



# ASSAR FINAL REPORT (2014-2018)



**CARIAA**  
Collaborative Adaptation Research  
Initiative in Africa and Asia



**ASSAR**  
Adaptation at Scale in Semi-Arid Regions

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# Chapter 1: Consortium structure and organisation – Lessons learned

## **i. Consortium structure: The ASSAR partnership**

The ASSAR consortium was led by the University of Cape Town (UCT), with four other consortium level partners (see table 1). UCT and Oxfam had cross-regional responsibilities, while UCT, UEA, START and IIHS provided leadership in each of the four regions in which ASSAR worked. Each of the consortium members held contracts directly with IDRC and subcontracted partners at the regional level, as well as for cross-regional activities.

Despite a few unexpected changes in institutional partners (particularly cross-regionally and in East Africa) due to factors outside of the control of the consortium, ASSAR was adaptive enough to retain its essential structure. For example, due to insolvency issues, INTASAVE, one of Oxfam’s sub-contractors in charge of leading ASSAR’s communications work, left the project in July 2016 (approximately halfway through its duration). Also, in the case of Kenya, the first two years of the project saw the withdrawal of the Africa Wildlife Foundation (AWF) due to key personnel changes within the organisation that meant they were no longer the most appropriate partner for the type of work required. The University of Nairobi was then brought in as a new partner to replace AWF and to support ASSAR’s East African research team with their work in Kenya.

**Table 1: ASSAR partnership (final configuration)**

| REGION                             | INSTITUTIONAL LEAD                            | PARTNERS   |
|------------------------------------|---|--|
| East Africa                        | University of East Anglia (UEA)               | University of Addis Ababa (UAA)<br>University of Nairobi (UoN)<br>Oxfam (Ethiopia office)  |
| Southern Africa and Cross regional | University of Cape Town                       | University of Botswana (UB)<br>University of Namibia (UNAM)<br>Desert Research Foundation of Namibia (DRFN)<br>Reos Partners<br>Red Cross Red Crescent Climate Centre (RCCC) |
| West Africa                        | START   | University of Ghana (UG)<br>International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)<br>Michigan State University (MSU)                                    |
| South Asia (India)                 | Indian Institute for Human Settlements (IIHS) | Watershed Organisation Trust (WOTR)<br>Ashoka Trust for Ecology and Environment (ATREE)<br>Indian Institute for Tropical Meteorology (IITM)                                  |
| Cross-regional                     | Oxfam GB                                      | INTASAVE (until July 2016)   |



The University of Cape Town, in addition to subcontracting the Southern Africa partners, also brought the Red Cross Climate Centre (RCCC) and Reos Partners on board, in charge of building capacity and leading the experiential learning and transformative scenario planning activities across the consortium. In addition, in the first year of the project, UCT also hired consultants to assist ASSAR with monitoring and evaluation (M&E), and knowledge management activities. As it became clear that coordinated knowledge management was being led by the CARIAA programme (through Euforic Services), the contract with Kwantu consultants was revoked. Communications work was led by ASSAR staff, although in the last year of the project AnotherLove Production consultants were brought on board to assist the communications team to design and produce high quality communications outputs. Similarly, once the ASSAR logframe was developed and the M&E work simplified through the CARIAA M&E dashboard, the consultant in charge of M&E also became redundant.

### **Lesson 1 - The geographical location of partners and staff members can influence outcomes, particularly around capacity building in-country**

While the location of the three African regional leads in a country different from where the research was taking place was not always ideal, UEA, UCT and START brought specific strengths to the project. START's strong focus on capacity building was critical to the success of ASSAR, as was the intellectual leadership provided by UEA (e.g. in gender, wellbeing and social science approaches) and UCT (e.g. in climate science, governance). However, their remoteness from the case study sites meant that a significant proportion of the staff, capacities and leadership were not readily available to in-country partners, which in some cases made both research and research into use (RiU) activities more challenging and less grounded, despite the presence of strong in-country teams. For example, at the end of the project, the UNAM team reflected about its desire to have had full-time post-docs based in Namibia, to assist in strengthening local research capacities. Even better, would have been the inclusion of more full-time senior staff in country, which was not possible in ASSAR due to restrictions about the relative proportion of personnel costs in the budget. Also, larger teams and increased senior presence in country could have aided in further building and maintaining stakeholder relations; lowering other expenses (e.g. staff costs are higher in more developed countries and travel budgets had to, in some cases, cover intercontinental flights); and lowering the degree of administration the country teams had to deal with to help organise field visits from the research leads. Nevertheless, the model worked well, and these are minor reflections about such trade-offs to be considered in future projects.

### **Lesson 2 - Changes in partnerships are expected in a five-year project, but are cumbersome and time consuming**

Changes in the ASSAR partnership enabled budget savings in some cases (e.g. when the M&E and knowledge management contracts were revoked), but generally (in all cases) resulted in much time being absorbed by the administrative processes required around searching for new partners (in the case of Kenya), contracting, shifting budgets across activities and institutions (e.g. in the case of INTASAVE), and investing in the forging of new relationships. In the case of knowledge management and M&E, possibly some of these inefficiencies could have been avoided, had it been clear from the outset that Euforic Services would have met all the consortia needs in these areas. This is a lesson for future programmes, where clear, early communications between IDRC and the consortia regarding the implementation of programmatic support can avoid redundancies and inefficiencies which ultimately result in wastage of resources. This blurred responsibility between IDRC and the consortia was also evident in some of the RiU work, where clarity about each other's role in dealing with global audiences was missing in the initial stages of the programme.





### **Lesson 3 - Novel partnerships allow bringing many varied experts on board**

In addition to the expertise of some of ASSAR's core partners referred to above, consortium partners strongly appreciated the skills that were shared and learned from the practitioners that were brought on board, and vice versa. "Research into use", "thinking about policy and practice impact", "communicating to different audiences", and "thinking beyond the academic realm" were highlights that most ASSAR colleagues referred to during different reflections undertaken throughout the project (e.g. in [ASSAR's learning survey](#), articles for the [Spotlights](#), annual meeting reflections) and that Oxfam partners were critical for. Similarly, learning about Transformative Scenario Planning and facilitation skills from Reos Partners were considered invaluable, as were the experiential learning skills acquired from the RCCC. The value of working with experts, especially those bringing in competences that may not be the realm of researchers, is therefore an important learning for future work. In the case of the Southern Africa team, it is important to note some further examples, such as working with a journalist to write newspaper articles, with a paper writing consultant to strengthen early career researchers' academic outputs, and with Oxfam to undertake the Vulnerability and Risk Assessment (VRA) in Namibia and Botswana. The involvement of AnotherLove Production to produce professional communications outputs is also considered a very worthwhile investment.

## ii. Team structure: Roles and responsibilities in research implementation

Within each team, roles and responsibilities for undertaking the work were shared differently. Overall, UCT housed the Project Management Unit (PMU), comprised of the project Principal Investigator (PI), a full-time project manager, and a communications team, to provide strategic, administrative and knowledge management and communications (KMC) support.

Oxfam GB was also responsible for providing cross-regional support to ASSAR teams, specifically focused on research into use, either by means of RiU coordinators in-country or through the research team receiving direct support from Oxfam GB colleagues. Please see section 7 for more details on the RiU approach.

The implementation of the research also varied across teams. For example, in the cases of Southern and West Africa, a significant proportion of the work was undertaken by master's and PhD students, whose capacities on interdisciplinary research and research for impact were significantly built. In the case of India, the teams comprised of a mix of early career researchers (interns, research assistants and post-docs) and more senior staff, which worked up to a certain extent (see lesson five below). The East Africa team was the smallest, and mostly comprised of more senior staff members based at UEA, with equally small teams of senior colleagues in Kenya and Ethiopia.

The student-led approach offered a number of benefits. For example, in West Africa, students were supported to undertake fieldwork focused on ASSAR themes, after they had already finished the coursework component of their studies. This meant a larger number of students could be supported financially. At the same time, they had the opportunity to be involved in ASSAR trainings (e.g. on RiU, transformative scenario planning) and in capacity building activities on the ground, aimed at vulnerable groups, in which they both learned and contributed. In Southern Africa, fewer students were supported, but they were given full scholarships which covered registration fees, living expenses and fieldwork. Many of these were registered at UCT but undertook their theses in Namibia and Botswana. The fact that different (master's) students joined at subsequent phases of the project also provided some flexibility in being responsive to new emergent research priorities, which could be addressed by the new cohort. At the same time, student-strong teams were larger and allowed both a spreading of effort and workload, and a faster turnaround time for research outputs, given the academic deadlines they had to comply with.

However, the student-led approach also came with trade-offs. For example, master's students' theses tend to be more descriptive and simple than research undertaken by more senior researchers. Also, master's students, particularly, implied high levels of turnover (and associated administration) in certain teams, which detracted from continuity and the ability to produce deeper, more critical research. Similarly, funding PhD students has meant that in many cases they are yet to produce publications given the time involved in setting up and undertaking a doctorate degree. Also, their involvement in ASSAR activities - while enriching in terms of exposing them to multiple research and RiU approaches - frustrated a number of students who were unable to concentrate fully on their dissertation, and thus graduate (as one student mentioned "a scholarship that comes with baggage").

### **Lesson 4 - Different research implementation models lead to trade-offs between building capacities and producing more ground-breaking research, with associated budget implications**

ASSAR's different models of implementation point to the trade-offs that can exist between building capacities (both of early career researchers and of in-country teams - e.g. in Southern and West Africa) and producing what may in some cases be considered more ground-breaking research (generally produced by more senior staff, who are inherently more expensive - e.g. in East Africa). While in East Africa the seniority of the team was seen as a strength in terms of being able to mobilize existing experience for research and RiU work, the model suffered from having only one full-time early career researcher across the partnership (although the capacity development achieved across senior team members should not be undervalued). Having said that, a



number of the senior academics of the UEA team strongly contributed to cross-regional work and capacity building of the broader ASSAR team, which was extremely valuable, though difficult when attempting to balance with the regional work (especially given that many colleagues were funded at a low percentage of time on ASSAR).

Given CARIAA's focus on high quality research *and* capacity building, it is important to get the balance right. At a regional level, possibly this was best done in the India region where capacities were built (evidenced by the number of early career researchers that left the project to pursue fully-funded PhDs in many cases) and high-calibre research produced (evidenced by the large number of publications that have emerged from this region). It should be noted that the lower staff costs in India were a critical factor in enabling the hiring of larger teams in this region.



### **Lesson 5 - Achieving an adequate balance between the number of junior and senior, and full- and part-time researchers is critical**

On staffing, we note a few further lessons. Firstly, as hinted to, it is important to achieve an adequate balance between the number of early career and senior researchers, as this will affect the quality of research produced, the amount of time required for lead researchers to guide and mentor junior colleagues, and the degree of capacity building that can be achieved. In India, for example, while the numerous young researchers brought different disciplinary backgrounds, it created a lot of mentorship pressure on senior researchers. In addition, though the teams were very successful at contributing to the broader climate change research capacity of the country, institutions were unable to capitalize on the capacities built as researchers moved on, chasing other achievements. This is a reality with research projects but probably calls for thinking about what kind of balance is desirable across early career and senior researchers.



In addition, timing is also important. Given ASSAR's complexity, and decentralised and rather open-ended model of implementation, it was difficult for colleagues who joined the project late (e.g. after the first year) to feel fully part of it and to have a full understanding of its many different moving components. In some cases, it meant that people joined the project, but did not stay. This applied to both more junior staff, who expected guidance for each step of the way and struggled to understand ASSAR's complexity; and more senior staff, who did not want to join a project where the trajectory was already set or there was little leeway to shape the direction of the work. In the cases new members did stay, their early participation in regional and consortia meetings was critical in helping to strengthen buy-in and understanding of the project.

Secondly, the importance of having a sufficient number of full-time people is paramount, in a project as large and complex as ASSAR. A high proportion of part-time researchers, with competing priorities from projects and roles, can lead to delays in collaborative work as not all people can respond quickly. Hiring fewer full-time researchers, rather than many part-timers can avoid a number of lags and delays, and enable swifter, more responsive collaborative work across institutions. Similarly, while the PMU had a full-time coordinator for the entire project, regional teams relied on the regional lead (in most cases) for both research and management issues, which in many cases meant both roles suffered. Similarly, part-time country partners were burdened with research, admin and management responsibilities, alongside their full-time jobs. While academic career paths demand that researchers publish, when such a large proportion of one's time is taken by administrative and other project requests (e.g. for reporting, M&E, taking part in cross-regional working group meetings), academic outputs tend to be slowed down. Having a full-time project manager for each region (with no research responsibilities) could have helped lower the degree of frustration the researchers felt, and would have provided a responsive, one-stop-shop for the PMU to make requests to (often also coming from CARIIA level).

Thirdly, perhaps due to the over-ambitious nature of ASSAR - which started in the proposal phase, by including a large number of countries and case study sites, and which was enhanced as more emergent research topics (e.g. migration) or activities (e.g. capacity building of vulnerable groups) were included - most ASSAR colleagues, whether full-time or part-time, ended up dedicating more time to ASSAR work than what their stipulated time on budgets indicated. Others (often those with the smallest proportion of time, according to budget), who could not dedicate additional time, in many cases ended up doing less, once again pointing to the importance of perhaps having fewer people, but with a larger proportion of time on the project. Interestingly, many ASSAR colleagues claimed that at some point, they had to take a decision about whether to continue or not with the project, knowing that if they did, they'd spend more time and energy on it, than on paper. The reason for staying was the unique opportunity for exposure and learning provided by ASSAR.

Staff turnover was a problem to some extent, particularly in the last year of the project (though in India that happened even earlier), as ASSAR colleagues started to look for new opportunities, which in some cases were successful before the end of ASSAR. While it is understandable that people (e.g. early career researchers pursuing further academic opportunities) would leave a five-year project in advance, that meant that those left behind were burdened with project closure, final synthesis and stakeholder feedback events, with minimal support. As mentioned already, however, staff recruitment and replacement became increasingly difficult the more advanced the project became, given the difficulties involved in understanding and buying into it, the minimal opportunity available to shape the direction of the work and the need - in some cases - to use others' data, instead of undertaking primary research. One potential way which could have helped to keep early career researchers connected to the project, while also meeting their aspirations, could have been through fellowship opportunities (e.g. like the IDRC Climate Leadership fellowship), to allow researchers to keep working on the broad thematic, while helping in project closure and keeping the association with the institution.

### **iii. ASSAR governance structure: The Project Steering Committee**

A key structure established for ASSAR project coordination, in addition to the PMU based at UCT, was the Project Steering Committee (PSC). The PSC was responsible for overall and collective intellectual leadership; guidance on ASSAR strategy, direction, approach and methodology; and sign-off on critical decisions throughout the project. Chaired by ASSAR's PI and comprised of the other four co-PIs and leads for the four regions and Oxfam, the PSC met virtually once a month for the duration of the project and in person for PI retreats and the consortium annual meeting, at least twice a year. It is important to note that two of the original co-PIs left the project early on (from Oxfam and START) and that India's regional lead took the role of the IIHS co-PI throughout the project. While Oxfam's co-PI was replaced, START only had its regional lead taking on the role of the co-PI later in the project.

As a result of PSC discussions, common agreement was reached on a range of issues from the strategic (e.g. ASSAR's integrated research framework, theory of change and desired impact), to the mundane (e.g. tied to the organisation of the consortium's annual meetings, defining roles and responsibilities, or identifying opportunities that the consortium may pursue). The PI retreats were equally invaluable in allowing to make significant progress in two days of face to face interactions. The first one led to the development of the theory of change; the second sought to develop a common understanding on core ASSAR concepts (such as scale and transformation); and the third led to the identification of ASSAR's high level synthesis topics. In year 4 of the project, it was not possible to find a suitable date for the PI retreat to take place, and two opportunistic, strategic meetings with ASSAR colleagues who were in Cape Town for writeshops or other purposes sought to develop high level narratives that weaved ASSAR's key findings into a somewhat coherent story. Unfortunately, the result was not as useful as expected, and this may be a result of missing intellectual leadership and buy-in.

