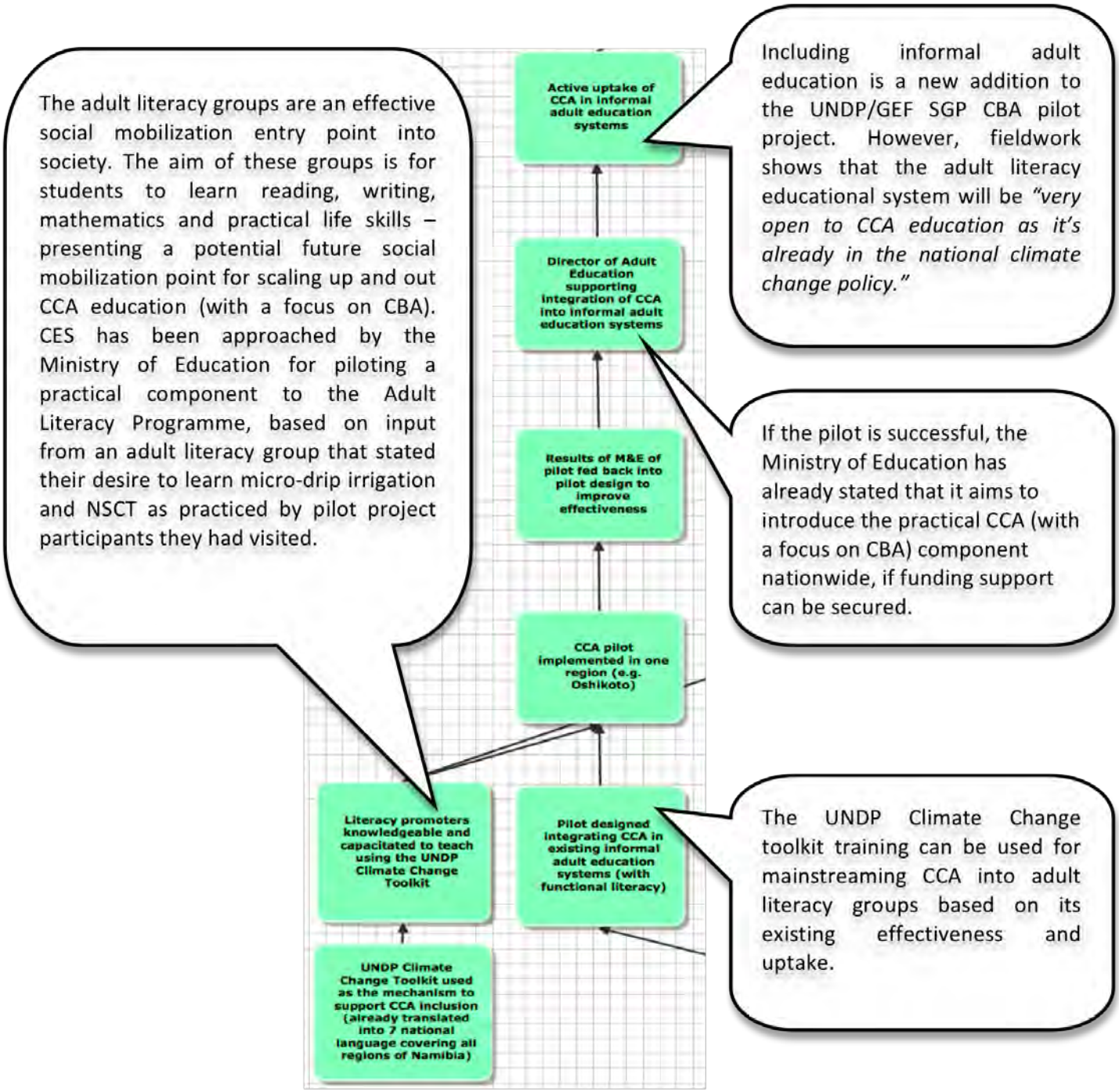


Figure 12: CCA Education TOC Pathway 2: General school education

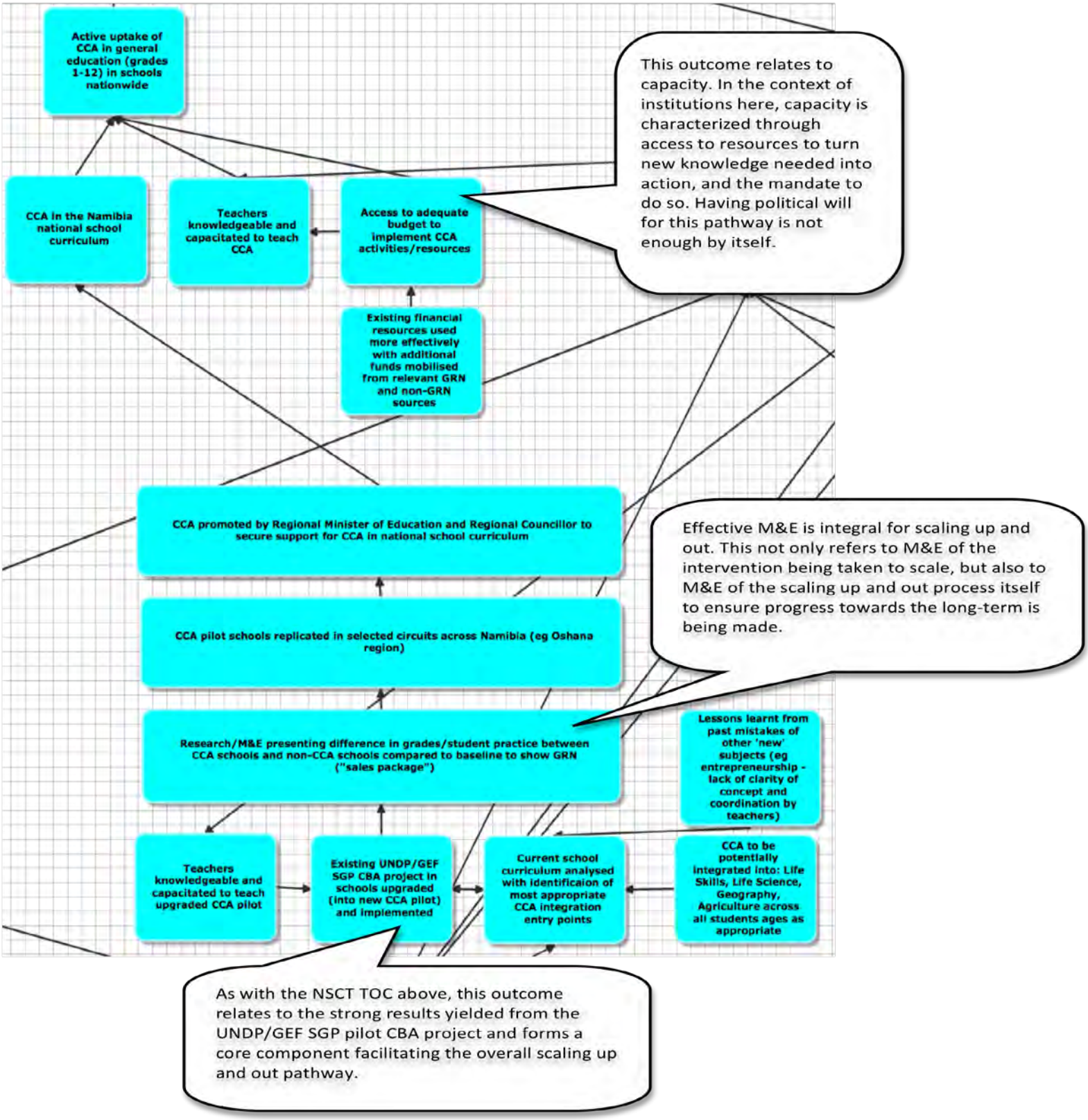
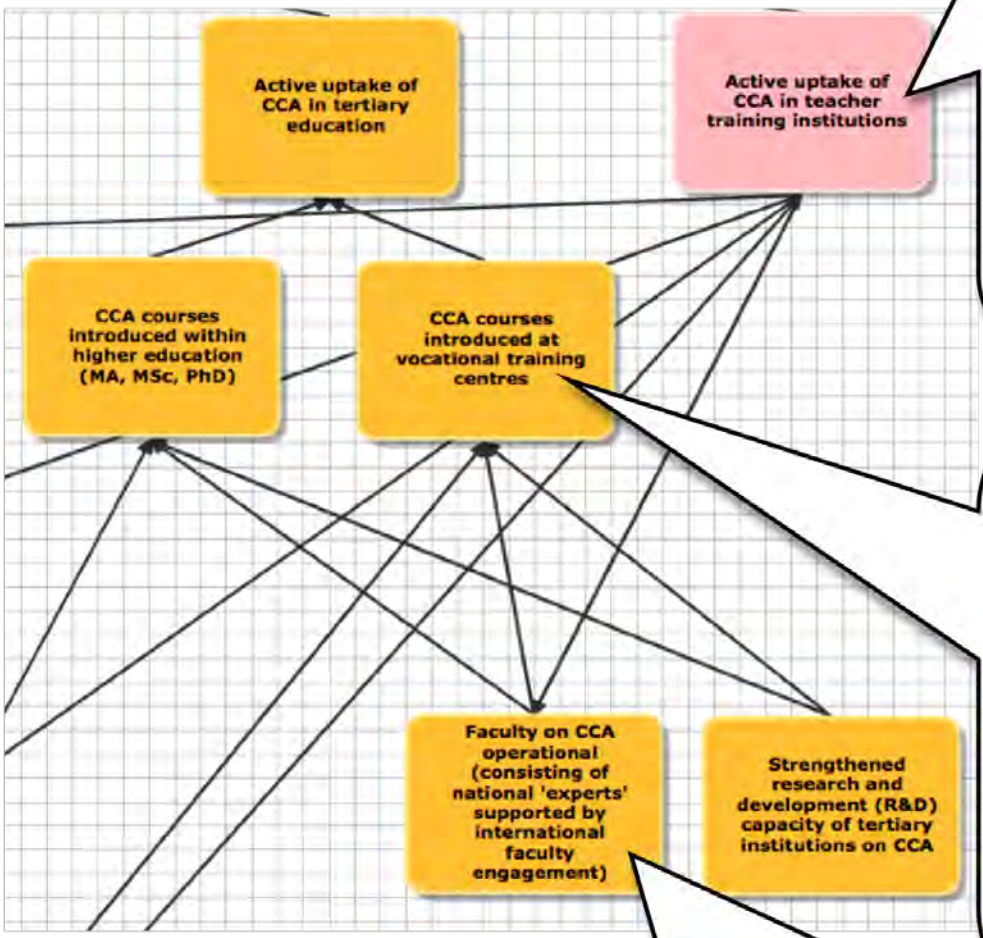