The structure of shared leadership across PSC members was mirrored in some of the regions, where quarterly partner meetings were held to deliberate, discuss and resolve issues (see more below).

#### **Lesson 6 - Allocating responsibilities and time to sharing intellectual and strategic leadership is critical**

The PSC was critical to the success of ASSAR, through enabling the sharing of decision-making around critical issues across the five lead institutional partners. Its virtual meetings increased from one to two hours about halfway through the project, to allow for the growing portfolio of issues to be discussed. The google hangout platform was critical to its success, despite initial hiccups to enable everyone to learn to use it. The participation of a co-PI and regional lead in the PSC was very valuable to share intellectual and management leadership (particularly due to the regional leads generally being full-time ASSAR staff and thus more engaged in everything ASSAR). The absence of the two-person team for India and West Africa, though effective thanks to the regional leads' high level of commitment, was not ideal. While the PSC considered the inclusion of in-country leads (e.g. for sub-contracted partners) in its meetings - to increase the ownership in ASSAR high-level matters and enhance the feeling of being part of a consortium - it was not followed through to avoid making decision-making more cumbersome and due to the issue of part-timers not having sufficient time allocated to ASSAR.

While the PSC worked well overall, its meetings could have probably been more effective, had there been a commitment (through a protocol perhaps) by all its members to not only attend its meetings, but to ensure that sufficient time (probably half a day) was dedicated to preparation for the meetings (reading and commenting on material for discussion). At times, it was also felt that some of the discussion items could have been dealt with directly by the PI and PMU.

The PSC face to face time was probably the most effective way to make progress in ASSAR high level thinking. It is a pity that in the project's final year, due to the crunch of delivering on outputs and impact, it was not

possible to dedicate in-person time to the development of high-level communications of ASSAR findings and to undertake an adequate reflection of what was achieved in the project.

#### **iv. Promoting cross-regional collaboration: ASSAR cross-cutting groups**

In the earlier phases of ASSAR, much effort went into the establishment of cross-cutting working groups to promote cross-regional harmonization and overcome silos, discuss common approaches and methodologies, as well as share regional learning on key issues such as gender, governance, climate science, KMC, RIU, etc. While some of these remained in operation for most of the project (e.g. RiU), many fell away as the cross-regional work crystallised around concrete academic outputs with a list of defined authors (e.g. for gender, governance) that interacted virtually, or in person during consortia annual meetings or specific writing workshops. Both the gender and the land use land cover (LULC) changes groups worked very well, through a combination of training activities (more effective when early in the project), face to face time around annual meetings to enable progress, and strong leadership and commitment by the different colleagues involved. Some groups (e.g. migration) also arose opportunistically, as a result of the funding provided by ASSAR's small opportunity grants, which enabled five cross-regional researchers to undertake work tied through a common methodology and analysis.





## **Lesson 7 - Cross-regional collaboration is enabled once relationships are in place, capacities are strengthened, and concrete outputs are clearly identified**

Expectations around the ASSAR working groups were initially higher, especially to enable further cross-fertilisation and learning on specific thematic issues across ASSAR case study sites, reaching beyond that enabled at annual consortia meetings. However, it was soon realised that most ASSAR colleagues did not have sufficient time to engage in such cross-regional dialogues, unless tied to a specific output (which meant that non-authors would no longer belong to such thematic groups) or capacity building opportunity. In particular, people with a small percentage of time on ASSAR (e.g. under 20%) did not have the capacity to engage in such dialogues. In contrast, though, the experience of colleagues involved in cross-regional outputs (e.g. for gender, migration, governance, LULC) was very positive and the cross-regional interactions and learning across different contexts, along with mentorship from the more senior colleagues, resulted in strong outputs, enhanced capacities and strong working relationships that will in many cases outlast ASSAR. Building of trust and relationships (and getting to know one another) in the early phases of ASSAR, through for example targeted trainings, was critical to the success of these cross-regional working partnerships. Critical to the success of any cross-regional activity was the resources - financial and time - to enable these activities to take place. A key lesson is therefore to recognise the value of this type of interaction, but also that there must be personal incentives to engage, as well as the financial and time resources for it to happen.

## **v. Enabling collaboration to happen in large-scale consortia**

Most ASSAR colleagues and partners had not worked together before, with a few exceptions (e.g. START had worked with UG and ICRISAT, individually). The geographical isolation of the different partners; the low frequency of meetings during which people could develop working and personal relationships; the immediate focus on developing subcontracts, budgets and work plans with roles and responsibilities to enable the work to start; and the inherent power differentials between lead and sub-partners, meant that in some cases the project started with underlying resentment and frustration. Coupled with an initial absence of an integrated research framework which would guide everyone's work and provide clarity on what was to be achieved, the project did not easily lift off the ground and (many sub-contracted) partners felt rather confused and unclear about the way forward. The Botswana annual meeting in May 2015 provided a watershed moment through the joint development and crystallisation of ASSAR's integrated research framework, which - once followed by the development of concept notes and questions for each research theme - provided a clear path forward for all partners and an opportunity to create a cohort of researchers who went on to lead important cross-regional synthesis work. Similarly, health checks were included in the formal agenda of the meeting, which allowed an open discussion of the challenges different partners were facing and the identification of possible ways forward.

## **Lesson 8 - Adequate time and attention must be given to building and maintaining relationships and trust, with associated budget implications**

Large-scale collaborations of people and partners who have not worked together before require significant investments in relationship-building activities in the early phases, to enable expectations to be cleared and trust to be developed, before (or at least alongside) the hard discussions on deliverables and budgets. Early meetings should also be aimed at developing a joint vision and framing of what is desired, and discuss how work will be undertaken and challenges (including conflict and risk) dealt with. Although the inception (Regional Diagnostic Studies) phase aimed to do this in ASSAR, we realised from early on that all consortium annual meetings always included too many agenda items for the time available, and we were thus only able to superficially touch on issues, without reaching the depth required to really unearth people's expectations, desired level of contribution or vision. Most discussions also focused on the "hard" work aspects and less on the "soft" people's side. Also, when time is short, cultural factors may preclude some people from speaking, which means that only the most outspoken and powerful voices are heard and influence the decisions that

are taken. For all of these reasons, it took time in ASSAR for (the majority of) people to really know and trust each other so that the work could proceed swiftly and smoothly. Yet the crucial role of this process was only realised later, when “things finally fell into place”. It is important to note that since trust and relationships came in place, ASSAR colleagues’ reflections kept highlighting how people and the camaraderie of the group were one of the most enjoyable and valuable (including for future collaborations) aspects of ASSAR. Everyone also appreciated the lack of hierarchy and openness of senior (and junior) colleagues alike, which promoted collegiality, learning and open discussions.

The importance of face to face meetings - once again - cannot be overstated, and for a consortium the size of ASSAR, two annual meetings a year would have been essential to keep revisiting expectations, strengthening the team (particularly as new members joined), and maintaining the momentum and pressure required to make progress in the many different parallel work areas. This is an important consideration in early negotiations with the funders, who often insist on budget cuts to travel lines, underestimating the importance of meetings when partners are located remotely. Rotating the meetings across the different ASSAR countries was also useful, as it enabled higher participation from the host partner, especially in the case of large teams (e.g. India, Ghana and Southern Africa). Although health checks were maintained in only two of the annual meetings, they were then abandoned as partners no longer needed them. However, it would have probably been good to include a grievance mechanism in ASSAR, for people to voice their concerns as problems and challenges emerged. Instead, some of these problems were voiced in the final reflections held by the consortium coordinator at the end of the project, which made it too late to address them constructively.



Finally, at regional level, partner meetings were just as critical in reaching a common understanding of what needed to be achieved, allocating roles and responsibilities, and later keeping each other updated on progress, synthesising findings across the different partners and planning joint activities. These were also particularly useful for inspiring and learning from each other, which in some cases led to the replication of activities across regional partners (e.g. the mental modelling work in Mali and then Ghana). Regional meetings were especially

successful in West Africa and India, where they were formally included in the partners' workplans and thus took place two to three times per year. In East Africa, one critical way in which conflict was avoided or resolved was through commitment by members of the lead organisation to spend time in the field with partner teams, which builds trust and honesty, levels out hierarchies, and can create a relationship based on reciprocal collegiality - particularly when teams spend time together at the end of the working day during fieldwork activities, which allows for relationships to be cemented. In one case where conflict was experienced, non-violent communication tools were used through the assistance of an external facilitator, who helped the team discuss their challenges in a constructive way.

## **Lesson 9 - Transparency and open lines of communication are critical to enable a fair share of opportunities**

The dispersed nature of the ASSAR partnership required dedicating additional, specialised attention to maintaining the flow of information and ensuring that opportunities were made available in a timely manner, across all partners. We were partly successful in this endeavour. ASSAR developed a weekly digest very early in the project, to reduce the volume of email traffic and keep everyone updated about important documents, meetings, deadlines and opportunities. As the project progressed, it also became an important means to celebrate achievements across the team. Particularly for those unable to participate in annual meetings and involved more peripherally in ASSAR (e.g. field staff, some students), the digest proved to be an important way to keep everyone informed and "belonging" to the project. Once again, the google platform enabled by CARIIAA was critical in its success, as it was for facilitating any type of collaborative work, through the google docs function, which allowed multiple authors to work on one version of a document at any given time. It is important to note, however, that it remained very difficult for ASSAR's Ethiopian colleagues (and visiting UEA colleagues) to access and work with the drive due to intermittent internet access in the country.

While the digest was crucial at enabling transparency, in some cases untimely communications tied to tight deadlines (and power differentials between lead and sub-contracted partners, often as a result of having access to additional information through the PSC) resulted in some opportunities (e.g. for capacity building or participation in certain meetings) not reaching everyone equally, or in time to act. As explained in some of the final reflections, although the information was available, more remote colleagues were sometimes unsure about whether they were also eligible to apply, or how to access these. Although this was rectified as the project progressed, the inclusion of a lead from each project partner in the PSC could have ensured fuller transparency in decision-making. As mentioned above, however, this would have also made the meetings more cumbersome. In all cases, these lessons point to how important communication is, at all levels and quite possibly, repeated *ad nauseam*, given also the overwhelming nature of ASSAR, everyone's work burdens and limited attention spans in some cases.

An important consideration in ASSAR is around languages. While the Mali core partners are fully conversant with English, their students and stakeholders were not, meaning that both internal and external communications were often inadequate to reach everyone. This meant that in some cases ICRISAT colleagues had to translate key documents for their students to be able to participate in consortia activities. Also, the UCT communications team was unable to assist the ICRISAT team as easily as the others. The choice of partners and geographical regions should be an important consideration in future projects.

## **Lesson 10 - Flexibility in managing budgets, while not always possible, is important**

Open communications and transparency are also critical to deal with budget issues. ASSAR's core partners have appreciated IDRC's openness to be flexible to changes in spending as new opportunities, or changes in priority arose during the project. A number of examples of relatively significant changes occurred in ASSAR, such as when INTASAVE withdrew from the project resulting in a reshuffling in the way communications was implemented (and funded); the development of the MOOC; or the hiring of postdocs to undertake the knowledge systems or transformative scenario planning evaluation work. However, many sub-contracted



partners also incurred in a number of problems tied to delayed disbursements, many of which were due to internal administrative, bureaucratic processes. One possible way to deal with delayed disbursements could be to provide partners with a budget that covers three additional months into the next financial reporting year, thus avoiding activities coming to a standstill when there are lags.

Most of the institutional leads also incurred losses due to currency exchanges which occurred in the course of the project, and which required a significant amount of time (and frustration) to deal with. Some activities also had to be delayed due to the uncertainty in future exchange rates, which in some cases meant that in the end they were no longer feasible. The feeling among many ASSAR partners is that earlier communications from IDRC about how exchange rate fluctuations would be dealt with were not in line with how things turned out, requiring a cutting back in a number of activities, particularly tied to RiU. Having said that, given that everyone's capacity was always stretched, it may have been difficult to implement some of those activities nevertheless.

## **vi. Lessons arising from ASSAR's collaborative consortium model**

The ASSAR consortium took a reflective approach since the beginning, in an effort to learn from the multiple activities that were being undertaken - from research to influencing stakeholders, from managing the work flow to writing collaboratively. The consortium pursued this learning in a variety of complementary ways (annual meetings, CARIIA annual learning reviews, two surveys). The lessons that follow are a result of these multiple reflection processes.

### **Lesson 11 - Large-scale collaborative consortia provide multiple opportunities for learning and benefits to those involved**

Large scale collaborations generally bring together multiple partners from different geographies, sectors, disciplines and cultures. The learning that occurs at the intersection of these multiple characterising factors is inevitably significant. According to [the ASSAR survey](#) conducted halfway through the project's duration, the most valuable things learned by ASSAR members revolved around both research content and the process of working together. Where respondents claimed to have learnt something new, they referred to new content (such as on adaptation, wellbeing, gender, climate science, etc.), though more importantly, it was around new ways of thinking about and conducting one's research, the importance of research for impact, as well as a broadened understanding of issues, including an enhanced realisation of their complexity. On process, ASSAR colleagues appreciated having learned about the consortium model, including how it works, the inherent challenges involved, and the importance of relationships and spending time together.

ASSAR consortium members also showed an appreciation of the importance of different types of expertise which were encompassed by the consortium, referring to its cross-regional, multi-cultural aspect, the variety of disciplinary perspectives, the inclusion of practitioners alongside researchers, and the interactions among different levels of seniority and expertise. When asked about the most useful part of working in a consortium, responses revolved around the access to these diverse perspectives and approaches, networks, sets of expertise and skill sets, sources of information, funds and research sites – among others – that are afforded by being part of a consortium. The experience of working across different regions and different fields, and ability to generate knowledge and compare learning across these, was deemed invaluable. The opportunities to strengthen capacities, in multiple ways (such as through mentorship, ASSAR-organised training courses and writeshops, ASSAR's small opportunities grants that enabled cross-regional exchanges and the pursuit of distinct individual projects, participation in conferences, etc.) were also highly appreciated, by both junior and more senior researchers, as well as practitioners.

The key aspects that participants of ASSAR's last annual meeting (June, 2018) claimed they would take to a new project mainly revolved around research for impact (including thinking about target audiences, influencing, stakeholder involvement, communications), a more holistic way of thinking, new skills and approaches, as well as lessons about the challenges involved in working collaboratively across disciplines, dispersed partners, varying skill sets and capacities, and thus, potentially an ability to navigate those better. The relationships that were forged through the project (and which were the result of both formal and informal interactions, such as during annual meetings) are one of the most valued aspects of the project, which many partners are building on for future collaborations.

## **Lesson 12 - Working in consortia can be challenging and involves numerous transaction costs**

The very same features of consortia that enable learning and add value (such as their disciplinary and geographical diversity) are often responsible for making collaborative work challenging and cumbersome. Consortia's generally large size, dispersed nature of partners and cultural diversity can lead to difficulties for coordination, communication, maintaining connection, understanding one another, and ultimately working together effectively, particularly in the case of new partnerships that do not count with a base of existing relationships and trust. In ASSAR, the first year was particularly challenging given that most partners had not worked together before, and thus trust had to be built notwithstanding the geographical isolation of the different partners and the low frequency of meetings during which people could develop working and personal relationships. Setting up the different structures for the project (including ASSAR's integrated research framework) which would enable comparability across study sites was therefore an arduous process, as a common language and understanding of concepts, across disciplinary, research-practitioner and geographical divides (including rural and urban) had to be developed.

More than half of the [ASSAR survey](#) respondents, when asked about the most difficult aspects of working in a consortium, referred to the transaction costs. These included the complexity of working together in practice given the multitude of partners and physical distance separating most (e.g. to organise online meetings, take decisions remotely, the logistics of setting up shared research). In addition, respondents referred to the dependence on others' contributions to make progress, and the time investment required for all the multiple activities enveloped in a consortium, which made it feel overwhelming at most times (including project management, administration, reporting, budgeting, communications). Politics were also found to be a challenge in the consortium, revolving around power dynamics (arising for instance from the different disciplines, or lead versus sub-contracted partners); and competing interests and priorities (including tensions between research and impact, between students' interests and the project goals, and between institutional mandates and ASSAR's priority areas). Lastly, different ways and paces of working, differences in understanding and addressing issues, and a lack of collaborative spirit (which was at times due to personal relationships) were also found to challenge the collaborative endeavour at times. Relationships and failed teamwork was the most challenging aspect respondents faced.



### **BOX 1: FIVE WAYS TO MAXIMISE COLLABORATIVE WORK**

1. Large-scale collaborations of people and partners who have not worked together before require significant investments in relationship-building activities in the early phases, to enable expectations to be cleared and trust to be developed, before (or at least alongside) the hard discussions on deliverables and budgets. Early meetings should also be aimed at developing a joint vision and framing of what is desired, and discuss how work will be undertaken and challenges (including conflict and risk) dealt with.
2. Collaborative research can be enabled through a combination of training activities (more effective when early in the project), face to face time to enable progress (maximising the opportunities when colleagues are already together) and strong leadership and commitment by the different colleagues involved.
3. The provision of small seed funds at opportune times (e.g. once relationships have been built and the focus of work is clear) can play a catalytic role in enabling the production of collaborative, comparative outputs, strengthening capacities and increasing impact.
4. The dispersed nature of a consortium partnership requires dedicating additional, specialised attention to ensuring transparency, keeping communication channels open and maintaining the flow of information to keep partners engaged and motivated. This could be done through weekly newsletters (e.g. a digest was adopted in ASSAR) to keep everyone updated about important documents, meetings, deadlines and opportunities, as well as to celebrate achievements across the team. This is particularly important for those involved more peripherally and who have fewer opportunities for face-to-face interactions.
5. Face-to-face time is critical to maintain momentum and ensure progress is made. Though expensive, this is probably the most worthwhile investment, particularly to secure commitment and attention to the project when colleagues are only involved in it part time.



## Chapter 2: Research problem and research design

### **i. Original research problem**

ASSAR's overarching objective in the original proposal was to:

"...strengthen knowledge systems in semi-arid regions (SARs) on climate change vulnerability and adaptation, to enable a shift from current adaptation practices and policy into a mode that achieves proactive, widespread adaptation embedded in development activities at multiple governance scales, yielding well-adapted enhanced livelihoods for vulnerable groups" (ASSAR proposal, pg. 21).

The key research issues that ASSAR aimed to explore to achieve this objective, through the lens of semi-arid social-ecological systems, were:

"to deepen understanding of the underlying drivers and determinants of vulnerability of livelihood systems, the strengths and weaknesses of current adaptation practices and policies, as well as advancing understanding of the constraining and enabling factors that determine successful adaptation" (ASSAR proposal, pg. 25).

These key research issues were further unpacked as a series of research questions, the "Seven ASSAR Questions" (see insert).

#### **BOX 2: THE SEVEN ASSAR QUESTIONS**

1. What are critical determinants and drivers that shape vulnerability of people in SARs to differential impacts from climate change and variability across nested scales? In particular, how is the vulnerability of the poor and marginalized differentially affected?
2. How are the consequences of current and future climate change understood and communicated across scales, from local communities to national and regional institutions? What new approaches can be developed to lead to more effective shaping and communication of climate messages across south-south regions?
3. What approaches have been/are being used in developing adaptation strategies, at different scales; how effective have they been, in particular, in helping vulnerable groups respond to longer-term climate change risks? Where are the critical knowledge and capacity gaps in accessing, contextualizing and acting on climate information across scales?
4. How might climate change in future, and what are the consequences for society? What information is available from state-of-the-art climate and impacts assessment models to quantify future risks and impacts? How reliable and relevant is that information for purposes of adaptation planning at high spatial resolution and different time scales?
5. How might the existing social, political-economic and governance determinants and drivers of vulnerability to climate alter or intensify; and what new risks and opportunities could emerge and interact?
6. How best can adaptation be planned in the face of inevitable biophysical and socio-economic uncertainties?
7. What are the barriers and enablers for effective, long-term adaptation; and what interventions/investments are required to enable more widespread, sustained adaptation?

The intention was that these questions would be approached from a perspective that seeks to understand climate adaptation in the context of the complex, multi-stressor human development nature of SARs, which includes multiple livelihood systems, land-use and other environmental change, population dynamics and migration, urbanization and urban development, conflict, technological innovation, under varied policy, and institutional and governance frameworks.

## ii. Original research design

ASSAR’s research design was informed by the desire within the CARIIAA programme to have collaborative and comparative research, focusing on vulnerability hotspots. The design adopted a case-study-based approach to exploring the research questions, identifying vulnerable districts and communities which would be the focus of the research. The idea was then for country teams to follow a parallel approach to diagnose key issues relating to the ASSAR questions that would be the focus of research in each case study.

Consequently, ASSAR was originally conceived to have three phases of research:

| ASSAR RESEARCH PHASES  |
|--|
| <p><b>Regional Diagnostic Study:</b> Desktop Analysis, Key Informant Interviews and Stakeholder Consultations lead to a Regional Diagnostic Report that summarises current state of knowledge, key risks and vulnerabilities, and adaptation actions in each of four regions. Key research questions are proposed as part of this study.</p> |
| <p><b>Regional Research Programme:</b> New research, framed by ASSAR research questions, in the case study sites, knowledge gaps identified in the diagnostic work.</p>  |
| <p><b>Synthesis:</b> Drawing together regional research into more generalised evidence on the nature of vulnerability in SARs, and the barriers and enablers for effective adaptation.</p>   |

### Transformative Scenario Planning

One of the ways that ASSAR intended to innovate in the research design was through the application of *Transformative Scenario Planning* (TSP) to both generate research evidence and build the capabilities of the communities where ASSAR worked to have better sense of the systemic factors creating vulnerability, and to build agency to take action and respond. Three regions proceeded with TSPs, while the East Africa region used Participatory Scenario Analysis as an alternative approach because of political difficulties in running a full TSP.

### Research-policy-practice integration

ASSAR was also unusual in its attempt to embed policy and practice expertise into the research process. By partnering with Oxfam GB as one of the five consortium leaders, a strong emphasis on “Research into Use” was mainstreamed into the research. The approach and outcomes of this attempt at integration are discussed in more detail in section 7 of this report.



### iii. Evolution of ASSAR research problem and questions

As described in detail in the [April 2016 Annual Report](#), ASSAR thinking on the research problem evolved through the first year and a half, arriving at an overarching ASSAR framing question:

#### **ASSAR OVERARCHING RESEARCH QUESTION**

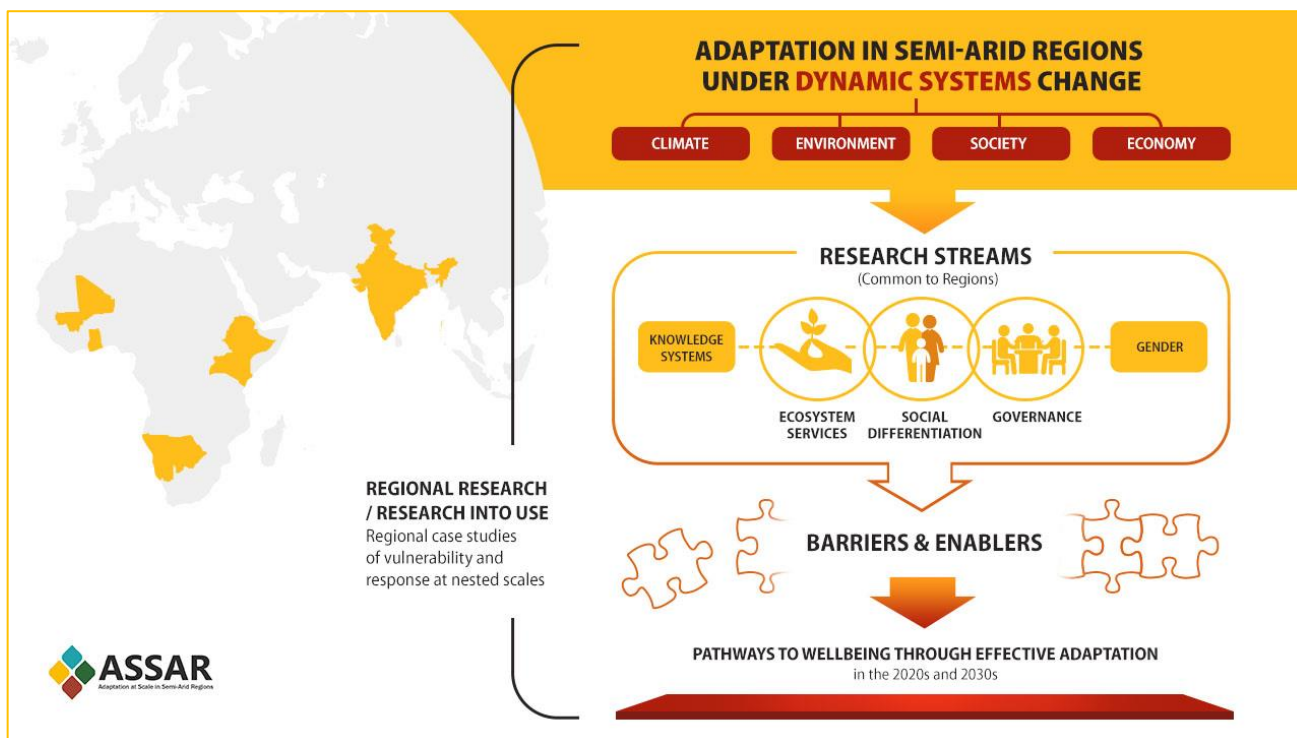
“What are the barriers and enablers for effective medium-term (2030 and beyond) adaptation and what responses enable more widespread, sustained adaptation?”

The other six original questions were then considered entry points to answering this overarching question.

#### **Integrated research framework**

At the second annual meeting in Botswana in May 2015, it was realised that a common approach to addressing ASSAR’s research questions was needed so that all teams could align their work to enable better cross-regional synthesis towards the end of the project. At this meeting ASSAR created an Integrated Research Framework, based on evidence from the Regional Diagnostic Study (RDS) phase, which identified three common streams (or lenses) that all teams could focus on: social difference, governance and ecosystem services. Gender and knowledge systems were specifically included as cross-cutting analytical themes across all the other streams.





**Figure 1: ASSAR's integrated research framework.**

For each stream, a set of Common Research Questions was agreed, which would be answered across all regions. The Common Research Questions (see Table 2, below) were aimed at generating evidence from each region that could lead to robust cross regional synthesis and comparison.

These stream-oriented questions were useful in maintaining a core focus on case-study research efforts. However, because of differing financial and human resources, research expertise, evolving regional priorities and research interests (both by the ASSAR team, and by in-country stakeholders), the depth of evidence that has emerged for each question in our study sites has varied.

**Table 2. ASSAR research questions across the research streams (with gender implicit in all)**

| RESEARCH STREAM               | RESEARCH QUESTIONS  |
|-------------------------------|---|
| <b>Social Differentiation</b> | <ol style="list-style-type: none"> <li>1. How does vulnerability to current risks vary among social groups?</li> <li>2. How does response to current risks vary among social groups?</li> <li>3. How are these patterns in vulnerability and response changing, and why?</li> <li>4. What are the implications of current and proposed adaptation on the wellbeing and vulnerability of different social groups?</li> </ol> |
| <b>Governance</b>             | <ol style="list-style-type: none"> <li>1. What governance structures and processes focus on or relate to adaptation?</li> <li>2. How does adaptation governance interact across and within scales, sectors and groups?</li> <li>3. How can governance structures and processes be made more responsive to dynamic system change in semi-arid regions?</li> </ol>  |

|                           |   |
|---------------------------|---|
| <b>Ecosystem Services</b> | <ol style="list-style-type: none"> <li>6. What are the key ecosystem services, how are they distributed and who benefits from them?</li> <li>7. How is the use of ecosystem services governed and what are the consequences for different social groups and the ecosystem services themselves?</li> <li>8. What changes in quantity, quality and distribution of ecosystem services have been seen in the last few decades and are expected in the medium-term and long-term, and what drives these changes at the study sites?</li> <li>9. What strategies and governance systems could enable the equitable and sustainable use of ES and enhance human well-being under climate change?</li> </ol> |
| <b>Knowledge Systems</b>  | <ol style="list-style-type: none"> <li>1. What knowledge resources (local /external knowledge) relating to climate change are available in the study sites and how is their access and use socially differentiated?</li> <li>2. What governance arrangements (formal, informal, de jure, de facto, structured or non-structured) serve as barriers or enablers for the generation and transfer of knowledge relating to climate change and climate change adaptation in the study sites?</li> </ol>   |

### Development of synthesis topics in ASSAR

Starting at the ASSAR annual meeting in Ethiopia in mid-2016, a number of cross-regional synthesis topics were proposed by participants, based on (i) fit to the integrated research framework; (ii) cross-regional evidence; (iii) cross-regional interest. Where it was agreed that there was sufficient interest and data for a multi-region author team to take each topic forward, the work proceeded. Eventually, two of these topics did not reach completion by the end of ASSAR, while four have been (or will soon) be completed (Table 3).

In 2017, the Project Steering Committee identified consortium level results that would be of particular relevance to international (as opposed to national) research users. Four topics were identified: two are directly related to ASSAR’s overarching question on barriers and enablers to effective adaptation, namely what are the key barriers and enablers to adaptation that emerge across regions, and secondly, how do we define and measure “effective adaptation”. The third topic builds on ongoing debates and discussion within ASSAR around transformation in climate change adaptation, while the fourth topic addresses what ASSAR has learned from working collaboratively in the consortium model, including at the research-practitioner interface. These topics were further explored at the annual meeting in Ghana in July 2017, and all four were taken forward in different ways for development as synthesis topics.