Active uptake of CCA in general education (grades 1-12) in schools nationwide
CCA in the Namibia national school curriculum
Teachers knowledgeable and capacitated to teach CCA
Access to adequate budget to implement CCA activities/resources
This outcome relates to capacity. In the context of institutions here, capacity is characterized through access to resources to turn new knowledge needed into action, and the mandate to do so. Having political will for this pathway is not enough by itself.
Existing financial resources used more effectively with additional funds mobilised from relevant GRN and non-GRN sources
CCA promoted by Regional Minister of Education and Regional Councillor to secure support for CCA in national school curriculum
CCA pilot schools replicated in selected circuits across Namibia (eg Oshana region)
Effective M&E is integral for scaling up and out. This not only refers to M&E of the intervention being taken to scale, but also to M&E of the scaling up and out process itself to ensure progress towards the long-term is being made.
Research/M&E presenting difference in grades/student practice between CCA schools and non-CCA schools compared to baseline to show GRN ("sales package")
Lessons learnt from past mistakes of other 'new' subjects (eg entrepreneurship - lack of clarity of concept and coordination by teachers)
Teachers knowledgeable and capacitated to teach upgraded CCA pilot
Existing UNDP/GEF SGP CBA project in schools upgraded (into new CCA pilot) and implemented
Current school curriculum analysed with identificaion of most appropriate CCA integration entry points
CCA to be potentially integrated into: Life Skills, Life Science, Geography, Agriculture across all students ages as appropriate
As with the NSCT TOC above, this outcome relates to the strong results yielded from the UNDP/GEF SGP pilot CBA project and forms a core component facilitating the overall scaling up and out pathway.

Figure 13: CCA Education TOC Pathway 3 and 4: Tertiary education and Teacher training institutions

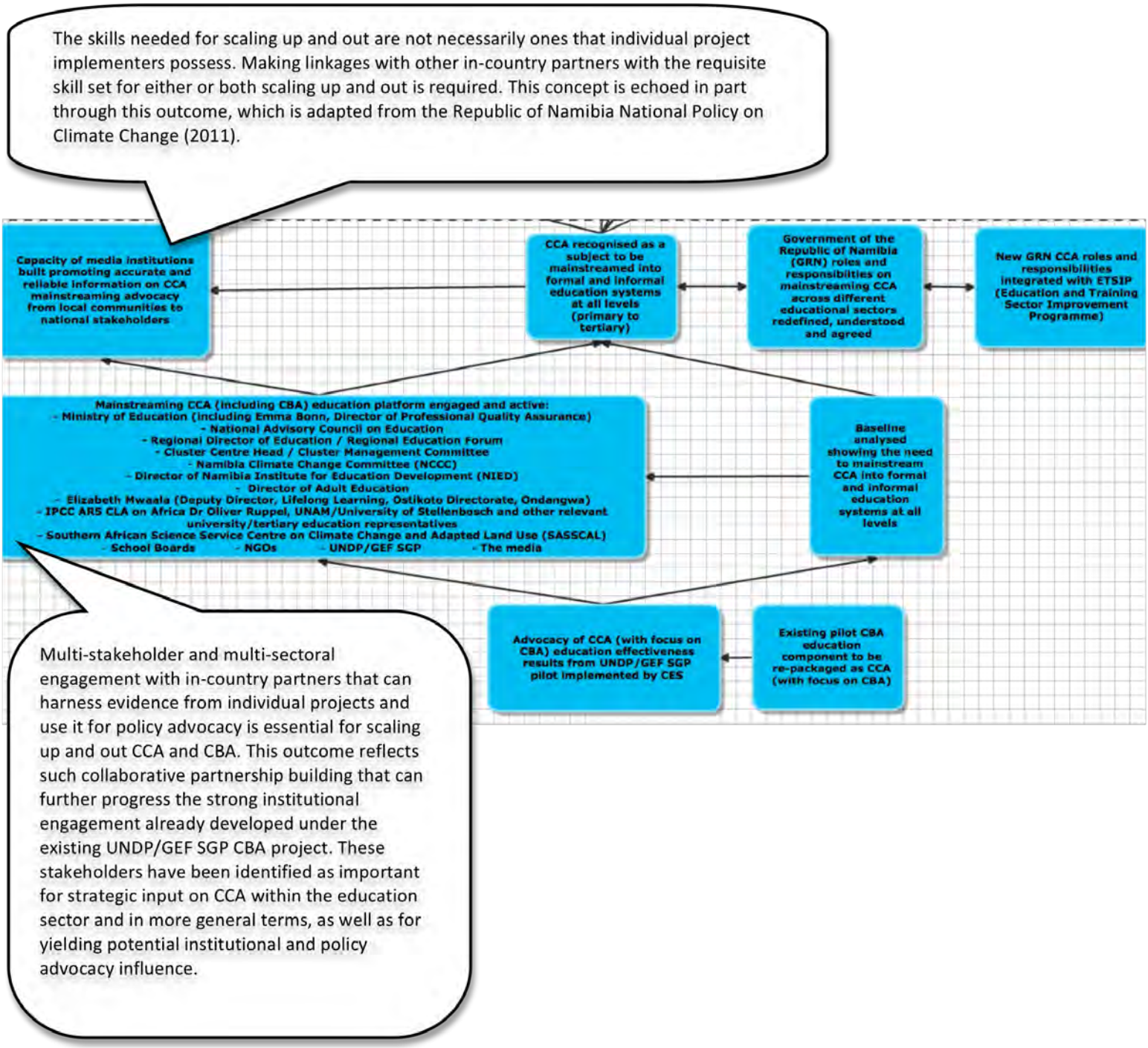


This pathway is integral to all other pathways, as building appropriate levels of teacher capacity for CCA education (with a focus on CBA) is key. Mainstreaming CCA into teacher training institutions is a direct route to support making progress towards the long-term goal.

To works towards this outcome, it is recommended that UNDP/GEF SGP work with the Namibia Training Authority. Fieldwork findings show that they are starting to develop a curriculum on NSCT to be rolled out across training centres in all regions across Namibia. Mainstreaming CCA into it would be central to not only this pathway, but it would also support the overall NSCT TOC.

As highlighted on the previous NSCT TOC, capacity building in order to harness national level expertise around vulnerability risk factors and climate change science is important to ensure change climate priorities are both country owned and nationally responsive (Ayers *et al* 2013).