**Table 3. ASSAR cross-regional synthesis topics**

| SYNTHESIS TOPICS   | STATUS  |
|--|---|
| <p><b><i>Changing household structures and adaptation to climate change</i></b></p> <p>Nitya Rao, Laura Camfield, Jennifer Leavy (East Africa); Chandni Singh, Prathigna Poonacha, Divya Solomon (India); Margaret Angula (Southern Africa); Elaine Lawson, Rahina Sidiki Alare, Amadou Sidibe (West Africa)</p> | <p>The team submitted a paper entitled “Managing risk, changing aspirations and household dynamics: implications for wellbeing and adaptation in semi-arid Africa and India” to World Development in September 2018. A number of supporting outputs, reflecting the regional details have either been published (“<a href="#">Mental models of food security in Mali</a>”) or been submitted. These include a paper on India led by Chandni Singh “Migration as a driver of changing household structures: implications for household livelihoods and adaptation” (submitted to Migration and Development in October 2018); a paper on Kenya led by Nitya Rao “From abandonment to autonomy: Gendered strategies for coping with climate change, Isiolo County, Kenya” (submitted to Geoforum in July 2018); a paper on Ethiopia led by Laura Camfield ““People who once had 40 cattle are left only with fences’: Coping with Persistent Drought in Awash, Ethiopia” (submitted to the European Journal of Development Research in August 2018); and two papers on Ghana “Dealing with climate change in semi-arid Ghana: Understanding intersectional perceptions and adaptation strategies of women farmers” (submitted to Geojournal in June 2018, led by Elaine Lawson) and “Social Differentiation and Adaptive Responses Adopted by Farmers in a Water Scarce Landscape: The Case of Groundnut farmers in the Lawra and Nandom Districts” (book chapter led by Abdul Salifu, submitted to Springer in December 2017). A number of additional papers based on work arising in India, Namibia and Kenya, are still under preparation. Eight case studies which will input into the CARIAA-level Qualitative Comparative Analysis work on women’s agency and adaptation are also being completed. With ASSAR’s communications team, a <a href="#">set of infographics</a> was produced and disseminated at the United Nations Commission on the Status of Women (March 2018 in New York) as well as other events since then, including Adaptation Futures 2018. The results of this work were also presented in an <a href="#">ASSAR webinar</a> (“Challenging assumptions about gender and climate adaptation”) in March 2018.</p> |
| <p><b><i>Changing Landuse-Landcover (LULC) in semi-arid regions of Africa and India</i></b></p> <p>Jagdish Krishnaswamy, Milind Bunyan, Shrinivas Badiger, Vijayasekaran Duraisamy (India); Hillary Masundire, Chandapiwa Molefe (Southern Africa); Oliver Wasonga, Mekonnen Adnew, Mathias Tesfaye</p>          | <p>The cross-regional LULC work involved two components with corresponding outputs: (1) Understanding vegetation-climate dynamics in natural and human-managed ecosystems in each of the regions with implications for ecosystem services and resilience to future climate change. This work was based on coarser scale satellite NDVI3g and CRU climate data (1982-2016) and used bayesian time-varying regression approach as the main method. (2) The finer scale Landsat and MODIS-based LULC work across the regions focused on a comparison and changes in more detailed classified satellite imageries in the detailed study basin in each region, identifying more recent trends with a stronger linkage to key</p>   |



|   |   |
|---|---|
| <p>(East Africa); Alcade Segnon, Rahina Sidiki Alare (West Africa)</p>  | <p>ecosystem services in each region linked to barriers and enablers for adaptation. Both of these will be completed in early 2019.</p>   |
| <p><b><i>Water governance and decentralisation</i></b></p> <p>Gina Ziervogel, Salma Hegga (Southern Africa); Ritwika Basu, Chandni Singh (India); Poshendra Satyal (East Africa); Adelina Mensah (West Africa)</p>      | <p>The team submitted a journal article entitled “Vertical Integration for Climate Change Adaptation in the Water Sector: Lessons from Decentralisation in Africa and India” to Regional Environmental Change in November 2018. Regional outputs that contribute to this work are a paper on Namibia “Capacity of Local Level Actors to Participate in Decentralised Water Governance: Insights from North Central Namibia” (by Salma Hegga, submitted in September 2018 to Regional Environmental Change) and a <a href="#">brief on the same topic</a>. A paper on “Adapting to climate change in the context of decentralisation: Exploring multi-level governance of water-related issues in semi-arid areas of East Africa” will be submitted in early 2019.</p>   |
| <p><b><i>Impacts and management of invasive species in semi-arid Ethiopia and India</i></b></p> <p>Mohammed Assen, Mekonnen Adnew (Ethiopia); Jagdish Krishnaswamy, Shrinivas Badiger, Milind Bunyan (India)</p>        | <p>This work was mainly conducted at country level in Ethiopia and Tamil Nadu (India), with a cross-regional comparison manuscript being planned for 2019. In Ethiopia, a draft journal article on “Perceptions of local people on impacts and management of <i>Prosopis juliflora</i> for adaptation in the face of climate change in the Middle Awash Valley, Ethiopia” has been produced, which will be submitted in early 2019. A brief on the same topic is also under production.</p> <p>In Tamil Nadu, a collaborative network of researchers and practitioners (called PARDESI) was established to collect data on 27 invasive alien species (IAS) with smartphones by involving Forest Department officials, school and college students, and citizen volunteers. The team developed an <a href="#">identification key</a> to those mapping IAS which has been shared with local stakeholders. The team also conducted skill-building workshops for the Forest Department to map IAS and their emerging expertise positioned ATREE as key knowledge partners to support continuing litigation on IAS management and removal.</p> <p>While there was an ambition to compare insights from India and Ethiopia, this had not happened by the end of ASSAR, and is unlikely to occur without further financial resourcing.</p> |
| <p><b><i>Ecosystem services and gender-based responses to climate change in semi-arid areas</i></b></p> <p>Hillary Masundire, Cecil Togarepi, Chandapiwa Molefe (Southern Africa); Marcella de Souza, Divya Solomon</p> | <p>Little progress was made on this cross-regional topic given the multiple commitments of different team members. A joint output may possibly result in 2019.</p>  |

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| (India); Elaine Lawson, Mary Thompson-Hall, Rahina Sidiki Alare (West Africa)   |  |
| <p><b>Migration and mobility</b></p> <p>Mark Tebboth (East Africa), Chandni Singh (India), Adelina Mensah, Prince Ansah (West Africa), Dian Spear (Southern Africa)</p> | <p>The team submitted a paper with the empirical results of the research entitled “The role of mobility in changing livelihood trajectories: implications for vulnerability and adaptation in semi-arid regions” to Geoforum and a methodological paper entitled “Opening up the methodological toolkit on climate change vulnerability and adaptation research: reflections from using life history approaches” to Regional Environmental Change, both in October 2018. A how to guide on “<a href="#">Conducting life history interviews</a>” was launched at an Adaptation Futures masterclass in June 2018. A brief based on the results of the empirical paper is being planned for January 2019.</p> |

**Table 4. Status of high-level ASSAR synthesis topics**

| SYNTHESIS TOPICS   | STATUS   |
|--|--|
| <p><b>Barriers and Enablers</b></p> <p>Mary Thompson-Hall, Mark Tebboth, Dian Spear, Mark New, Amir Bazaz, Chandni Singh, Julia Davies, Roger Few</p>  | <p>This team produced one brief on <a href="#">Intersecting barriers and enablers in semi-arid regions</a> and their implications for adaptation planning. The team is currently finalising a journal article on The Role of Culture as a Barrier and Enabler to Adaptation in Semi-Arid Regions, which will be submitted in January 2019.</p>   |
| <p><b>Effective Adaptation</b></p> <p>Mark New, Chandni Singh, Marcela de Souza, Soundarya Iyer, Bhavana Rao Kuchimanchi, Roger Few, Alcade Segnon</p> | <p>This team reviewed the literature to document how different disciplines and/or theoretical approaches (such as economics, justice, resilience) define effectiveness in the context of adaptation. This was used to develop set of “principles” or “considerations” that should underpin adaptation processes - from understanding risk, to identifying desired adaptation outcomes, to designing and implementing adaptation responses, to assessing the effectiveness of adaptation. These considerations are illustrated with examples from the ASSAR case studies.</p> <p>A commentary paper is being prepared, for submission in first quarter of 2019.</p> |

|   |  |
|---|--|
| <p><b><i>Transformation in Climate Adaptation</i></b></p> <p>Daniel Morchain, Roger Few, Dian Spear, Ramkumar Bendapudi, Adelina Mensah</p>                         | <p>This team produced a working paper on <a href="#">Transformation in Adaptation</a> and a journal article on <a href="#">Transformation, adaptation and development: relating concepts to practice</a>. The paper “Building transformative capacity in southern Africa: surfacing knowledge through participatory Vulnerability and Risk Assessments” led by Daniel Morchain and accepted by the Action Research Journal also contributed to this topic. After these academic outputs were produced, Oxfam’s Daniel Morchain developed a theatre of the oppressed session (<a href="#">presented at Adaptation Futures 2018</a>) that brings to light the challenges of implementing RiU, and how in doing so, transforming structures and behaviours is such a fundamental element of success.</p>  |
| <p><b><i>Reflections on researching adaptation</i></b></p> <p>Jesse de-Maria Kinney, Amir Bazaz, Lucia Scodanibbio, Mark Tebboth, Daniel Morchain, Julia Davies</p> | <p>Work on the aspect of researching adaptation was divided into two streams. One aspect, emerging from the results of a survey conducted halfway through ASSAR, focused on the lessons arising from the consortium model, which resulted in a report entitled “<a href="#">What have we learned from working collaboratively on the ASSAR project?</a>”. This work will be further built on in early 2019, to analyse and write up the results of a second survey conducted across the ASSAR consortium at the end of the project. Secondly, in the context of identifying barriers and enablers to research-practice collaboration, ASSAR lessons, other models (apart from ASSAR) enabling research-practice collaboration and additional evidence collected during a session at Adaptation Futures 2018, form the basis of a working draft that focuses on lessons derived from ASSAR and other models, and provides guidance at project and donor levels. In addition, a working paper based on a survey that explored the shape and extent to which ASSAR members have adopted RiU thinking and practices will shortly be published, arising from a collaboration between Oxfam, UCT and Reading University, and building on the paper on ‘<a href="#">Stocktaking RiU progress</a>’ developed by Oxfam in 2016.</p> |



## iv. Reflections on the research design

### Tension between comparative and local

Throughout ASSAR there was a tension between the “local” and the “comparative”. The key drivers for this tension included (i) the specific interests of different members of the research teams, whether an NGO such as WOTR, or a master’s or PhD student who needed the freedom to develop a coherent research dissertation or thesis; (ii) the skills of the research team members, which inevitably led to contrasting methods, and even capabilities in answering questions; (iii) the diversity in priority issues that local communities and institutions highlighted as being pressing.

### Integrated research framework - a partial solution

While the integrated research framework provided some structure that, in theory, would allow for comparison of results, on reflection it was developed too late in the project, and only adopted over 15 months after the project started. This meant that many teams had already designed their local research, and had to retrofit the research framework onto their ongoing research, and often did not have the resources to be able to comprehensively address all the questions in each theme of the research framework.

In some cases, even though knowledge gaps and research priorities were identified before the integrating framework was developed, the new framing (particularly the elements of dynamics) allowed for exploration of new topics, like migration, and strengthened research outcomes. In addition, the new research design and the questions therein allowed for all partners to generate new data and draw implications from new information that was generated. This yielded remarkable results as new skills (land use land cover analysis) were put to use, new approaches were tested (life history methodology) and new capacities were built (WOTR honing research skills); coupled with well-designed participatory processes.

With hindsight, the integrated framework should have been co-developed much earlier in the project, at least by the first meeting in India in October 2014, but ideally as part of the inception meeting in April 2014, or even as part of the proposal development. This would have provided much more direction to the research teams than the “Seven ASSAR Questions” in the proposal, which were too open to provide a structure for comparative research design.



## **Regional diagnostic studies**

The Regional Diagnostic Studies (RDS) were not as effective as had been imagined, apart perhaps in India. For the African regions, making the reviews multi-country meant that the results were hard to publish, and hard to translate into country-specific outputs (we learned through ASSAR that the country level and local levels within country were the most productive routes to impact). The RDS work also took up nearly a quarter of the project timetable, and with hindsight, could have been done more quickly and lightly, and using participatory processes, to enable research to start earlier, and leave more time at the end of ASSAR for synthesis.

## **Delays in TSP reduced potential impact within ASSAR project duration**

In the original research design, the Transformative Scenario processes were conceived to be generative in terms of identifying stakeholder-relevant research questions and activities that could be addressed within ASSAR. However, only a few TSP processes occurred early enough for this to happen (e.g. in West Africa, out of which came a number of initiatives).

## **Importance of building capacities to do comparative research**

The LULC and Gender cross-regional synthesis teams invested significant time in developing a common skill set, which enabled a much better set of synthesis products. For the gender team, participation in a summer school at UEA in 2015 built the capacity of team members to go back to their field sites and work to a common framing, and contribute to synthesis work. For the LULC team, a series of dedicated training workshops on use and analysis of remote sensing data enabled each regional team member to proceed with an analysis that could then be contributed to a cross-regional product. In contrast, some of the other synthesis topics did not work in this way, and therefore either produced less integrated work, or failed to deliver (e.g. the gender and ecosystem services topic).

## **v. Datasets generated within ASSAR**

Details of the primary and secondary data collected during ASSAR are stored in an [online consolidated metadata file](#). This metadata file serves as the entry point for anyone wishing to use or find out more about ASSAR's datasets, and includes details of the data collection activities, the associated publications, and the names and contact details of the people and institutions responsible for data storage. The different types of primary data collected by ASSAR – across the project and for each region – are shown in Figure 2 below.



### Climate observations



**ASSAR-wide: 1**  
 Botswana: -  
 Namibia: -  
 Ethiopia: -  
 Kenya: -  
 Ghana: 1  
 Mali: -  
 India-Karnataka: -  
 India-Maharashtra: -  
 India-Tamil Nadu: -

### Ground-mapped biophysical data



**ASSAR-wide: 1213**  
 Botswana: 1  
 Namibia: 1  
 Ethiopia: -  
 Kenya: -  
 Ghana: 71  
 Mali: 1  
 India-Karnataka: 45  
 India-Maharashtra: 294  
 India-Tamil Nadu: 800

### Focus groups: number of discussions



**ASSAR-wide: 375**  
 Botswana: 61  
 Namibia: 44  
 Ethiopia: 47  
 Kenya: 40  
 Ghana: 64  
 Mali: 30  
 India-Karnataka: 54  
 India-Maharashtra: 23  
 India-Tamil Nadu: 12

### Focus groups: number of locations



**ASSAR-wide: 94**  
 Botswana: -  
 Namibia: -  
 Ethiopia: 19  
 Kenya: 23  
 Ghana: 14  
 Mali: 18  
 India-Karnataka: 4  
 India-Maharashtra: 6  
 India-Tamil Nadu: 10

### Individuals interviewed



**ASSAR-wide: 1,306**  
 Botswana: 175  
 Namibia: 257  
 Ethiopia: 161  
 Kenya: 151  
 Ghana: 193  
 Mali: 188  
 India-Karnataka: 99  
 India-Maharashtra: 42  
 India-Tamil Nadu: 40

### Life histories



**ASSAR-wide: 115**  
 Botswana: -  
 Namibia: -  
 Ethiopia: 35  
 Kenya: 32  
 Ghana: -  
 Mali: -  
 India-Karnataka: 35  
 India-Maharashtra: -  
 India-Tamil Nadu: 13

### Surveys: number of households



**ASSAR-wide: 10,528**  
 Botswana: 310  
 Namibia: 1387  
 Ethiopia: 298  
 Kenya: 300  
 Ghana: 2,312  
 Mali: 1,170  
 India-Karnataka: 2,732  
 India-Maharashtra: 1,179  
 India-Tamil Nadu: 840

### Surveys: number of locations



**ASSAR-wide: 43**  
 Botswana: -  
 Namibia: -  
 Ethiopia: 3  
 Kenya: 3  
 Ghana: -  
 Mali: -  
 India-Karnataka: 4  
 India-Maharashtra: 12  
 India-Tamil Nadu: 21

**Figure 2: The different types of primary data collected by ASSAR – across the project and for each region.**



## **Chapter 3: Contributions to adaptation research and practice**

In this section we report on three main areas where we believe ASSAR has contributed to adaptation research, policy and practice: (i) ASSAR's approach to collaborative research, and our framing of vulnerability and adaptation as a dynamic process; (ii) research results, exploring the underlying factors that create barriers and offer enabling conditions for effective adaptation for the most vulnerable and marginalised in semi-arid areas; (iii) our integrated approach to Research into Use (RiU, also referred to as Research for Impact, or R4I), where we strived to embed ongoing and adaptive thinking about research impact into our research, communication and stakeholder engagement practice.

### **i. ASSAR's intellectual framing, methodological and process contributions**

#### **Doing collaborative research across multiple, diverse sites**

ASSAR arguably went furthest among all consortia in implementing the aims of CARIIAA - integrated, collaborative, comparative research across multiple climate vulnerability hotspot sites in several countries in Africa and Asia. By using a **bottom up case-study approach** focusing on vulnerability and adaptation challenges from the perspective of communities who are among the most susceptible to climate variability and change, ASSAR aimed to identify and compare factors that shape these contextualized challenges and how they are situated in local social-ecological and broader political-economic systems.

The project aimed to enable **comparison of insights from different case studies** across semi-arid areas, rather than adopt a tightly structured comparative research design. In attempting this, ASSAR had to find a balance between the interests, expertise and capabilities of research teams working on each site, and the diversity of climate adaptation issues and priorities that were identified in the scoping phases of the project. To facilitate comparison, ASSAR created an [overarching research framework](#) that provided the in-country research teams with a series of common questions within three focus lenses (governance, ecosystem services, social difference) and two cross-cutting themes (gender and knowledge systems). The research teams in each region were then tasked with addressing these questions with context-appropriate approaches and methods, allowing for cross-case synthesis and comparison of regional insights towards the end of the project.

#### **Interaction of social and environmental dynamics in SARs**

ASSAR's conceptual framing emphasised the need to understand climate change within an interlinked set of dynamic processes in drylands – typically a combination of environmental, social, economic, cultural, political and administrative changes. These changes are particularly discernible in SARs, in part because dryland populations have historically been among the most marginalised but are today increasingly exposed to mainstream influences. Our dynamic framing has shaped how we approached both the research and research-into-use dimensions of the project. For example, work on the implications of drought has brought together understandings of how dynamics of land use, vegetation cover, livestock mobility, livelihood opportunities, household migration patterns, resource management, knowledge systems and administrative reorganisation have all come together to shape how extreme weather events translate into particular outcomes in different SARs.

The consortium's work underlines that only by **recognising and understanding these dynamics** can the challenges and prospects for management of climate impacts be adequately analysed. And that adaptation policy and practice must strive to take account of how interacting dynamics can influence relevance, uptake and prospects for success of climate adaptation responses.



### **Coupling research, practice and capacity building to enhance research impact**

ASSAR has demonstrated the value of linking research, capacity building and development practice to produce more relevant, impactful research. NGO partnerships, such as that with Oxfam, have been integral to bringing policy, practice and impact considerations into all aspects of ASSAR's work, which in turn enhanced both the diversity and impact of the consortium's RiU processes. Participatory processes such as the Vulnerability and Risk Assessment, Transformative Scenario Planning and Participatory Scenario Analysis were enhanced through involvement of NGO and other practitioners, and provided spaces for seeding of jointly-designed RiU capacity building activities. In some cases, such as for the Watershed Organization Trust (WOTR) in India, ASSAR was used to create spaces that allowed for greater research-practice synergies, leading to better outcomes (see Box 3 below).

As these kinds of partnerships (research led, with close involvement of practitioners and stakeholders) are relatively new, there were many nuanced challenges in developing and maintaining necessary linkages. In particular, developing trust and mutual understanding between research and practice was critical, so that each better appreciated the expertise and perspectives of the other. Additionally, embedding of practice partners within research teams (such as with the regional RiU coordinators), and vice versa (e.g. practitioners contributing to research outputs), was found to be critical. Finally, careful cultivation of the relationships described here takes time: we have seen that it is difficult to comfortably build these elements into a five-year project where original research, with the inherent time commitments that go with it, is continuously informing the focus without feeling that some potentially fruitful processes and activities are necessarily truncated with the end of the project.

These reflections offer important lessons on the value of letting south-based researchers and teams take a leading role in shaping the trajectories of regional research, on being better equipped for integrating RiU and research from the earliest planning stages of a project and for allowing sufficient time for both without having to rush either dimension. They also underline the importance of giving sufficient attention to sustainability of post-project relationships and activities and how lessons gained after a project's end will be retained and pushed forward so that adaptive capacities of particular groups, communities, countries and regions can continue to benefit.

### BOX 3: ASSAR AND THE MAHARASHTRA GROUNDWATER DEVELOPMENT AND MANAGEMENT ACT 2009

The Maharashtra Groundwater Act 2009 came into effect in 2014. Besides the various geographic scenarios treated in the 2009 Act, groundwater management in the rural context is given significant importance. However, its concrete application is a challenge as ground experience for effective implementation is missing. The 2009 Act states that villages in clusters (along aquifers) work together to manage their water resources judiciously and that, after taking cognisance of the water availability in their respective villages & cluster of villages, they draw up prospective crop plans (agriculture and water use plans) and follow those diligently. The proper application of the Act requires that people be motivated and mobilized to work together as a community and are incentivised for positive action.



The ASSAR project was timely and geographically appropriate. Following implementation of various Watershed Development (WSD) programs, groundwater levels increased, which led to excess withdrawals by farmers. The implementation team of WOTR initiated mobilization of communities for groundwater management. In the districts of Ahmednagar, Jalna (ASSAR Maharashtra case site) and Dhule, 110 villages were taken up under a Water Stewardship Initiative, with a focus on demand-side water management. Initial assessments revealed that these villages had limited knowledge of the groundwater resources (aquifers). The ASSAR studies and related interventions were easily dovetailed with the WOTR implementation work in the districts of Ahmednagar and Jalna.

Findings from the research study on [groundwater vulnerability](#) and [vulnerability assessment study](#) were disseminated through [Stakeholder Engagement workshops](#) in Sangamner (Ahmednagar district). These contributed to people's better understanding of the vulnerability status of different groups within communities, as well as of the groundwater situation. Through [Experiential games](#) (the Straw game/ Common bucket game and a [3-D model of the hydro-morphology](#) of their villages), participants realized and appreciated the shared nature of their aquifers, the finiteness of their groundwater resources and the need for each generation to use water sustainably. In Jalna district, the Transformative Scenario Planning (TSP) process was organised on the topic: "Water in rural Jalna in 2030: for domestic and livelihoods needs" ([TSP report](#) and [film](#)). This process showed that: (i) other parts of the district needed to be motivated through the TSP experience; and (ii) TSP participants from villages needed capacity building on preparing 'water budget plans'.

With support from Oxfam, the TSP experience was taken to three locations in Jalna covering 38 villages. With the support of the Grants for Local Adaptation Support (GLAS) project of START, 20 villages, involving 101 participants, were motivated and trained to prepare 'village water budget plans'. WOTR also trained 60 trainers (Training of Trainers in 2 training events) from Maharashtra and across the country to take the Water Stewardship Initiative forward, achieved through support from Oxfam funds. WOTR aims to bring in support from the state authorities through a workshop where various research findings and the experience of water stewardship can be promoted for better management of groundwater and subsequent, effective implementation of the Groundwater Act.

The impacts of this combined effort, while early to assess, show that mobilization of communities, together with the Water Stewardship Initiative, has motivated the use of micro-irrigation ([stories of change](#)). Through the ASSAR research phase, WOTR has been in close touch with the state Maharashtra Water Resources Regulatory Authority (MWRRA) as well as the National Water Mission for sharing the experiences and lessons learnt as well as for finding ways to better manage groundwater in India.



## Beyond vulnerability reduction: towards enhancing wellbeing



Recognising the emergence of **wellbeing as a more progressive framing of human development** outcomes in wider research on poverty and development, ASSAR pushed for a focus on multidimensional wellbeing - that is, measures of, and factors affecting, people's material and non-material aspects of security, happiness and fulfilment - as the primary outcome of interest in our research and RiU activities. This framing allowed ASSAR to interrogate climate adaptation outcomes beyond vulnerability reduction, towards capability (particularly in the context of building climate-specific capacities) to achieve wellbeing today and in the future.

The analysis of wellbeing state and aspirations among communities occurred through multiple methods, including household surveys, interviews with individuals within households, as well as focus group discussions and participatory scenario processes. Such a holistic viewpoint matches how our research participants conveyed their hopes and concerns, not narrowly in terms of technical feasibility of adaptation, but more broadly within the full context of their lives.

ASSAR has shown that attention to wellbeing outcomes viewed holistically and temporally is what makes adaptation action truly meaningful to people's lives and aspirations.

For instance, ASSAR's **research in Karnataka** (India) illustrates the importance of moving beyond traditional vulnerability-based approaches. The team examined wellbeing across the rural-urban continuum, unpacking multiple, complex dimensions of factors that affect wellbeing and the behaviours being adopted to enhance wellbeing. The findings showed how structural transformations being witnessed in India intersect with climate stress to change different dimensions of wellbeing, and how this is modulated by fragmented governance structures across jurisdictional boundaries. The team was able to unpack migration as a wellbeing adaptation associated with different drivers, processes, and outcomes and to understand its complexity and socially differentiated outcomes, spanning across a full range of the rural-urban transitions currently underway in India.

### Gender and social differentiation

While CARIIA required that gender be a cross-cutting issue for all research (and also for research team membership and research/practice capacity building), ASSAR took a more expansive approach by addressing 'intersectional' social difference. Gender remains a crucial dimension of social difference, however with ASSAR, we aimed to draw on cutting edge methodologies and approaches to broaden our focus to further account for other aspects of social difference, such as ethnicity (and caste in India), age, income, education, marital and migrant status, along with a closer look at intra-household structures, as potentially important differentiators of sensitivity to climate risk as well as adaptive capacity.

Using the multiple dimensions of social difference as a starting point for interrogation, ASSAR assessed wellbeing outcomes as a function of the interaction between social structures and the dynamics of ecosystem services, governance and access to knowledge. This framing allowed for identification of critical sensitivities that mediate material wellbeing but also, dynamics of power and agency. For example, families in Tamil Nadu



were mortgaging women's jewellery to fund access to increasingly scarce water by digging deeper wells, with women losing out on agency in deciding how to use the financing their assets had generated.



## ii. ASSAR's knowledge and evidence contributions

### Transformation, social and political change

Our first concern was to contribute to moving the debate around transformation in relation to climate change towards, first, a structured conversation where different meanings of the word are recognised and, second, from a mostly theoretical to an increasingly applied use of the term. To that end, [we proposed](#) a typological framework for categorising forms of change. We discussed how these categorisations link to the broader conceptions and critiques of transformation, with the idea that this can enable those who seek to assess or plan adaptation actions/theories to better analyse what types of action are potentially constitutive of transformation. Such a structure may contribute to increasing the accountability of claims and actions about transformation and test whether or not they indeed embrace elements of transformation. So-called transformative adaptation initiatives, i.e. those that aim to bring about change beyond the initiative itself (e.g. by reducing climate risk while empowering marginalised women), can be particularly helpful in shifting the sector's paradigms.

We also explored the potential that participatory assessments may lead to transformation pathways. For example, [rural research in Karnataka \(India\)](#) collected evidence of climate action from the field through participatory processes and subsequently assessed those actions for local adaptation and transformative potential (like long-term adaptive change), recognising that social dimensions of the implications of those actions were critical in setting up a foundation for transformation. When this type of assessments recognise the social roots of vulnerability and the contribution that 'non-expert' knowledge can (and should) have in addressing climate change impacts, they can help individuals and institutions respond to these in ways that

challenge current practice and shift power dynamics. In other words, these processes - which in ASSAR’s work have included the Vulnerability and Risk Assessment and Transformative Scenario Planning - can contribute to moving the adaptation conversation beyond incremental and instrumentalist approaches, towards one that inspires transformational thinking and action. For example, fundamental change in social, technological, economic, environmental and political structures may be required in order to plan for uncertain and unpredictable long-term futures.

At the global level, we confirmed a widely held view that the process of setting the climate change agenda is never a fortuitous process, but rather one loaded with political agendas. [Our research](#) found that in the present climate governance arrangement, Northern academic and political institutions exert disproportionate influence over the sector and that a vast wealth of knowledge is excluded from high-level climate-change-related decision-making processes. While there are advantages to the established system of peer-reviewed literature, even traditionally established institutions like the Intergovernmental Panel on Climate Change (IPCC) are increasingly opening up to the principle that a wider source of knowledge should inform climate narratives. Our research found that transformation in climate governance should be founded on the amalgamation of various sources of knowledge that support otherwise marginalised groups to become increasingly influential in defining their own development pathways.

A section describing ASSAR’s contribution to transformation would be incomplete if we didn’t mention the journey that some ASSAR researchers have undergone in reconsidering impact as a key component of their work - effectively becoming agents of change themselves in the pursuit to make research on climate change adaptation more relevant to and representative of marginalised and vulnerable populations in SARs. This contribution to shifting research processes is a fundamental contribution of ASSAR, and one which, while in some colleagues has manifested as incremental change, in others it has represented a decidedly transformational shift in ways of working.



**Figure 3: Intersecting factors influencing vulnerability and responses to climatic and other stressors.**

### Social difference

Across multiple locations, through an emphasis on social differentiation and gender as primary research streams, ASSAR has been able to highlight how different facets of identity including age, marital status, migrant status, ethnicity and especially gender, can shape personal and group vulnerabilities, agency, influence and adaptive capacities in very different ways in semi-arid regions. We have shown how those who are commonly lumped together as “most vulnerable” in international discourses have [diverse vulnerabilities](#), and equally diverse adaptive capacities.



These insights have been profiled, and received prominence through [outputs from the ASSAR gender working group](#), as well as through other synthesis outputs - such as that on “[Barriers and Enablers](#)”, and a wide range of location-specific outputs from the regional teams. For example, ASSAR’s gender research was shared at the United Nations 62nd session on the Commission on the Status of Women (CSW) in New York, which focused on gender and the empowerment of rural women and girls. The series of infographics that was launched at the conference (including through [a webinar](#)), highlights the complex challenges faced by different social groups, and explores how effective adaptation can be achieved in highly unequal social contexts. As a result of ASSAR’s engagement at the CSW, the UNFCCC gender focal point requested a collation of ASSAR findings on gender and social differentiation.

## Governance

ASSAR has demonstrated the importance of strong collaborative, multi-level governance arrangements as critical enablers for adaptation that works for local communities. In many instances, there were persistent disconnects within multi-level governance arrangements, which makes adaptation (and more generally, climate-resilient development) hard to achieve in ways that work to meet local contexts and wellbeing aspirations. This can be seen [in West Africa](#), for example, where decentralization schemes remain unable to achieve successful incorporation of local realities and needs into policies that impact adaptation and adaptive capacities.

Given the importance of water across all ASSAR sites, and in semi-arid regions in general, one of ASSAR’s foci was on comparative analysis of water governance across its study sites. This work highlighted the importance of (i) decentralisation for enabling participation and flexibility, two central components of climate change adaptation; and (ii) vertical integration of governance - important for strong two-way linkages between the local and national. The research showed that integration can be strengthened by: a) equitable representation from marginal and diverse groups through participation structures that address capacity deficits, cultural norms and unequal power relations, b) hybrid modes of governance that include government and diverse local actors, c) learning across multiple scales and between diverse actors to support innovative and holistic responses and lastly, d) recognition of a long-term social-ecological systems perspective alongside short-term locally-applicable responses for adapting to change.



Many of these lessons on water governance can be applied to other governance contexts, showing the importance of collaborative governance and participation for enabling responses that really work for the most vulnerable, who are often the most marginalised from current decision networks.

Many other examples emerged from ASSAR research where a lack of flexibility in governance arrangements and rules, and a weak integration across different levels and sectors, and governance arrangements, has led to unintended consequences, and even maladaptation. These include the [over abstraction of groundwater in Tamil Nadu](#), and the erosion of agency and adaptive capacity through dependency on social grants and drought relief [in Northern Namibia](#).

## Migration

Comparative analysis across multiple ASSAR sites using a life history approach has shown that migration is a pervasive response in space and time to livelihood and wellbeing risks and aspirations. By adopting a life-history approach to understanding migration, ASSAR was able to show how migration choices are shaped by past and present experiences and contexts, and future expectations. The work highlights the very individualised approaches people have to managing risks (although mediated by social institutions around them), and the importance of mobility within these strategies. The research points to the way in which mobility facilitates changes in the portfolio of risks people are exposed through modification (accentuated or attenuated) or novelty (gained or lost).