Figure 14: Core building blocks of the CCA education TOC



The full CCA education TOC is presented next. After this, the “drivers” and “spaces” scaling up framework developed during fieldwork to support CCA education TOC development is presented. The drivers and spaces presented in this framework are those adopted from the Hartmann and Linn (2008a) approach, which have been deemed as relevant for taking CCA education to scale by the field team. The same drivers and spaces are used here as in the framework for NSCT.

Figure 15: Overall TOC for taking CCA education (with a focus on CBA) to scale

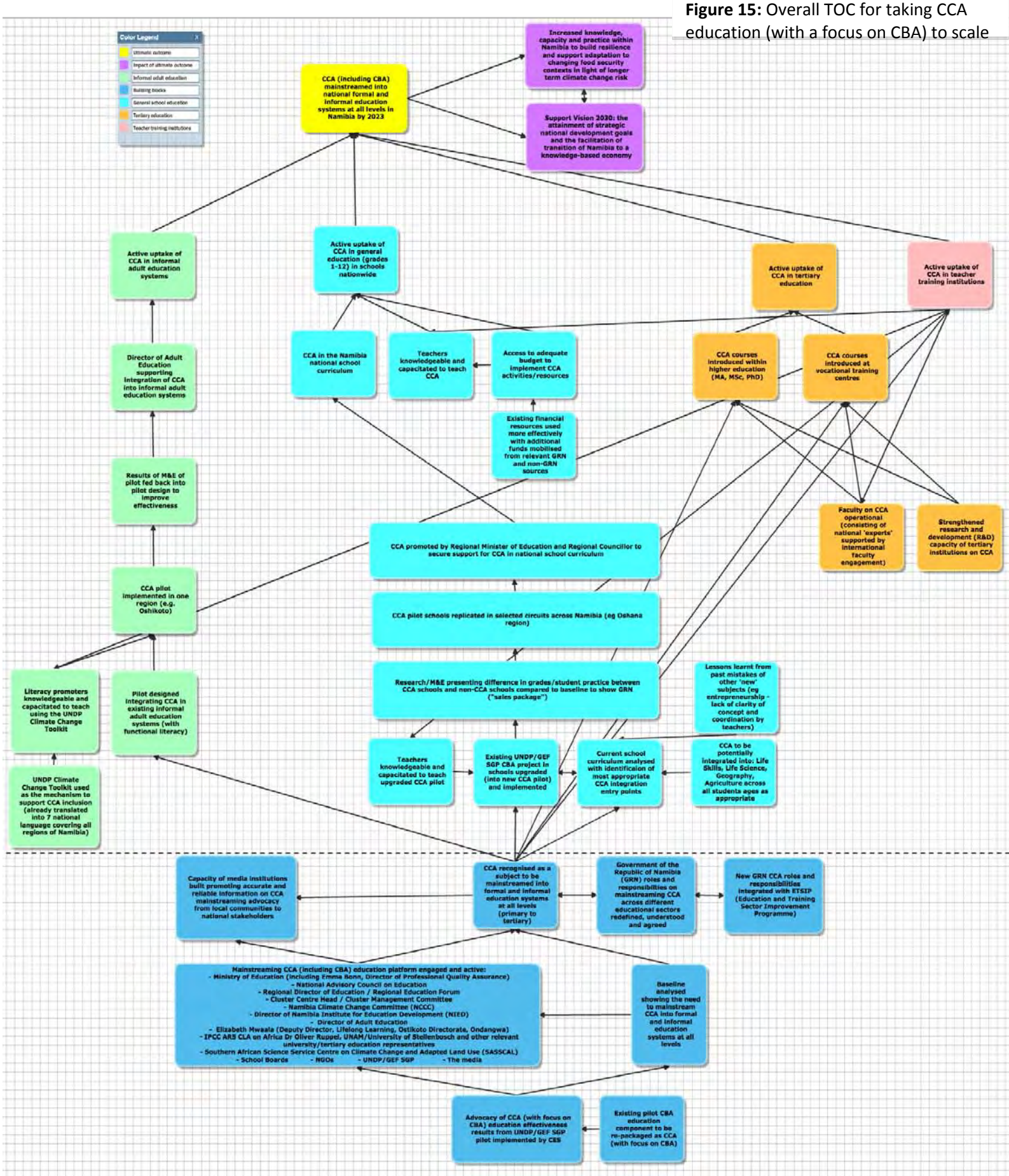


Table 2: Drivers and spaces for taking CCA Education to scale (adapted from Hartmann and Linn 2008a)

Drivers and Spaces for Scaling Up and Out CCA Education (with a focus on CBA)			
Drivers		**Spaces**	
Ideas, vision, leadership	Lead by schools themselves	**Fiscal**	Mobilisation for funding support required, yet financial model remains to be fully determined
Vision of scale	Mainstreaming of CCA (with a focus on CBA) into formal and informal education systems at all levels in 10 years	**Political**	Decentralisation of MoE supportive for scaling up
External factors / catalysts	State of national food (in)security Current and potential future impacts of climate change; soil erosion; land degradation; increasing water scarcity; consecutive drought periods School demand for mainstreaming CCA and CBA into education systems; scaling out of pilot CBA project already occurring organically; substantial improvement in student interest and grades on NSCT-related subjects School feeding programmes supplemented by school NSCT/vegetable production/drip irrigation systems, with excess vegetables/crops sold within community markets for profit enabling school field trips National Policy on Climate Change for Namibia (2011) supports promotion of mainstreaming CCA into education systems. Introducing CCA into adult education is supported by inclusion of CCA in National Policy on Climate Change for Namibia (2011)	**Policy**	Supportive policies for mainstreaming CCA into education systems exist (National Policy on Climate Change 2011), but need to be implemented and harmonized with existing education policy
Internal factors (UNDP/GEF SGP)	Management and staff	**Institutional / organisational**	Teacher training / capacity building critical
		Partnership	Good cooperation with existing CBA project implementing partners and potential new partners: including private sectors, financial institutions, tractor owners, draft animal owners; MAWF extension officers; UNAM; local Churches; Farmers Associations; Regional Councillors; CLUSA; US-AID.
		Cultural	Challenges to engage nomadic community members exist based on lack of proactive interest/desire to help themselves
		Learning	Effective M&E, including participatory M&E, and knowledge management systems that facilitate learning from and for change need to be set up and implemented

		Natural resources	Exposure to current and potential future climate change impacts critical; soil erosion critical (strong winds, floods, over grazing of livestock, use of outdated agriculture machinery); water scarcity critical; consecutive drought periods critical.

Part IV

Conclusions and recommendations

This report has been an exploratory study on how to scale up and out effective community-based adaptation (CBA) components of the GEF SGP pilot CBA project "*Harnessing Coping Strategies via a Holistic Approach for Community Adaptation to Climate Change,"* implemented by UNDP and local SGP grantee partner Creative Entrepreneurs Solutions (CES) in north-central Namibia. The underlying importance of this process has been to show why this is crucial in the current landscape of CBA planning, programming and funding architecture: even successful CBA projects at localised scale do not add up to much in terms of aggregated results and lasting adaptation impact if they are not scaled up and out. It is therefore important for effective pilot projects to move beyond existing business as usual boundaries that keep initiatives as small islands of success with short-term results, in order to evolve into stepping stones that with the right ingredients can progress from micro to macro level impact that helps build sustainable climate resilience across a broader spectrum of sectors and stakeholders at sub-national, national and even potentially international scale.

A key component of this case study focused on the critical step required to facilitate this shift in process in line with the overall UNDP/GEF SGP CBA project goal: the generation of community-driven evidence that can be taken up the policy agenda to support decision-making and encourage systemic change around the need for scaling up and out of effective CBA practice based on results of what works at local level (Ayers et al. 2013). By moving beyond emphasizing problems to demonstrating relevant and realistic solutions developed in-country that are meaningful for sub-national and national decision-makers (Anderson et al. 2011), the UNDP/GEF SGP CBA pilot project in Namibia, as with other UNDP/GEF SGP CBA pilot project countries, has successfully provided useful evidence for scaling up and out policy-making.

Results show that the UNDP/GEF SGP CBA pilot project implemented by CES in Namibia is effective, both through the processes used and the results obtained. In order for climate vulnerable poor groups to move beyond adaptation to current risks, and to adapt to longer term uncertain potential future climate change impacts through sustainable adaptation strategies, "transformed resilience" needs to be built. This comprises of building resilience at scale across three key components (ARCAB 2012):

- **Geographic scale**: Resilience is achieved beyond isolated CBA projects. CBA is mainstreamed into long-term institutional structures, and activities are replicated beyond immediate project boundaries.
- **Time scale**: Resilience is sustainable, with climate vulnerable poor communities continuing to maintain and build resilience after project activities have finished.
- **Beyond business as usual approaches**: Resilience-building challenges existing development and disaster risk reduction (DRR) approaches, and re-targets efforts towards building the adaptive capacity of the climate vulnerable poor to longer term, uncertain climate and other risks. Among others, this requires bringing on board new knowledge and information that is integrated into decision-making processes across scales, particularly improved scientific information on future climate change impacts blended with community-driven knowledge on past climate trends and links with vulnerability.