The research (under review) highlights the importance of understanding people's use of mobility within a web of interacting dynamic processes. Whilst individuals are active agents in the face of change they are constrained by broader social, political, economic, environmental, and cultural structures around them. These structures affect not only the choices that people make when responding to risks but also the effectiveness of those choices. For example, some households were able to respond to risks in a way that maintained a stable or positive wellbeing trajectory. For other households, despite changing behaviours, their wellbeing trajectory was negative and strongly influenced by compounding livelihood shocks, suggesting the presence of social tipping points - points at which a threshold is crossed and recovering becomes very difficult or impossible (a similar idea to a poverty trap). If we accept that social tipping points exist, then we can shift our focus to thinking through what sort of interventions are required to bring about positive change. People and places are different. There is clearly a need for approaches that place greater value on understanding intersectionality, social differentiation, and place when generating knowledge about vulnerability. This is critical to recognise and plan for, especially in resource-scarce and highly dynamic climate hotspots such as SARs.

## Knowledge systems

ASSAR research on knowledge systems was based on the premise that access to knowledge about climate risks and on adaptation options to reduce risk are necessary requirements for an effective adaptation response. Across our case studies ASSAR documented the current state of adaptation knowledge systems, focusing on understanding (i) how knowledge is accessed and used by differentiated groups and (ii) the governance arrangements that hinder the generation, transfer and use of knowledge among different groups in semi-arid communities.

[Our research](#) has shown that most of the climate knowledge that is available and accessed by communities in semi-arid areas is focused on weather and seasonal timescales, and is used for operational (e.g. when to plant) and tactical (e.g. what to plant) purposes. Far less information on longer term trends and changes in climate is provided, which means that communities, local government, and other agencies are not well equipped for more strategic planning related to climate adaptation. Communities in a number of ASSAR case study sites expressed a desire for more information on longer term trends and expected changes in climate, to help them make sense of what they are experiencing, and to help them think more strategically about longer term adaptation needs.



ASSAR has also shown that the majority of effort in generation of climate adaptation knowledge in our focus countries is dominated by traditional climate services - weather and climate information - but much less is available on climate impacts, and especially adaptation. A key finding therefore is that there is a **deficit on information on how to dynamically adapt** to emerging climate risks and on how to resource adaptation.

In many ASSAR study sites, the importance of trusted local intermediaries and local institutions in translating and disseminating climate adaptation knowledge to local communities was highlighted. These may be local NGOs, traditional forecasters, agricultural extension officers from public and private sector, and even shopkeepers. Furthermore, the collaborative development of adaptation knowledge through participatory processes with stakeholders (from marginalised groups to decision makers to private sector organisations) helped, particularly, fill knowledge gaps of government authorities. This, in turn, can help increase the effectiveness of responses. Learning from local stakeholders' ability to manage local processes and practices and to merge traditional and modern 'scientific' knowledge could prove advantageous for marginalised communities in mitigating climate-induced risks. These actors also appeared to play a crucial role in improving access to adaptation knowledge.



## Ecosystem services

The livelihoods and wellbeing of many communities in drylands remain strongly dependent on natural resources and ecosystem services. ASSAR has shown that **across multiple locations, ecosystem structure and function has been changing**, mostly in ways that adds stress to natural resource-based livelihoods, including cropping, livestock farming and pastoralism, non-timber products and tourism.

ASSAR has shown that these ecosystem service changes are being **driven by multiple intersecting environmental and social factors** including climate, usage pressure, competition for land, governance arrangements that impact on traditional management and invasive species such as *Prosopis*. Across multiple

case study sites, local communities can be important players in finding solutions that use local knowledge and action to reverse degradation - for example in managing *Prosopis* in Ethiopia and managing forest landscapes in India - and in adopting new livelihood sources - such as switching from cattle to camels in Kenya - that prevent over-reliance on stressed resources.

Using remote sensing data covering the ASSAR case study sites, ASSAR has been able to quantify vegetation dynamics in semi-arid areas, and tease out the role of climate, CO<sub>2</sub> fertilization and other drivers on vegetation greening and browning. These remote sensing data were combined with grounded insights from communities and households, particularly in the context of the changing environment and related wellbeing impacts. **Greening and browning were shown to have very different impacts on key ecosystem services** in the regions, with greening in some cases being associated with increased productivity and ecosystem services and in other cases being linked to proliferation of invasive species that are detrimental to ecosystem services such as fodder for grazing. We also found clear evidence for CO<sub>2</sub> fertilization causing higher greening trends, particularly across sites in the 350-800 mm rainfall gradient. These impact communities, households and individuals through changes in availability of ecosystem services such as biomass, water and food, mediated by social differentiation and governance regimes.

## 1.5 degrees

As part of a CARIIAA-wide response to the [IPCC Special Report on 1.5°C of Global Warming](#) ASSAR produced [a range of analyses](#) that focused on Africa, India and the ASSAR countries (and states) within Africa (and India).

The project has showed, through analysis of national level averages of climate change at 1.5 and 2.0 °C global warming, that **dryland (arid and semi-arid) countries in Africa will warm fastest on the continent**, and that the amount of warming increases with aridity. Two ASSAR case study countries - Botswana and Mali - were identified as having the fastest and greatest rates of local warming, relative to the global mean.

ASSAR has quantified projected changes in extreme weather events at 0.5 °C global warming increments, from today's 1.0 °C to 3.0 °C, across different climatic zones of the ASSAR countries in Africa. We have also reviewed the literature that quantifies impacts of global warming on key vulnerable sectors in these countries, and using scaling, were able to quantify the progression in potential impacts at these different global warming levels. The analysis shows that in many countries, semi-arid areas will experience the largest changes in climate, especially for temperature and extremes temperature events, and that because these areas are climatically sensitive with regard to water resources, rainfed agriculture and livestock farming, the societal impacts and consequent **adaptation challenges of warming at 1.5 °C and beyond will be among the largest in the continent.**

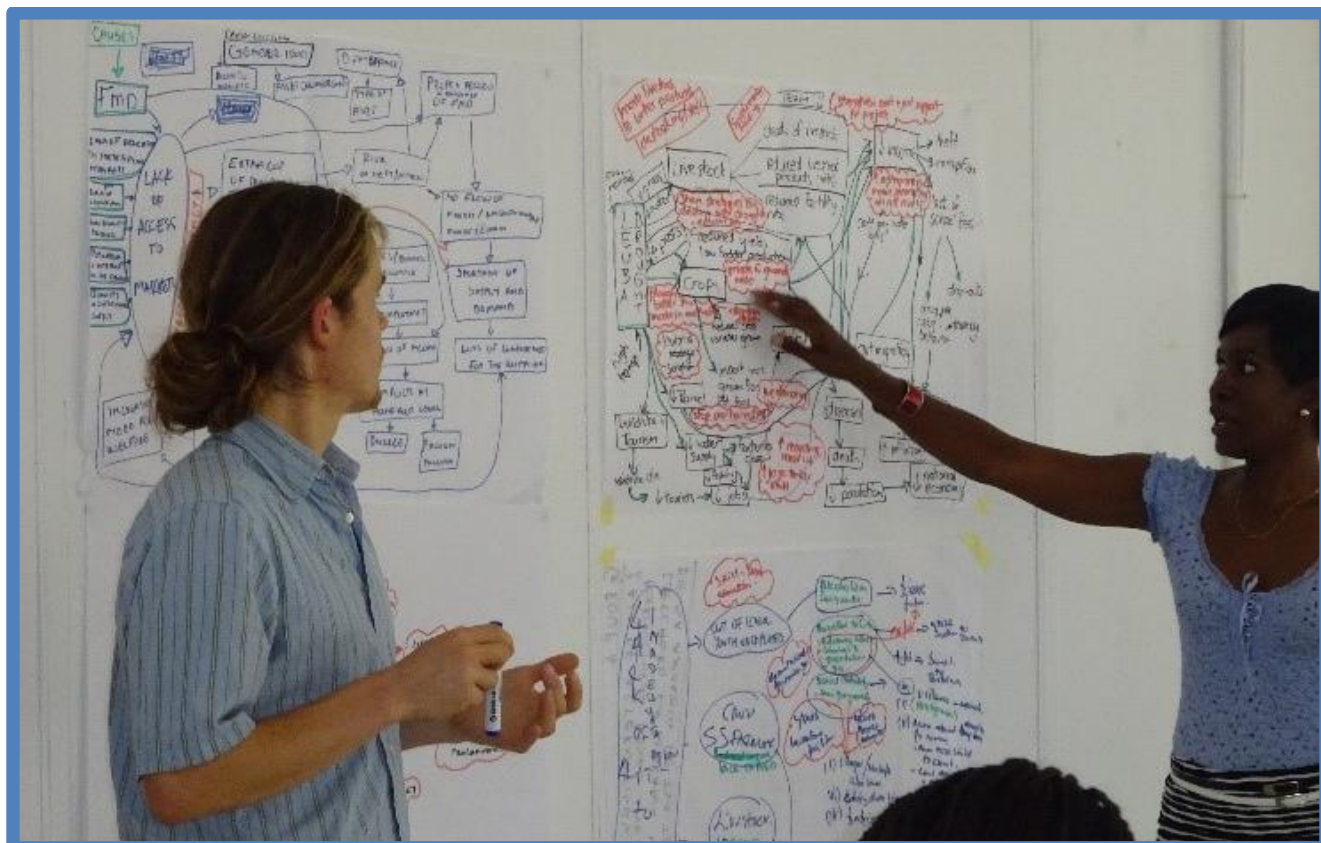
## Barriers and enablers and effective adaptation

An examination of barriers and enablers to effective adaptation for vulnerable and marginalised communities was embedded in nearly all of ASSAR's work. This is clearly articulated within the research questions in the ASSAR integrated research framework. In addition to individual pieces of research across ASSAR providing greater insights into specific barriers - such as access to knowledge, and weak vertical integration of governance arrangements for adaptation - ASSAR contributed two key new insights: the **role of culture** and the **intersectionality of competing barriers and complementary enablers.**

Our people-centred work in ASSAR has demonstrated the strong, and in some case central role, that cultural factors play in shaping the development, uptake and effectiveness of adaptation actions. By culture we refer to shared traits such as worldviews, values, norms, taboos, behaviours, and tastes that are often institutionalised within cultural structures related, for example, to social status, caste and gender. The importance of recognising cultural dynamics in this context is key, especially in semi-arid regions where deep-rooted traditions tend now to be confronted by rapid environmental and social change.



ASSAR has also drawn attention not just to the existence of multiple forms of barriers and enablers, but to their [interaction](#) in shaping adaptation outcomes. Enablers can combine to enhance adaptation outcomes, barriers can constructively interfere to degrade adaptation ambitions, and barriers and enablers may cancel each other out. Furthermore, barriers can be dynamic and change over time, with barriers in one adaptation context morphing into enablers at certain times or in certain situations. These interactions can often be highly complex and context-specific; but attempts to understand how a web of interacting factors is likely to play out in terms of shaping the conditions for successful development, uptake and effectiveness of adaptation actions is a key consideration for all those promoting effective adaptation.



### iii. Impact and research into use

To fully understand the **impact** of ASSAR's research - initially referred to as research-into-Use (RiU) and later in the project as Research-for-Impact (R4I) - one must look at the tangible and the intangible achievements; at the victories and the struggles. This is because we saw impact as a process and as an outcome, more than as an output.

In terms of direct impacts, ASSAR has amassed a long list of achievements, including gaining an influential position amidst government officials in tackling the impact of invasive species in Ethiopia (see Box 4 below); contributing inputs towards a 'National Science Plan for India'; contributing to the District Development Plan for Botswana's Central District and scaling up bottom-up adaptation planning processes to all districts of the country; contributing to drafting the Africa Drought Declaration and a national level Drought Management Strategy for Botswana; being involved in Namibia's national climate change committee; including RiU language in Ghana's Science, Technology and Innovation Policy; supporting the implementation of the Groundwater Act in the state of Maharashtra; informing the Tamil Nadu State Forest Department about challenges in managing forest resources and setting up processes that would help inform the State Planning Commission to incorporate research findings in the State Planning Document.

In relation to impact on research processes, the mix of expertise in the consortium meant that learning by exposure to different ways of working was inevitable. Approaching the research work through a flexible Impact Pathway approach (where research is conducted with a clear purpose to benefit people and through what channels, especially those most marginalised) has helped the ASSAR team prioritise the areas of work that seem to have a higher potential for impact and also to be opportunistic, rather than wedded to a fixed expected goal. Examining research processes in a project where RiU (or R4I) has considerable weight has also meant that we undertook an honest exploration of the way stakeholders were being meaningfully involved in all moments of the work: from designing research questions to analysing findings to turning them into action. We managed to ensure some research processes moved towards doing research ‘with’, rather than ‘of’ stakeholders; and at the same time learned much about the difficulty of making research processes truly participatory and inclusive.

We also attempted to contribute to shifting the discourse of climate change adaptation, from one largely dominated by natural sciences and a biophysical focus, to one where social vulnerabilities and capacities, wellbeing and power asymmetries are at the centre. Some of the fora where we managed to convey this message, other than through peer-reviewed publications, were the IPCC, the UNFCCC and the Global Commission on Adaptation. This explicit effort to affect behaviours was also critically undertaken internally, as ASSAR members re-visited their ways of working and made conscious efforts to increase the participatory nature of their work. Special attention was paid to attempt to generate real changes in policy and practice as a result of the research we undertook - and to see this effort as a worthwhile, indeed a fundamental, one by people and institutions working on climate change. This shift required different amounts of effort and creativity by different members of the project and their institutions.

Another impact of our consortium is evidenced by the formation and strengthening of our partnerships (and with other CARIIA partners) and the materialisation of new, funded collaborations of two or more ASSAR partners outside of the project. One example is the collaboration between UEA, AAU and ATREE to further the work that was begun in Ethiopia and Tamil Nadu on the invasive species *Prosopis juliflora*, supported through the Darwin Fund. This support will enable researchers from these institutions to meet together with other stakeholders and research organisations to exchange findings and develop a large-scale proposal for future research on a critical issue affecting drylands across much of Africa and South Asia.

Not least, after our experience with ASSAR, it is fair to say that ASSAR members no longer view impact as solely the uptake of research findings to inform a policy process, but as something much more widely encompassing and complex. Furthermore, research is indeed about quality, but equally so about ownership of the process by stakeholders. There will be many drivers at the wheel if research is to be meaningful and impactful.

To illustrate the less tangible, but tremendously important, impact of R4I in ASSAR partners, a reflection from Prof. Hillary Masundire, lead partner in Botswana, is revealing, encouraging and inspiring:

*“As an ecosystem scientist, with a strong ecological bias, I acknowledge a major change with my perspective on research consequent to the ASSAR project. I now find great pleasure and satisfaction in applying my ecological knowledge in engaging with communities (stakeholders) at various levels, from household to national and even regional (inter-country) scales. It is gratifying to learn from stakeholders and to see them wanting to engage with me and accepting results of my research as being of benefit to them. One of the greatest moments in the ASSAR project was when we presented our research findings and recommendations to chiefs (traditional leaders) and to local level government officers together with councilors - local level political leadership. It is very gratifying to see my research results being accepted and used to make a decision and/or to chart the way forward for a community. ASSAR transformed me into a biophysical researcher who works directly with humans within their ecosystems to enhance uptake of research outputs and outcomes.”*





#### BOX 4: PROSOPIS JULIFLORA IN ETHIOPIA: INTEGRATING RESEARCH, PRACTICE AND POLICY

The East African team focused on *Prosopis juliflora* as a key element of their research and research into use efforts. The integrated approach to the work showcases one of the key strengths with the ASSAR approach and the benefits it can bring.



The initial decision to focus research and RiU effort on *Prosopis juliflora* - a major invasive plant species - was made following initial rounds of stakeholder engagement and scoping research as well as internal discussions within the EA team. Through Oxfam's expertise we developed a comprehensive impact pathway that laid out in simple terms the steps we wanted to take and the change we were looking to bring about. The impact pathway acted as lynchpin around which research and research into use elements were organised and then facilitated ongoing engagement between researchers, practitioners and other stakeholders within the consortium and external to it.