The UNDP/GEF SGP CBA pilot project in Namibia has successfully sown the seeds that focus on building "transformed resilience," and therefore effective CBA, across these three spectrums of scale at localised level. To achieve this, an entirely transformative approach to CBA has been undertaken, with no elements of this pilot project considered 'business as usual.' This is significant, as it means that progression beyond

the delivery of conventional development and DRR approaches that largely lack the ability to build sustainable climate resilience in an uncertain adaptation environment have been used.

In practice, this means that key basic needs of the poorest and most marginalized people vulnerable to climate change have been addressed; that the climate vulnerable poor have been meaningfully engaged in project planning processes through strong participation and have been empowered to ensure that their knowledge and demands are reflected in project decision-making processes; that learning-by-doing CBA practice has been implemented to ensure community ownership of new knowledge; that effective project design has utilized spaces for knowledge sharing and knowledge transfer to support the scaling up and scaling out of effective CBA processes and practice; that access to scientific information on climate variability and climate change in an appropriate format and language has been used to support the development of community adaptive practice; and that moving beyond a short-term projectised focus to planning towards a longer term vision that has considered scaling up from the outset, which has been supported through integrated approaches that have engaged with relevant institutions from local to national scale, has been achieved.

This project planning and implementation approach has yielded strong results from which other organizations and institutions can learn. Among others, these results include proven increased food security during national government declared severe drought contexts; community perceptions therefore of increased ability to cope with and adapt to increasing drought and flood conditions; change in community mindset from individualism to group cohesion supporting unified thinking and collective problem solving, including sharing CBA with younger generations for sustainability of project processes and practices; and community members empowered to articulate development and adaptation demands to local government service providers. Moreover, project results reveal that scaling up and out of CBA strategies have occurred at micro level, with private sector and local institutional engagement backing community drive to take effective project components to scale. This includes project strategies focused on conservation agriculture; CBA education in schools; the energy efficient EzyStove and the micro-drip irrigation system. Progress is currently being made towards upscaling of these project components through strategic in-country coalition partnership building with like-minded allies, as influencing policy cannot be done alone. Similarly, upscaling is being targeted through the initiation of advocacy to key political institutional influencers of change to create a necessary enabling environment for scaling up and out to occur.

This on the ground reality shows that the UNDP/GEF SGP CBA project implemented by CES in Namibia holds potential capability to move from micro to macro level impact. The project has reduced livelihood vulnerability for their project participants and those stakeholders to whom effective CBA practice was shared with, leaving behind a legacy of empowered and capacitated people more able to adapt to current climate variability risk through transformational processes. This means that within a relatively short timeframe (3-5 years), the pilot project has affected change in key areas towards “transformed resilience” that hold strong potential for facilitating longer term sustainable climate change resilience not only for project participants, but for a larger number of people at sub-national, national, and even potentially international level, if certain project components can be taken to scale.

However, despite these strong successes, the limitations of the existing UNDP/GEF SGP CBA project need to be recognized. Reaching initial project goals may be strong, but aggregating development impact at sub-national, national, and even potentially international level is not as yet. There is only so much that can be achieved within existing institutional and fiscal boundaries that keep initiatives as small islands of success due to limited funding and capacity constraints.

Building upon the strong evidence-base of local CBA effectiveness already investigated as a pre-condition to aid upscaling advocacy, the ultimate goal is for effective project approaches and localized successes to be integrated into existing national institutions and development planning and programming systems

through strategic mainstreaming processes. How this can be achieved, and what this process may look like, is presented in this study using two effective project practices that aim to mutually support national food security and national climate change adaptation knowledge-building within the Namibian context over a ten year period: Namibia Specific Conservation Tillage (NSCT)[62] and CCA education (with a focus on CBA). A clear roadmap of scaling up and out pathways needed to realistically move NSCT and CCA education from small pilot to impact at scale, and an assessment of the drivers and spaces needed for this process to occur, have been provided through the combination of two proven methodologies that together provide a comprehensive scaling up plan: the Theory of Change approach and the Hartmann and Linn (2008b) scaling up framework. Both components are primarily based on fieldwork results and are therefore based in local evidence yet aimed at national policy level.

Yet, for the proposed scaling up and out roadmap to be fully achieved in practice, and for further progress towards "transformed resilience" to be made, it is not only the appropriate enabling conditions, capacities and incentives that are required for mainstreaming from key in-country local, institutional and political players. A strategic shift in existing institutional thinking processes and funding architecture mechanisms is needed within SGP and its funding base, if UNDP/GEF SGP CBA operational planning and practice is to be successfully converted from individual localized projects to a pool of effective CBA interventions set within a landscape that lead to more significant and sustained development impact at macro level.

Although it is ultimately local actors that need to scale up successful CBA interventions, aid donors have a special responsibility to take a lead in supporting the scaling up agenda so that development co-operation does not fall privy to the two types of scaling up errors: Type I Error is not to scale up where needed. Type II Error is to scale up inappropriately (Linn 2012a; 2012b). There may never be enough funding and resources available to reach everyone considered most vulnerable to climate change impacts, therefore SGP and its funding base need to systematically review their operational policies and approaches and be strategic in terms of where and how efforts are to be focused if they are to contribute effectively to scaling up and out CBA impacts (ibid).

This study shows that SGP provides an important vehicle for scaling up and out to be materialized. This is based on its tested and proven effectiveness relating to infrastructure, technical knowhow and capacity, that can be used to take existing pilot CBA project findings to scale not only in Namibia, but in similar landscapes and GEF SGP CBA programme countries in accordance with context specificity. Resource support from donor agencies and national governments is now required to bring these successfully orchestrated pilot CBA projects to scale, with the following recommendations outlining how this can be achieved.

Recommendations for SGP and its funding partners

1. Follow an investment portfolio model. Small projects are good in themselves in that they fully consider the needs and fully utilize the assets of those that would be directly impacted. But as impacts and needs for community-based adaptation also cover large areas, there is need for scaling up and out. Thus CBA funding mechanisms should allow for a mix of support with 70% - 80% spent on small-scale community-based projects and 20% - 30% on strategic follow up activities that build upon successes gained and scaling them up and out. This latter approach is likely to achieve more desired ultimate outcomes by continuing to build on successful locally-generated CBA experience in different adaptation contexts with the required structure in place to support local implementing NGOs to scale up and out successful pilot strategies. This requires an institutional shift from having expectations to be praised for small successes with no clear

[62] NSCT is a specific component of conservation agriculture, which refers to ripping and furrowing; crop rotation; using maximum soil cover with minimum soil disturbance; incorporating plan residue to increase soil fertility (Johansson pers comms. April 2013).

proactive focus for scaling up and out, to focusing on the larger strategic landscape of programmatic objectives and resource utilization together with attracting future funding to reach ultimate goals across stakeholders and scales for transformative development impacts that embrace built-in resilience for sustainability of efforts. Looking at the Namibian context, the UNDP/GEF SGP CBA pilot project has produced effective results with scaling up and out occurring based on its inherent focus on going to scale from the outset. Yet current funding mechanisms do not support expanding success in line with locally-driven demand. This investment portfolio model will therefore help shift effective micro level success into macro level impact that helps build sustainable climate resilience across a broader spectrum of sectors and stakeholders by mainstreaming local CBA effectiveness into business and usual institutional planning and programming systems.

2. In particular therefore, it would be excellent if **GEF's involvement in supporting CBA is mainstreamed into the GEF funding process to allow access for CBA investment from more established adaptation funds that are financed by other GEF windows and adaptation fund boards.** The UNDP/GEF SGP CBA pilot project in Namibia, as with all projects in other pioneer CBA countries under the overall UNDP/GEF SGP CBA project, was funded through the SPA window to facilitate bottom up lesson learning on effective CBA that can potentially support policy-level decision-making processes. This report supports that this objective can be achieved based on a strong empirical evidence-base, if fiscal support for CBA can be applied for and received from longer term funding sources so scaling up and out can take place. Going-to-scale is a long-term process that requires long-term funding commitment. As even effective CBA projects at small scale will not be able to evolve into stepping stones for deeper development and adaptation impact if not strategically scaled up and out over time, the next phase of funding for CBA should at most be from more long term established adaptation funds, such as the SCCF, LDCF, AF and GCF, in order for progress towards this goal to be made.

3. It is also expected that future SGP engagement on CBA projects should **move from a focal area funding approach towards a cross-sectoral impacts-based strategy.** Current core GEF funding to the SGP focuses on five fundamental focal areas (Biodiversity**;** Climate change (mitigation); Land degradation; Sustainable forest management; International waters; and Chemicals) with no specific references for phased out adaptation funding. Most ongoing adaptation projects, including those currently implemented in 38 SIDS countries, 10 geographically representative countries under the SPA project and in nine countries in Asia and the Mekong delta, are primarily resourced by co-financing sources that ideally require the matching of GEF funds in a more systematic way in the future for improved project effectiveness and efficiency. Moreover, the proposed approach for future CBA funding in the above two recommendations is supported by taking a cross-sectoral approach, while keeping adaptation to climate change as the entry point. This is because most activities at country level need to cut across many sectors in practice. Shifting funding focus from a focal area approach towards a cross-sectoral impacts-based strategy that cuts across the existing focal areas is therefore recommended.

In tandem with the above recommendations, the following suggestions are made to assist UNDP/GEF SGP and its local grantee partner, CES, in facilitating further progress towards "transformed resilience" for the climate vulnerable poor groups they have worked with in Namibia. As discussed previously in this study and as is reflected in the scaling up and out framework in Part III, these recommendations focus on changes that will support the scaling up and out of improved CBA pilot project practice.

Recommendations for the GEF SGP CBA project implemented by UNDP in Namibia

1. **More regular and systematic UNDP Climate Change Toolkit training is needed at local level as confirmed by all stakeholders engaged in the pilot project.** The UNDP Climate Change toolkit used during the UNDP/GEF SGP CBA pilot project has provided a strong basis for generating useful climate change information for local stakeholders. This is because it merges scientific climate change information with that

locally-generated by project participants to develop 'new' knowledge that moves towards transformative adaptation to climate change. It is this knowledge that will inform the design of feasible, credible and useful adaptation options. However, leveraging changes in knowledge and capacity in order to facilitate sustainable adaptation practice cannot be produced through a limited number of training sessions. More targeted climate change training is therefore needed at local level to support communities to develop more forward-thinking climate change foresight that incorporates a longer term time horizon. Moreover, it is recommended that training given is verified through appropriate assessment mechanisms. Understanding that knowledge has been successfully imparted is important. This will facilitate the progression of stakeholders to undertake higher levels of training as their capacity increases over time.

2. **Empower climate vulnerable poor groups to articulate to the scientific community what information they require for future adaptation planning.** To strengthen the recommendation above and to blend local and scientific climate information on a more sustainable basis, the scientific community needs to be aware of what information is needed at the local level by different stakeholders engaged in different adaptation strategies. This recommendation would facilitate a bottom up approach to scientific climate data analysis that addresses community needs. Fieldwork results show that improved access to such climate change information is required by community stakeholders engaged in NSCT practice.

3. **Capacity build identified relevant scientific institutions to fulfil community climate knowledge demands.** This suggestion is required in order to achieve recommendation (2) above. If community demands are to be effective, identified scientific institutions need to possess the capacity to fulfil them. This follows on to a further key point for the Namibian context: investment in national-level capacity to generate locally appropriate evidence is vital. This requires harnessing national level expertise around vulnerability and climate science.

4. **Empower climate vulnerable poor groups with tools to collect climate-related information for themselves.** This recommendation will further support the generation of local climate knowledge. It is not just "what" is being done that is important, but "why" and "with what knowledge" that is key. As CBA is a community-driven process that is done by communities themselves, this suggestion will provide new insights into current and potential future risks that will force project participants to look beyond past experience and to consider the limitations of past adaptive solutions. This may include initiating and building upon existing community weather stations that track changes in climate over time.

5. **More regular and systematic NSCT training is needed at local level as confirmed by all stakeholders engaged in the pilot project, including mainstreaming climate change knowledge into agricultural processes and practice.** In addition to further UNDP Climate Change toolkit training, further knowledge and capacity building on NSCT is also stated to be required. This will support the development of transformative agricultural practice through enhanced understanding for those community stakeholders currently undertaking NSCT by copying practice. Scaling up and out of practice with new knowledge driving the change in practice reflects an adaptive paradigm rather than one focused on coping. Moreover, more advanced iterative training is required for farmers that have already mastered initial NSCT processes. Similarly, and linking with recommendation (2) above, climate change knowledge is also to be integrated into all existing NSCT processes and practices. Current evidence shows that this capacity is currently lacking by project participants with the need for it to be so articulated.

6. **Follow up with established leads to continue moving forwards with scaling up and out on the ground.** In order to continue building on the strong basis already developing for taking effective project components to scale, continue to look for partners in-country with the requisite skill set for either, or both, scaling up and out as required. This includes continuing to identify and engage with potential like-minded allies for coalition building with evidence from the existing pilot project to be used by them for policy advocacy. As highlighted through the scaling up and out framework in Part III of this study, this includes, for example, following up with the Ministry of Agriculture, Water and Forests Extension Officers who

confirmed the improved pearl millet yield cultivated during severe drought contexts by project farmers who were responsible for disseminating this information to colleagues in Windhoek with greater influence over policy outputs.

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Appendix 1

Details of fieldwork undertaken for the development of the UNDP/SGP CBA project in Namibia

1. CES Office, Ondangwa, Namibia (4 April 2013)
Key informant interviews with:
(i) Philip Nekondo, formely Outreach Programme Assitant, Ministry of Fisheries (now retired).
(ii) Johannes Nelongo, Life Science & Agriculture Teacher, Onamulunga Combined School, Oshikoto region, North Namibia.

2. Omuntele, north-central Namibia (5 April 2013)
(i) Farm field visit, Johannes Keshongo – individual case study on CA.
(ii) *Focus group discussion* conducted with CA farmer project participants:

No.	Participant name
1	Elizabeth Nangula
2	Victoria Kalekela
3	Laina M. Katangolo
4	Ester Negongo
5	Frieda Samuel
6	Losolia Enkali
7	Johannes Keshongo

(iii) *Key informant interview* with George Haufiku, Agricultural Extension Technician, Ministry of Agriculture, Water and Forestry (MAWF)

3. Omuntele, north-central Namibia (6 April 2013)

(i) *Focus group discussion* conducted with school student project participants engaged in drip irrigation water system:

No.	Participant name
1	Amoolongo Salom
2	Johannes Johannes
3	Kambola Pofrey
4	Shipahu Matthew
5	Milntyingo Nahas
6	Shipanga Tuwilika
7	Nangolo Olivia
8	Mula Ngeenfina
9	Pefrine Toiro
10	Kalumbu Esther

(ii) *Focus group discussion* conducted with CA farmer project participants (continued from 5 April):

No.	Participant name
1	Elizabeth Nangula
2	Victoria Kalekela

3	Laina M. Katangolo
4	Ester Negongo
5	Frieda Samuel
6	Losolia Enkali
7	Johannes Keshongo
8	Paulina Hango
9	Emilia Negongo

(iii) *Focus group discussion* conducted with drip irrigation system project participants:

No.	**Participant name**
1	Elizabeth Nangula
2	Victoria Kalekela
3	Laina M. Katangolo
4	Ester Negongo
5	Frieda Samuel
6	Losolia Enkali
7	Johannes Keshongo
8	Paulina Hango
9	Emilia Negongo

(iv) Laina M. Katangolo: individual case study on CA/drip irrigation system.

4. CES office, Ondangwa, Namibia (7 April 2013)

(i) Key informant interview with Marie Johansson, Director of CES.