The methodology that we employed within Ethiopia to research *Prosopis juliflora* was participatory and designed to support the goals that we established in the impact pathway. Over the course of 12 months [we held seven collaborative and participatory workshops](#) with communities, and government and non-governmental organisations to identify the strengths and weaknesses of different approaches to managing *Prosopis juliflora* and the likely winners and losers if these approaches were implemented in the future. In these workshops, the [impact pathway](#) was a useful tool through which we were able to communicate to workshop participants what we hoped to achieve through this applied research and how we were looking to influence and engage with stakeholders in the future.

Through this collaborative effort with an explicit dual focus on research and research into use we were able to engage in depth with the National Prosopis Taskforce and other research consortia that are active in this area of research. The findings of the research identified specific interventions that communities would like to see in their area as well as process orientated issues that are important and have the potential to influence how interventions are designed and implemented at the national scale. Building on this work Addis Ababa University, with Oxfam, successfully delivered training about natural resource management approaches (including ways in which to minimise the spread of *Prosopis juliflora*) in partnership with local institutions through a capacity building grant from ASSAR. In addition, UEA with AAU, ATREE and the Centre for Invasive Biology successfully bid for scoping money from the Darwin Fund to support feasibility work to develop a proposal for a future Darwin funding call.

The applied research with a strong focus on delivering impact and building capacity of communities within the case study area shows the value of a more integrated approach. That the research was successful can be in part attributed to the effective combination of research and research into use processes and people within a single approach. Furthermore, the availability and judicious use of small grants provided by ASSAR enabled the research team to provide tangible benefits for communities that participated in the research. Such activities are important as participation in research is often taken for granted and participants rarely see the results of this participation.

## Chapter 4: ASSAR highlighted outputs

Here we highlight a selection of a range of our outputs from both our research and engagement activities, to show the breadth of ASSAR’s work.

**Table 5: Selected research outputs**

| TITLE   | HOW DO THESE CONTRIBUTE TO THE FIELD OF ADAPTATION RESEARCH & PRACTICE?   |
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| <p>Rao, N., Singh, C., Solomon, D.S., Camfield, L., Alare, R.S., Angula, M.N., Poonacha, P., and Sidibe, A. Under review. Managing risk, changing aspirations and household dynamics: implications for wellbeing and adaptation in semi-arid Africa and India. Submitted to <i>World Development</i>.</p> <p><b>GENDER work</b></p> <p><a href="#">One-page summary</a></p> | <p>This paper considers the multiple, intersecting inequalities confronting rural populations in semi-arid regions of Africa and Asia, and how and why they affect households’ risk management strategies and enable sustainable local adaptation. The empirical research considers how changes in household dynamics, structure and aspirations shape risk management and household wellbeing. Predictably, household material conditions and social networks, alongside the ability of individuals, differentiated by age, marital status, or education, influence the strategies they adopt: livelihood diversification, migration, changing agricultural practices and leveraging social support. The evidence suggests that greater risks, such as climate variability, and resultant adaptations can drive conflictive behaviour within and between households as social norms shift. It also suggests that new cooperative behaviours are emerging, especially in peri-urban areas, as work domains and gender norms realign to maintain overall household wellbeing. Understanding household dynamics, across gender and generation, gives insights into effective adaptation. Policy and decision-making processes are seldom designed to consider people’s lived realities, which are dynamic. Moreover, gender differences in different types of household are not always acknowledged in terms of vulnerabilities and <i>also</i> opportunities. This study identifies entry points to enable sustainable and inclusive adaptation behaviour, emphasizing that interventions should work for both genders. This paper is the culmination of a collaborative effort across ASSAR researchers from four different regions which started with a training workshop in 2015 and has now resulted in a new cohort of southern researchers specialised in gender and social differentiation methods.</p> |
| <p>Tebboth, M. G. L., Singh, C., Spear, D., Mensah, A., and Ansah, P. Under review. The role of mobility in changing livelihood trajectories:</p>   | <p>The paper explores the role of mobility as an adaptive response to change within populations in semi-arid regions. The intersectional nature of risks and responses set within dynamic conditions is not well articulated in global environmental change literature. Using data from life history interviews in four countries, the research highlights how people and households’ approaches to managing risks are individualised. It also points to the</p>  |

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| <p>implications for vulnerability and adaptation in semi-arid regions. Submitted to <i>Geoforum</i>.</p> <p><b>MIGRATION work</b></p> <p><a href="#">One page summary</a></p>  | <p>importance of mobility within risk management strategies. Mobility can facilitate changes to risk portfolios through: modification (risks are accentuated or attenuated); novelty (risks gained or lost); or no change. Changes are shaped by a person’s agency, which is set within a web of broader structural constraints. Over time we see how the risks that people experience and their responses alter their wellbeing trajectory. Through a novel theoretical concept of the adaptation option space, our evidence suggests that it can sometimes become increasingly difficult to shift downward wellbeing trajectories. The use of the life history methodology helps reveal these wellbeing trajectories, capturing the temporality of risks, livelihood choices, adaptation outcomes and their interrelationship. This approach shows how current responses are influenced by past events and enables us to infer how current behaviours may influence future, as yet unknown, actions. This paper responds to a key challenge in developing Asia and Africa and through the use of micro-data, articulates household typologies which might help in streamlining policies and could drive the testing of policies for addressing development and other specific needs (both at source and destination), including structural transformation.</p>  |
| <p>Morchain, D., Spear, D., Ziervogel, G., Masundire, H., Angula, M.N, Davies, J., Molefe, C., and Hegga, S. Accepted. Building transformative capacity in southern Africa: surfacing knowledge and challenging structures through participatory Vulnerability and Risk Assessments. Submitted to <i>Action Research Journal</i>.</p> <p><b>PARTICIPATORY &amp; SOUTHERN AFRICA work</b></p> <p><a href="#">One-page summary</a></p> | <p>Three Vulnerability and Risk Assessment (VRA) exercises were conducted in Malawi, Botswana and Namibia in 2015 and 2016. Using an ‘action research’ approach, the VRAs brought together a range of stakeholders to participate in an inclusive process to integrate their diverse knowledge and find solutions to problems that concern them and their communities. Processes like the VRA have high potential for impact because they can shift narratives and power dynamics, allow marginal voices to be heard, build cross-scalar relationships and enable the co-creation of solutions. This is different to the approach taken in traditional research projects, which are largely conducted by experts and often miss the nuances of local context, perspectives and preferences. The VRA methodology is also novel in that it goes beyond the quantitative biophysical focus that has typically been used in vulnerability assessments in the past, to understand relational and structural vulnerabilities and enable a crucial ‘inward journey’ among participants, including the researchers themselves. Reflecting on the VRA workshops undertaken in the three case study countries, this paper explores the contribution that such an inclusive and participatory approach may bring to moving beyond incremental towards transformational thinking and action in relation to climate change adaptation.</p> |
| <p>Ofoegbu, C., New, M., and Kibet, S. 2018. The Effect of Inter-Organisational Collaboration Networks on Climate Knowledge Flows and Communication to Pastoralists in Kenya.</p>  | <p>This is one of a series of papers within ASSAR’s Knowledge Systems research stream that aims to assess barriers and enablers to the access and use of climate and adaptation knowledge by communities in semi-arid regions. Focusing on pastoralists in northern and southern Kenya, the research mapped the key actors involved in the generation, translation and dissemination of climate risk and adaptation information at different</p>  |



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| <p><i>Sustainability</i>, 10(11), 4180;<br/> <a href="https://doi.org/10.3390/su10114180">https://doi.org/10.3390/su10114180</a></p> <p><b>KNOWLEDGE SYSTEMS &amp; EAST AFRICA work</b></p>  | <p>timescales: weather forecasts, seasonal and multi-year outlooks, as well as multi-decadal climate change scenarios. The study also interviewed pastoralists to identify the main types of information they received. Network analysis identified the extent of collaboration between different organisations in the generation and dissemination of information. The interactions between organisations are stronger in the generation of information compared to the dissemination, suggesting that not all information that is generated reaches pastoralist communities. In addition, there are limited feedback routes from pastoralists to the generators of climate and adaptation information. Much of the information that is generated and disseminated is on weather and seasonal timescales, in support of tactical responses such as livestock management, rather than multi-year and multi-decadal timescales, which could support more strategic planning for a changing climate. The paper demonstrates that while there are strong networks for climate risk and adaptation information, closer collaboration between disseminators and generators, as well as better feedbacks between communities and organisations in the network, could enhance the relevance and usability of information.</p>   |
| <p>Singh, C., Solomon, D., Bendapudi, R., Kuchimanchi, R., Iyer, S., and Bazaz, A. Under review. What shapes vulnerability and risk management in semi-arid India? A focus on barriers and enablers to adaptation. Submitted to <i>Environmental Development</i>.</p> <p><b>ADAPTATION-DEVELOPMENT SPECTRUM &amp; INDIA work</b></p> <p><a href="#">One-page summary</a></p> | <p>This paper seeks to understand how development interventions and adaptation processes overlap, in three predominantly semi-arid states of India. Findings demonstrate how current household risk management strategies are predominantly reactive but draw upon planned development interventions, which are typically government-funded. Specific capacity (to deal with climatic risks) is low across the study sites, and the evidence suggests that good development does not necessarily translate into equitable, effective adaptation unless climate concerns are explicitly considered in project formulation. These findings provide policy pointers in semi-arid India specifically, and for drylands in rapidly developing countries in the global South generally. For example, interventions building generic capacities (e.g. alleviating poverty, improving access to basic services) need to be continued but action on building specific capacities (to deal with current and future climatic risks) needs to be accelerated. The paper thus identifies entry points for enabling and strengthening adaptation action as well as highlights interventions that have development and adaptation co-benefits (win-win solutions). The paper’s framework of generic vs. specific capacities is a powerful tool for policymakers and practitioners to identify entry points to enable local adaptation and to help understand how to move from technocratic and generic vulnerability reduction approaches towards sustainable adaptation.</p> |
| <p>Sidibé, A., Totin, E., Thompson-Hall, M., Traoré, O.T., Traoré, P.C.S. and Olabisi, L.S., 2018. Multi-scale governance in agriculture systems:</p>  | <p>This study looks at three institutional arrangements in the agriculture and food security sector in the ASSAR study site of Koutiala, Mali. First, the laws governing cotton cooperatives and seed certification, both designed at national level to better enable farmers’ access to agriculture services and improved seeds, but with mixed</p>   |

Interplay between national and local institutions around the production dimension of food security in Mali. *NJAS-Wageningen Journal of Life Sciences*, 84, pp.94-102.  
<https://doi.org/10.1016/j.njas.2017.09.001>

**WEST AFRICA & GOVERNANCE work**

[One-page summary](#)

results with regard to anticipated outcomes. Then, at a local convention for the management of natural resources established as part of ongoing decentralised governance policy that seems to resonate with local culture, but is challenged by other stakeholders. This paper tests bricolage as an analytical framework for analysing strengths and weaknesses of these institutional arrangements. In general, whether the regulation was designed at national or local level, neither were fully accepted by users. Controversies around these institutional arrangements show that both approaches failed to consider either agency of local players or national guiding principles. This indicates that institutions cannot be effective when proposed by high level actors who assume to know enough about local communities' needs and conditions to design rules for them. Likewise, bottom up approaches designed from within a particular local context are unlikely to achieve management goals for a much larger scale without broader organizational structure. The study highlights the need for integrated top-down and bottom-up planning approaches to support effective institutions that work across scales. It aims at contributing to methodological and theoretical insights on the way sustainable institutions may be generated in the context of multi-scale governance.

Few, R. and Tebboth, M.G.L. 2018. Recognising the Dynamics That Surround Drought Impacts. *Journal of Arid Environments*, 157, pp.113-115.  
<https://doi.org/10.1016/j.jaridenv.2018.06.001>

**EAST AFRICA work**

[One-page summary](#)

This 'Think Note' draws on empirical research conducted in Ethiopia and Kenya in the middle phases of ASSAR, in a period when populations in both case study sites were experiencing consecutive years of drought. Bringing together insights from different strands of the research, the article uses examples from both case studies to illustrate the interaction of drought with a set of other environmental, social, cultural, economic and political-administrative dynamics in the lives of pastoralists and agro-pastoralists. The authors underline that these dynamics significantly shape the nature and extent of drought impacts, and, equally, shape the chances of success of drought response measures. Moreover, the rapidity of many of these societal dynamics is likely to outstrip the pace of long-term changes in climatic conditions. The paper serves to emphasise the importance of setting drought analysis in its wider, dynamic context, both for researchers and for those designing and implementing drought risk reduction and adaptation interventions. In doing so, it also illustrates a central rationale within ASSAR: that it is crucial not to focus narrowly on anthropogenic climate change and variability when analysing vulnerability and the prospects for, and implications of, adaptation.

Singh, C. Under review. Moving in and out of vulnerability: interrogating migration as an adaptation strategy along a rural urban

Drawing on research in a semi-arid district in South India, this paper interrogates the role of migration and commuting in addressing livelihood vulnerability, and their implications on intra-household wellbeing and adaptive capacity. The paper makes key methodological and theoretical contributions to the migration and climate change adaptation literature. First, by capturing temporal vulnerability, livelihood pathways, and intra-

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| <p>continuum in India. Submitted to <i>The Geographical Journal</i>.</p> <p><b>INDIA &amp; MIGRATION work</b></p> <p><a href="#">One-page summary</a></p>  | <p>household wellbeing outcomes along a rural-urban continuum in India, it forefronts the dynamic context of risk and livelihood strategies within which households operate. Second, it demonstrates that binaries defining migration as ‘a failure to adapt’ or ‘successful adaptation strategy’ do not accurately depict the pathways of marginalisation, inequity, and aspirational shifts that shape migration outcomes. This finding corroborates with research that interrogates the role of migration in adaptation processes, but goes beyond by unpacking the implications of migration decisions on intra-household wellbeing. Third, it provides rich empirical evidence arguing that migration outcomes are highly differentiated across and within households and often, causal patterns of vulnerability in the rural are replicated in the urban. Finally, it forefronts the rural-urban continuum approach which is more territorial in nature and captures flows of people, ideas, materials between rural, urban and the dynamic peri-urban areas. In the context of structural transformation happening in India (and other developing countries), this paper provides policy-relevant evidence about wellbeing outcomes for migrants.</p> |
| <p>Ahmed, A., Lawson, E.T., Mensah, A., Gordon, C. and Padgham, J., 2016. Adaptation to climate change or non-climatic stressors in semi-arid regions? Evidence of gender differentiation in three agrarian districts of Ghana. <i>Environmental Development</i>, 20, pp.45-58.</p> <p><a href="https://doi.org/10.1016/j.envdev.2016.08.002">https://doi.org/10.1016/j.envdev.2016.08.002</a></p> <p><b>WEST AFRICA &amp; GENDER work</b></p> <p><a href="#">One-page summary</a></p> | <p>Drawing insights from three agrarian societies in the semi-arid region of Ghana, this paper uses qualitative research methods to understand how people are dealing with climate variability in semi-arid Ghana as an indication of how they will deal with climate change in the future. The findings indicate wide gender inequality in decision making processes and land access resulting from patriarchal local customs and institutions that shape adaptation responses of different vulnerable social groups to climatic or non-climatic stressors. Different adaptation practices of groups indicate that both climatic and non-climatic stressors shape the kind of responses that groups adopt. From the current adaptation practices, efforts to improve adaptation to future climate change at local levels must give attention to the nexus of both climatic and non-climatic stressors, gender, differential vulnerabilities and other subjectivities that produce a particular adaptation practice in a given place. None of these factors play out in isolation, showing the necessity of taking a complex systems approach which can surface the interplay between these multiple factors.</p>   |
| <p>Few, R., Morchain, D., Spear, D., Mensah, A. and Bendapudi, R. 2017. Transformation, adaptation and development: relating concepts to practice. <i>Palgrave Communications</i>. 3: 17092.</p> <p><a href="https://doi.org/10.1057/palcomms.2017.92">https://doi.org/10.1057/palcomms.2017.92</a></p> <p><b>TRANSFORMATION work</b></p>  | <p>In this paper, we attempt to chart an analytical course through the various different ways the term transformation is being used in relation to climate change adaptation. Such differences are likely to be amplified still further when actors with different interests and visions apply the term in practice when planning or evaluating interventions. The aim is help researchers and practitioners relate different interpretations of transformation to practice by proposing a typological framework for categorising forms of ‘non-incremental’ change that focuses on mechanisms and objectives. It does so by asking: what type of change process is occurring (or envisioned)?; how does it relate to the drivers of risk?; and is the change limited to climate change</p>   |



[One-page summary](#)

adaptation? What this paper seeks to add to the literature, therefore, is a framework that aims to help researchers and practitioners assess how and to what extent the mechanisms and objectives of an adaptation action are constitutive of transformation. In doing so, it hopes to promote structured and critical thinking in the design, implementation and analysis of adaptation and development actions with potential for transformation. This could help reduce the risk of negative impacts on vulnerable or marginalised people, as well as ensure that societal and systemic implications around the breadth of change of a specific transformation are better understood from the outset.