(ii) *Focus group discussion* conducted with EzyStove project participants:

No.	**Participant name**
1	Shiku Olivia Muna
2	Sheidila Moses Mengela
3	Shituna Selma

5. Uukwiyuushona, Oonte, north-central Namibia (8 April 2013)

(i) *Focus group discussion* conducted with fish farming project participants:

No.	**Participant name**
1	Ahweka Lulias
2	Salom Joseph
3	Sofia Petrus
4	Friead Angula
5	Ester Johannes
6	Alli Shivute
7	Selma Barnabas
8	Helena Iilonga

9	Monilia Festus
10	Rauna Joesph

(ii) Theory of Change workshop for scaling up CBA education:

No.	Participant name
1	Nickey //Gaseb (UNDP-SGP)
2	Marie Johansson (CES)
3	Andreas Twendeeni (CES)
4	Tuhafeni Nghilunanye (CES)

6. Uukwiyuushona, Oonte, north-central Namibia (9 April 2013)

(i) *Focus group discussion* conducted with Self-Help Group project participants:

No.	Participant name
1	Ester Johannes
2	Victoria Abed
3	Aina Shigwedha
4	Martha Nanyemba
5	Sofia Pefrus
6	Friend Leonard
7	Fericky Kanandunge

CES office, Ondangwa, Namibia

(ii) Theory of Change workshop (part 2) for scaling up CBA education:

No.	Participant name
1	Nickey //Gaseb (UNDP-SGP)
2	Marie Johansson (CES)
3	Andreas Twendeeni (CES)
4	Tuhafeni Nghilunanye (CES)
5	Elizabeth Mwaala (Deputy Director, Lifelong Learning, Ostikoto Directorate, Ondangwa)

(iii) Theory of Change workshop for scaling up CA:

No.	Participant name
1	Nickey //Gaseb (UNDP-SGP)
2	Marie Johansson (CES)
3	Andreas Twendeeni (CES)
4	Tuhafeni Nghilunanye (CES)

7. CES office, Ondangwa, Namibia (10 April 2013)

Theory of Change workshop for scaling up CA (part 2):

No.	Participant name
1	Nickey //Gaseb (UNDP-SGP)
2	Marie Johansson (CES)
3	Andreas Twendeeni (CES)
4	Tuhafeni Nghilunanye (CES)

8. Windhoek (12 April 2013)

Key informant interviews with:

(i) Douglas Reissner, Group Manager: Corporate Projects & Pupkewitz Foundation, Pupkewitz Holdings (Pty)

Ltd and Meryl Barry, Trustee of Pupkewitz Business Trust, Director of Pupkewitz Foundation Holding Company, Co-administrator of Pupkewitz Foundation.
(ii) Sion Shifa, Technical Project Support, SGP-GEF CBA Programme Namibia.
(iii) Gerard Baufeldt, Director, Baufi's Agricultural Services.
(iv) Richard Shikongo, employee at Kavango Regional Council (via telephone).

Appendix 2
Indicator framework used for assessing the effectiveness of the UNDP/GEF SGP CBA project in Namibia

Outcome area	High level indicators	Sub indicators
'Upstream' indicators: institutional capacity to manage climate risks and deliver adaptation benefits to project participants (small holder farmers and local level natural resource managers, including the poorest, most marginalised and women)	Level of knowledge, capacity and practice of relevant identified local institutions: UNDP/GEF SGP; CES, UN Volunteers; relevant government extension services; private sector institutions.	<u>Current knowledge levels including future potential to access, share and generate relevant knowledge-bases:</u> • % of local institutions with and level of knowledge of indigenous subsistence farming and natural resource management systems • % of people with, level of access to and future potential to access, share and generate regular and updated sources of meaningful scientific and traditional climate information • % of people with, level of access to and future potential to access, share and generate regular and updated sources of relevant and meaningful non-climate information[63] • Current level of, and future potential to access, share and generate knowledge on climate risk and vulnerability by institutional key agents of change, including needs of poorest/most marginalised/women • Current and future awareness of responsibilities to the poorest/most marginalised/women by institutional key agents of change • Evidence of awareness and acceptance to test and potentially adjust indigenous knowledge systems and other relevant information to meet user needs in light of changing circumstances now and in the future <u>Current capacity levels including future potential to access, share and generate relevant skills, abilities, competencies and resources:</u> • Evidence of local institutions present and operational according to good practice[64] • % and level of influence of active engagement of the poorest/most marginalised/women in planning, decision-making and management processes, including future potential to do so • Evidence of current and future ability to move beyond 'business as usual' development planning towards more transformational processes required for climate change adaptation[65] • Evidence of sense (agency) of current and future ability to discuss, generate and adapt existing capacity/practices to changing circumstances if required[66] • Evidence of awareness and potential current and future ability to trade off possible futures and consequences given uncertainty in planning and decision-making processes • Evidence of support for CA land use/activity plans, and climate change planning, by higher levels of government and policy <u>Current practice levels including potential for future action:</u> • Evidence of strengthened and functioning agricultural land management systems, including potential future sustainability • Evidence of strengthened partnership, and level partnership has been institutionalised, between community and local government institutions, including potential future engagement • Evidence of priorities of poorest/most marginalised/women reflected in current and potential future local level plans and activities • Evidence of equitable access and opportunities to new/improved livelihood strategies and CA/water resources for poorest/most marginalised/women • Evidence of current and potential future use (including potential for scaling up) of new information, including improved CA practices • Evidence of action plans to be regularly reviewed and revised now and in the future in response to changing circumstances/new information/user needs with results facilitating action-reflection phases for learning and subsequent adjustments in planning and implementation

[63] 'Non-climate' information includes new and improved livelihood strategies (with co-benefits of management of ecosystem services) and other information deemed necessary by project stakeholders.
[64] This includes having M&E systems in place and operational, record and documentation systems well maintained and operational, and other processes according to policy requirements.
[65] This includes flexible, timely and informed decision-making responsive to ongoing changing circumstances/uncertainty. This also includes current and future awareness and ability to plan long-term.
[66] This indicator refers to current and future potential for innovation. This includes access to spaces to discuss, share and generate knowledge and skills to inform climate resilient adaptive practices. Similarly, evidence of current and future participatory and proactive learning mechanisms to inform action/practice over time, including learning-by-doing approaches and operational M&E systems that facilitate learning from and for change.

		• Evidence of information sharing through relevant local/national/international networks and knowledge sharing platforms influencing external stakeholders/policy arenas for CBA
'Downstream' indicators: changes in adaptive capacity of small holder farmers and local level natural resource managers (including the poorest, most marginalised and women)	Number of people experiencing improvements in adaptive capacity in light of climate and other stresses All indicators to be disaggregated by gender, age, wealth, livelihood vulnerability	Coverage: • No. of direct project beneficiaries compared with % of total population of the intervention area • % of direct project beneficiaries disaggregated by the poorest/most marginalised/women/children Current knowledge levels including future potential to access, share and generate knowledge-bases: • % of people with and level of knowledge of SHG roles and responsibilities, including future potential to access, share and generate this information • % of people with, level of access to and future potential to access, share and generate regular and updated sources of meaningful scientific and traditional weather and climate information • % of people with, level of access to and future potential to access, share and generate regular and updated sources of relevant and meaningful non-climate information[67] • % of people with improved knowledge of analysis, planning and implementation strategies of new/adapted/innovative technical practices and CA/natural resource management systems Current capacity levels including future potential to access, share and generate relevant skills, abilities, competencies and resources: Changes in value of assets and relevant livelihood/development outcomes (in light of climate risk) • ***Human**:* current and potential future increased skills/resources to undertake new/improved livelihood strategies and natural resource practices; increased skills to undertake analysis, planning, implementation and monitoring of livelihood strategies to reduce climate change vulnerability of livelihoods systems; increased awareness of climate change vulnerability and adaptation in education systems for children; strengthened management of natural resources for all community members, especially women and most marginalised; evidence of current and future ability to move beyond 'business as usual' development planning towards more transformational processes required for climate change adaptation[68] ; evidence of collective problem solving and consensus building reflecting priorities of all users, including the poorest/most marginalised/women; evidence of sense (agency) of current and future ability to discuss, generate and adapt existing capacity/practices to changing circumstances if required[69]; evidence of awareness and potential current and future ability to trade off possible futures and consequences given uncertainty in planning and decision-making processes • ***Natural**:* strengthened land/agriculture management and new practices retaining ecosystem services • ***Physical**:* improved soil fertility; increased dry land crop production; increased household food/water security; increased household health; strengthened water resource management structures • ***Political**:* enhanced community engagement and level of participation in planning, decision-making in agriculture/natural resource management forums, especially for women • ***Social**:* strengthened social networks and community cohesion; increased access to diverse social networks; evidence of the poorest/most marginalised/women able to identify, prioritise and articulate livelihood/agriculture/natural resource management needs and with SHG coordinator responsive to priority demands • ***Financial**:* improved income levels (and potential income levels) from improvement in crop and fish production; change in poverty levels Current practice levels including potential for future action:

[67] This includes information on new and improved livelihood/agriculture/natural resource practices, and any other relevant information identified as important by disaggregated community groups.
[68] This includes flexible, timely and informed decision-making responsive to ongoing changing circumstances/uncertainty. This also includes current and future awareness and ability to plan long-term.
[69] This indicator refers to current and future potential for innovation. This includes access to spaces to discuss, share and generate knowledge and skills to inform climate resilient adaptive practices. Similarly, evidence of current and future participatory and proactive learning mechanisms to inform action/practice over time, including learning-by-doing approaches and operational M&E systems that facilitate learning from and for change.

		• Evidence of use (and potential future use) of new knowledge, skills and capacity to implement new and improved agricultural/natural resource management practices/livelihood strategies[70] • Evidence of use (and potential future use) of new knowledge and skills in planning and decision-making processes focused on long term uncertainty under climate change risk • Evidence of change in attitude and use of competencies to plan and implement innovations • Evidence of innovative adaptation activities initiated appropriate to women and marginalised groups • Level of change in project beneficiary perception and ability to manage future drought risk measured from a departure from pre-intervention perceptions and coping strategies • Evidence of maintained ecosystem services/natural resource management enhancing sustainability of community livelihoods • Evidence of information sharing and learning beyond project boundaries resulting in influence of project benefits beyond project participants

[70] Proxies include evidence of people undertaking soil and water conservation techniques; improved farming techniques including dry land crop production, crop rotation/composting.

Appendix 3
Conceptual framework for the ARCAB M&E for CBA outcome indicator areas

Figure 16 below presents the outcome indicator areas used in the ARCAB M&E for CBA framework, based on the following hypothesis for measuring CBA effectiveness (ARCAB 2012):

Supporting "transformed resilience" for the poorest and most marginalized communities vulnerable to climate change impacts requires strengthening the knowledge (K) and capacity (C) of the climate vulnerable poor to improve their long-term adaptive capacity in light of changes in climate and other risks. It also simultaneously requires the climate vulnerable poor to have access to an enabling environment facilitating their ability to adapt through local institutions having the knowledge (K), capacity (C) and incentives to provide adaptation services and benefits to them. Together therefore, these two components should result in evidence that people and institutions are actually adapting to climate change impacts through changing practice (P) as a result of improved adaptive capacity and access to adaptation services.

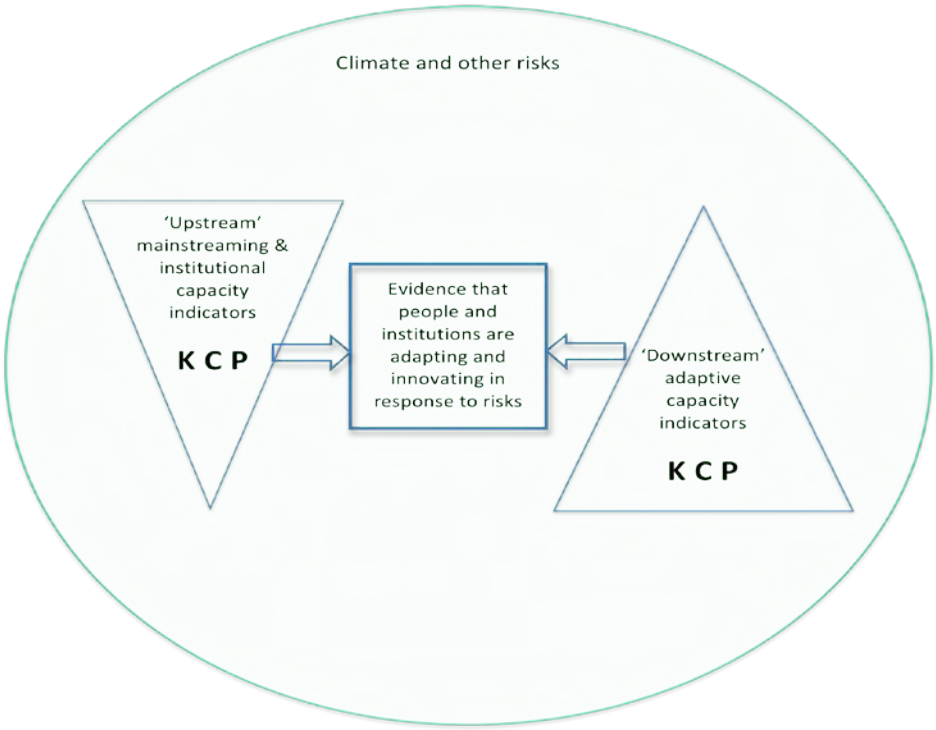

Figure 16: Conceptual framework for outcome indicator areas used in the ARCAB M&E for CBA framework (adapted from Brookes *et al*. 2011).

As shown in figure 16 above, the ARCAB M&E for CBA approach describes three interlocking domains that need to be affected in order for CBA projects to realize the goal of "transformed resilience." These domains were used to help identify indicators to assess the effectiveness of the UNDP/GEF SGP CBA project implemented by CES in Namibia. These domains are:

1. Meaningful and locally relevant **knowledge** (K) about climate change and adaptation science. This knowledge is to be generated locally and merged with that developed by climate change 'experts' in order to design feasible, credible and useful adaptation options.
2. Knowledge is not enough unless people and institutions have the **capacity** (C) to act on it. This means having the skills, power and ability (including finances) to turn knowledge into practice. This

applies in the context of both the individual - in terms of having access to the basic assets, resources and institutions that enable them to adapt to climate variability and change - and to institutions too, which need access to resources and incentives to turn knowledge into action, and the mandate to do this.

3. Supporting knowledge and capacity will lead to changes in **practice** (P). These can be adaptive strategies undertaken by local people, or shifts towards a more integrated, long-term, flexible, strategic and participatory way of development planning.

In light of these three domains, the ARCAB M&E for CBA framework focuses on 'upstream' indicators around evidence of mainstreaming and capacity building of relevant local institutions and service providers that are identified as important by vulnerable communities in providing climate risk management and adaptation services. This refers to indicators assessing institutional and service accessibility and inclusiveness, including the knowledge and capacity of these institutions to deliver adaptive benefits. It also includes assessing the knowledge and capacity of these institutions to integrate and manage climate risk management into existing planning and provision.

The ARCAB framework also focuses on 'downstream' indicators around adaptive capacity at household and community level, based on the understanding that in development deficit situations,[71] good development coupled with access to and ability to use information related to climate risks are pre-requisites for adaptation. This means one set of indicators for adaptive capacity focus on basic development indicators as proxies, including evidence of changes in poverty levels, livelihood outcomes and asset-bases. Disaster Risk Reduction (DRR) is also included based on the premise that people who are well adapted to environmental hazards will also be able to manage many climate risks. A second set of indicators focus on sources, availability, levels of and use of relevant and locally-meaningful climate and non-climate information. In the context of climate change adaptation, it is not only climate risk that needs to be assessed, but also non-climatic risk as climate change impacts are likely to intensify and exacerbate current risks already experienced at the local scale.

[71] In development deficit situations, people do not have access to the basic assets, institutions and services they need to fulfil their basic capabilities. Addressing the development deficit is therefore a first step in enabling people to cope with and manage the additional stresses presented by climate variability and climate change (Ayers and Huq 2013; ARCAB 2012).

Appendix 4
Unpacking the ARCAB CBA Resilience Scale[72]

The ARCAB CBA Resilience Scale moves horizontally from development, to adaptation to climate variability including disaster risk reduction (ACV/DRR), to adaptation to climate change (ACC). Vertically, the scale moves from business as usual (BAU) approaches to development, ACV/DRR and ACC, to those that are 'transformative.' To move towards "transformed resilience," progress towards the bottom right hand box is needed – transformative ACC.

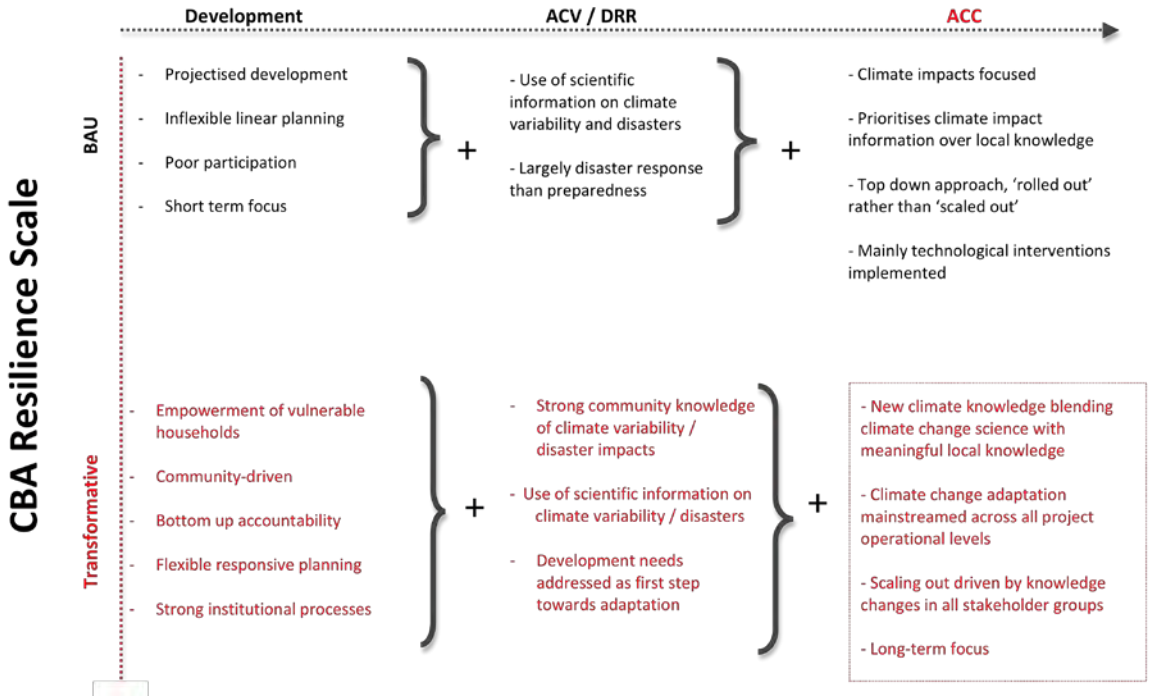

Figure 17: The ARCAB CBA Resilience Scale used to assess the progress of the UNDP/GEF SGP CBA project implemented by CES in Namibia in towards transformative adaptation to climate change.

To move towards this goal, changing the methods undertaken and approaches used under what is classed as BAU development and ACV/DRR in figure 17 above is required. This includes:

- Revisiting conventional development and ensuring that the basic needs of the poorest and most marginalised people vulnerable to climate change are being addressed;
- Empowering climate vulnerable poor groups to ensure that their knowledge and demands are reflected in decision-making processes;
- Moving beyond short-term projectised approaches to planning towards integrated approaches that engage with and build the capacity of local to national institutions, with associated sustainable institutional and resource-bases;
- Creating spaces for knowledge sharing and knowledge transfer, to support the scaling up and scaling out of effective processes and practice; and
- Ensuring flexible approaches to planning that can respond to changing needs and incorporate a range of knowledge bases, especially that generated by ultimate project participants.

It is important to stress that moving towards transformative ACC is not just about new climate change information and adaptation science. It also requires transformative development and transformative

[72] This scale is adapted from sources ARCAB 2012. The explanation of this scale is taken directly from Faulkner and Ali 2012, and Reid and Faulkner 2013.

ACV/DRR approaches to be operationalised (along with associated transformations in attitudes, skills and actions) to support moving towards this goal. This is shown on the scale by the addition signs (+). Transformative ACC requires transformative development, **plus** transformative ACV/DRR approaches, **plus** other components that may be required.

Similarly, making the distinction between conventional and transformative ACC is important, because moving towards more sustainable and transformative resilience does not necessarily advocate undertaking 'any' adaptation measures. Adaptation interventions can be viewed on a continuum (Callow 2011; McGray *et al* 2007). On one hand are adaptation measures targeted to address specific climate impacts. On the other are those required for both adaptation and development, such as improved household access to safe water sources. On the CBA Resilience Scale in figure 17 above, conventional ACC takes the former 'impacts-based' approach to adaptation. This means climate change impacts such as droughts or floods are taken as the starting point for vulnerability assessments, giving rise to largely technological adaptation solutions that target the specific impacts of climate change through a top down approach. In comparison, transformative ACC takes the latter 'adaptation *as* development' approach (Ayers and Dodman 2010). This views adaptation as increasing the adaptive capacity of people to climate and non-climate risk by taking a livelihoods-based view to assessing vulnerability. Consequently, this results in adaptation interventions that target the underlying drivers of vulnerability as specified by climate vulnerable poor groups themselves in line with the ethos behind CBA intervention planning and implementation.

Moving towards transformative resilience to "climate change" is largely driven by the integration of new knowledge about adaptation and potential future climate change. This knowledge is co-produced from both improved scientific information about future climate change impacts and adaptation science, and locally-generated knowledge from the climate vulnerable poor about past climate trends and the interaction between climate impacts, vulnerability and adaptation. This blending of scientific and local knowledge is transformational, because it forces development practitioners to re-think the way development planning and implementation are undertaken. Scientific information specifies that climate impacts are becoming more uncertain, hence a lens that provides more dependable information on possible outcomes at the local scale is needed in order to understand what matters to local people. Relying solely on scientific expertise is not enough. Local knowledge is also needed to develop a new kind of knowledge that all stakeholders can use in practice.

Appendix 5
What is Theory of Change and why is it important for scaling up and out CBA interventions?

Theory of Change
Source: http://www.theoryofchange.org/about/

[A] Theory of Change defines all building blocks required to bring about a given long term goal. This set of connected building blocks—interchangeably referred to as outcomes, results, accomplishments or preconditions - is depicted on a map known as a pathway of change/change framework, which is a graphic representation of the change process.

A Theory of Change is developed from mapping outcomes backwards from the long term goal through the intermediate and early-term changes necessary to reach the goal. Every outcome is tied to an intervention, revealing the often complex web of activity that is required to bring about change.

By mapping out each step to affecting change, and all the preconditions, assumptions and roles of different stakeholders, *what* needs to be monitored and evaluated can be seen, as well as *why*, and for *whom*.

Using a TOC approach for scaling up and out allows stakeholders to respond to the complexity required when considering taking CBA projects to scale. TOC facilitates planning processes that support the messy reality of diverse contextual vulnerabilities that support and/or hinder the scaling up process. Furthermore, as a living road-map to be adapted in response to changing circumstances, a TOC is more likely to respond to the challenges that an uncertain environment and other non-climatic risk factors bring. A TOC therefore facilitates the generation of a more realistic description of a social change initiative, that forms the 'backbone' of CBA intervention scaling up M&E systems through its ability to support understanding of why and how a project's scaling up and out processes function; provides a point of reference for checking progress; can be used to evaluate completed scaled up and out processes; and can inform future project design if required (WRI 2011).

Appendix 6
The Hartmann and Linn scaling up framework

Hartmann and Linn's framework (2008a) compliments the Theory of Change (TOC) approach explained in Appendix 5. This is achieved through the identification of key "drivers" and "spaces" required for each TOC to bring about change that supports the successful scaling up and out of the chosen CBA project components. In other words, it aims to define the critical elements within the UNDP/GEF SGP CBA project implemented by CES in Namibia that help to lay the dimensions and pathways for scaling up and out to occur (Linn 2012). "Drivers" are the forces pushing the scaling up process forward (see Box 5 below). "Spaces" are the opportunities that can be created, or potential obstacles that need to be removed to open up the space for an intervention to grow (see Box 6 below). Both Box 5 and 6 below show relevant components to the UNDP/GEF SGP CBA project in Namibia.

Box 5: Drivers of scaling up
Hartmann and Linn 2008a and 2012a; Linn et al. 2010.

What moves an initiative from a pilot to a larger scale? The following key factors drive the scaling up process forward:

Ideas and models: There has to be an idea or model that works at a small scale. It emerges from research or practice.

Vision and leadership: A vision is needed to recognize that scaling up of a (new) idea is necessary, desirable and feasible. Visionary leaders or champions often drive the scaling up process forward.

External catalysts: Political and economic crisis or pressure from outside actors (donors etc.) may drive the scaling up process forward.

Incentives and accountability: Incentives are key to drive the behavior of actors and institutions toward scaling-up. They include rewards, competitions and pressure through the political process, peer reviews and other evaluations. Monitoring and evaluation against goals, benchmarks and performance metrics are essential ingredients to establish incentives and accountability.

Box 6: Spaces for scaling up
Hartmann and Linn 2008a and 2012a; Linn et al. 2010.

Finding the right approaches, paths and drivers for scaling up is necessary, but not sufficient. Successful scaling up requires effective spaces (enabling environments) in which an initiative can grow. More often than not the following relevant spaces need to be created:

Fiscal/financial space. Fiscal and financial resources must be mobilized to support the scaled -up intervention, or the costs of the intervention need to be pushed down to match the available fiscal/financial space.

Political space. Important stakeholders, whether initially supportive of or against the intervention, need to be motivated through outreach and suitable safeguards to ensure the political support for a scaled-up intervention.

Policy space. The policy and legal framework has to be adapted to support scaling up.

Institutional capacity space. Institutional, organizational, and staff capacity must be created.

Partnership space. Partners need to be mobilized to join in the effort of scaling up.

Cultural space. Possible cultural obstacles or support mechanisms need to be identified and the intervention adapted to permit scaling.

Learning space. Knowledge about what does and does not work in scaling up must be harnessed through M&E, knowledge sharing and training.

Natural resource space. The impact of the intervention on natural resources and the environment must be considered, harmful effects mitigated, and beneficial impacts promoted.