Nkemelang, T., M. New and Zaroug, M. 2018. Temperature and precipitation extremes under current, 1.5 °C and 2.0 °C global warming above pre-industrial levels over Botswana, and implications for climate change vulnerability. *Environmental Research Letters* 13(6): 065016. <http://stacks.iop.org/1748-9326/13/i=6/a=065016>

**1.5 DEGREE & SOUTHERN AFRICA work**

This paper explores the changes in climate extremes over different climatic zones of Botswana as global temperature progresses towards, and then beyond the Paris Agreement targets of 1.5 and 2.0 °C warming over pre-industrial temperatures. The paper first shows that the frequency of temperature and rainfall extremes at each increment of global warming are statistically distinct, meaning that the 1.5 and 2.0 °C global targets imply quite different, and rapidly increasing, risks for Botswana. The paper then shows how these changes in climate extremes will impact on key natural resource and human vulnerabilities in Botswana. Water resources and agriculture are shown to be particularly sensitive in a semi-arid country such as Botswana. Finally, the paper shows that - with current global emission trajectories - a global warming of 1.5 °C will occur in the 2020s; this implies an urgency to adaptation that has not been widely recognised in Botswana. The analysis methodology in this paper provided the basis for a series of [briefing notes and infographics](#) for each of the ASSAR Africa countries, where the climate changes and biophysical impacts were quantified for different climatic zones.

**Table 6: Selected research-into-use activities and outputs**

| OUTPUT/ACTIVITY   | DESCRIPTION  |
|---|--|
| <p><b>Creating awareness about what a 1.5 degree and higher temperature means for ASSAR countries</b></p> | <p>What does global warming of 1.5°C and higher mean for the countries ASSAR is working in? This <a href="#">series of country-specific infographics</a> provides insight into this question by highlighting the impacts of rising global temperatures on local climatic conditions and key vulnerabilities in Botswana, Namibia, Ghana, Mali, Ethiopia, Kenya and India. While limiting global warming to 1.5°C above pre-industrial levels is the main goal of the 2015 Paris Agreement, to date, mitigation pledges by nations fall far short of this, with the world being on track for a warming of 3.2°C by the end of the century. Under an increasing emissions trajectory, the 1.5°C threshold could be breached as early as the next decade, and the 2°C mark the decade thereafter. In ASSAR countries, which are considered climate change "hotspots," even a 1.5°C increase in global temperature will have severe local impacts. Hence, there is an urgent need for these countries to accelerate their adaptation efforts, and to do so as effectively as possible. These infographics highlight the projected changes in mean temperatures, heat wave days, annual rainfall, heavy rainfall days and dry days at 1.5°C, 2°C, 2.5°C and 3°C global warming scenarios. These climatic indicators are positioned in relation to their potential impacts on vulnerable sectors, including water, agriculture, health and biodiversity. Understanding the implications of these projected changes is essential for policymakers and practitioners to make more informed decisions about adaptation needs and actions, and to target long-term resilience building in the face of unavoidable climate change.</p> <p>Some of the info briefs and infographics were presented at COP24. One immediate impact was with the Minister from Namibia, who had not been aware of the fact that a global warming of 2.0 °C would lead to local warming of over 3.0 °C in his country. Overall, the country briefing notes will provide important ammunition for national governments in arguing the case for meeting the Paris targets, and also in furthering understanding of national adaptation efforts to overcome the impacts of the rapid expected changes.</p> |
| <p><b>Disseminating WOTR’s findings on heat stress through multiple means</b></p>                         | <p>The semi-arid regions of India are <a href="#">highly exposed to extreme heat events</a>, which are likely to worsen in future. This means that heat-related deaths and illness are set to increase too, and urgent action is needed to protect vulnerable populations. The Watershed Organisation Trust (WOTR) has produced a body of work that examines heat stress in the semi-arid Maharashtra state of India. A peer-reviewed <a href="#">book chapter</a> is complemented by a <a href="#">working paper</a>, which explore the health implications and coping strategies in vulnerable rural communities, where people are particularly exposed to heat. Many do strenuous outdoor work, tending to fields or working construction jobs through the hottest parts of the day. Heat stress can lead to a variety of physical symptoms, ranging from mild to severe. If heatstroke kicks in, and people don’t get treatment, they can die. In an effort to</p>   |

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|  | <p>help government stakeholders understand and respond to these challenges, WOTR has highlighted the key <a href="#">vulnerabilities</a> and <a href="#">health impacts</a> of heat stress in policy brief format. This information is also communicated in a short <a href="#">documentary</a> that delves into the issue of heat stress in India's Yavatmal District. A <a href="#">pamphlet</a> and <a href="#">poster</a>, each of which has been translated into several <a href="#">local languages</a>, further explain how communities might recognize and respond to the signs and symptoms of heat stress. The multimedia approach taken by WOTR to communicate their work on heat stress is an excellent example of how important research findings can be made accessible to a wider audience.</p>   |
| <p><b>Influencing Botswana's Drought Management Strategy</b></p>                       | <p>In recent decades, recurrent drought conditions have had devastating impacts on Botswana's food security, human health and the national economy. Historically, government has taken a reactive approach to dealing with drought. However, climate change has caused an increase in the frequency and intensity of droughts, and a 'crisis-driven' approach is no longer appropriate. The Government of Botswana recognizes the need to implement a more proactive and integrated approach to drought management. In this light, and on the basis of recurring extreme drought conditions, Botswana's Rural Development Council has set up a 'Technical Team' tasked with developing a National Drought Management Strategy (DMS). This 'strategy ready' <a href="#">Background Paper</a> was co-developed by a team of researchers and practitioners from the University of Cape Town and Oxfam GB with the view of contributing to and influencing the development of the DMS. Input was also provided by independent consultants who are experts in the field of policy development. The Background Paper builds on and extends the Botswana Technical Team's outline of a draft DMS, the final version of which is required to be comprehensive enough to address all key issues directly and indirectly impacted by drought, covering short-, medium- and long-term time horizons. The outline of this Background Paper follows a proposed revised outline for the next version of the Botswana Government's DMS, in order to provide maximum assistance to the Technical Team as they revise the draft document.</p> |
| <p><b>Presenting the richness of ASSAR's gender findings to multiple audiences</b></p> | <p>Climate change affects different people in different ways. While the harm caused by an impact is partly dependent on the event itself, the risks and vulnerabilities faced by people, households and communities are often <a href="#">socially-differentiated</a> by factors like gender, ethnicity, age and wealth. This <a href="#">series of infographics</a>, which were the first of their kind to be developed by ASSAR, highlight the complex challenges faced by different social groups, and explore how effective adaptation can be achieved in highly unequal social contexts. The messages conveyed in these infographics were shared at the United Nations 62nd session on the Commission on the Status of Women in New York, which focused on gender and the empowerment of rural women and girls. In conjunction, a <a href="#">webinar</a> was hosted by ASSAR researchers and practitioners working on social differentiation across Africa and India. This webinar sought to challenge assumptions about gender and climate adaptation which, traditionally, have positioned women as victims, whilst overlooking other factors that determine people's vulnerability. Participants were engaged in discussions around the socially-differentiated nature of</p>   |



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|   | <p>climate risks and impacts. Examples were provided of how, in some contexts, <a href="#">women do have agency</a>; whilst in others <a href="#">food security</a> is a largely gendered challenge. The role of <a href="#">changing household composition</a> and the relationships within households was also emphasized, as was the importance of considering <a href="#">people’s changing aspirations</a>, when developing adaptation strategies. Understanding this complexity is essential for ensuring that adaptation is successful, sustainable and equitable, and that it does not compromise people’s wellbeing.</p>   |
| <p><b>Involving citizens in the identification and mapping of invasive species in India through smartphones</b></p> | <p>The extensive spread of invasive species has become a <a href="#">thorny problem</a> in the southern regions of India, where biologically diverse landscapes provide an abundance of important ecosystem services to local communities. While invasive species such as <i>Prosopis juliflora</i> were initially introduced to India to combat desertification, stabilize sand dunes and provide fuel, their uncontrolled spread has negatively impacted indigenous ecosystems and rural livelihoods in a myriad of ways. There is now an urgent need to combat invasives, as climate change renders India hotter and more water-stressed. However, ASSAR’s findings show that responding to the country’s invasive species problem is made difficult by poor access to relevant ecological data and a lack of political-economic motivation. Furthermore, the dissemination of important information to farmers and other end-users is practically non-existent. The Ashoka Trust for Research in Ecology and the Environment (ATREE) and its partners are thus piloting the use of the <a href="#">ODK Collect application</a>, which makes it easy for researchers, practitioners, Forest Department officials and schoolchildren to identify and map invasives using Android-based smartphones and tablets. A foldable invasive species identification key was also created, along with a Land Use and Land Cover map of the region, that organisations can use to plan ‘<a href="#">citizen-science mapping walks</a>.’ Whilst only a first step to addressing the problem of invasives, such innovative approaches are essential for building an open-access database and for paving the way to longer-term solutions, including the implementation of a co-management strategy whereby communities could benefit from invasive species management.</p> |
| <p><b>Recognising and disseminating stories of innovation among farmers from India’s Karnataka state</b></p>        | <p>Agriculture in India faces multiple challenges including increasing climate variability and deteriorating natural resources; along with systemic fluctuations such as market dynamics, aspirational shifts, and policy changes. These challenges are critically experienced in semi-arid regions across India which are seeing rapid environmental change and inadequate policy action. At the individual level, farmers deal with risk and uncertainty daily. However, rather than succumbing to their problems, many farmers have managed to leverage these conditions of stress as opportunities for innovation and improved risk management. Often, their innovative practices can result in ‘triple wins’ – higher incomes, ecological sustainability, and adaptation to increasing climate variability and environmental change. The Indian Institute for Human Settlements (IIHS) has celebrated eight of these champions and their good practices through the publication of a booklet, entitled ‘<a href="#">Adaptation as Innovation - lessons from smallholder farmers in rainfed Karnataka</a>’ (also available in <a href="#">Kannada</a>). The booklet highlights innovative practices from two districts (Gulbarga and Kolar) in the state of Karnataka, and the socio-economic, institutional, and personal factors that enable this innovation. It also helps identify</p>  |

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|  | <p>potential entry points to support autonomous, individually-led adaptation and provides directions for scaling up. The booklet is aimed at district and state-level government officials and local NGOs, and is envisioned as a means by which to spread success stories and understand the reasons for failures between districts. It was presented to a range of stakeholders (state and district level official, NGOs, farmers, researchers) in two events in March and December 2018.</p> <p>In addition, access to knowledge has been identified as a critical barrier to effective and sustained adaptation in the farm sector at the local level. In some situations, local knowledge has been the primary source of adaptation to climate change and some institutions are facilitating mainstreaming of such local knowledge into adaptation planning. These institutions, known as knowledge brokers, also help farmers access scientific knowledge and institutionalize local social learning processes that go beyond farm adaptation and help in building resilient local communities. IIHS studied such institutions and produced two videos that highlight the role of these knowledge brokers in the light of a changing climate but also provide lessons for adaptation in the semi-arid context: <a href="#">Knowledge Broker   Nagaland</a> and <a href="#">Knowledge Broker   Rajasthan</a>. In addition, IIHS is also documenting the experiences of four local institutions in facilitating mainstreaming of climate adaptation within rural communities.</p>  |
| <p><b>Experiential learning can strengthen adaptive capacities</b></p> | <p>Adaptation to climate risks involves decision-making under highly complex and uncertain socio-ecological conditions, making anticipatory adaptation very difficult. Recently, <a href="#">experiential learning</a> tools have gained traction among researchers and practitioners for their potential to enable a deeper understanding of stakeholder decision-making under conditions of complexity and uncertainty. These learning-centred methods can be effective because they simulate realities in a way that cannot be captured in more traditional research and engagement methods, such as surveys and presentations. In collaboration with the Red Cross / Red Crescent Climate Centre, ASSAR researchers have taken part in experiential learning <a href="#">workshops</a> and a <a href="#">webinar</a> in which they have learnt how to use <a href="#">creative, fun approaches</a> to drive home key research messages. For example, the ‘<a href="#">Farming Juggle</a>’ is a dynamic exercise that can be used to explore the compounding effects of multiple stressors; while the ‘<a href="#">Vulnerability Walk</a>’ allows participants to explore the socially differentiated vulnerabilities that exist within their households and communities in a practical way, and reflect on how adaptation efforts can effectively address these. Learning from these methods, and others such as the <a href="#">seasonal forecast</a> and <a href="#">paying for predictions</a> games, some ASSAR researchers were inspired to <a href="#">come up with their own games</a> that would more accurately address the specific challenges being faced in their countries. For example, Maitreyi Koduganti developed the ‘<a href="#">Peri-Urban Maze</a>’ to help people gain better insight into the complexities of living in peri-urban Bangalore; Udita Sanga developed a role-playing board game called ‘<a href="#">Food and Farm</a>’ that explores the dynamics of decision making under a changing climate in Mali; and the WOTR team <a href="#">adapted games</a> to sensitise communities about the unsustainable use of groundwater resources.</p> |

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| <p><b>Research findings can be made more accessible in a number of different ways</b></p>       | <p>A major barrier to managing the risks of climate change in developing countries is the limited availability of accessible, reliable and relevant weather and climate information. Equally challenging is the accessibility of scientific publications to non-academic audiences, including communities, policy- and decision-makers to whom such information is often most relevant. ASSAR’s work on the utility of weather and climate information for adaptation decision-making in Africa and Asia has contributed to addressing both of these interlinked challenges. This has been achieved, firstly, through the publication of a <a href="#">journal article</a> that explores why, despite an increasing volume of global and regional climate model simulations, there are very few clear examples of long-term climate information being used to inform decisions at sub-national scales. The article suggests that this is largely because the information being produced and disseminated is often ill-suited to inform decision-making at the local scale. Drawing on lessons learnt from recent successes and failures in the study site countries, the article proposes a framework to help increase the utility and uptake of climate and weather information. In response to the second challenge, in which non-academic stakeholders often miss out on the important messages conveyed in scientific publications, the ASSAR team has worked to make the article described above more accessible to a wider range of audiences. This has been done in two ways, namely: by highlighting the key findings and recommendations of the published article in a short, illustrative <a href="#">video</a>; and by doing the same in print (<a href="#">information brief</a>) format. This integrated approach to publishing and sharing research findings is one example of how ASSAR has contributed to bridging the gap between science, policy and practice.</p> |
| <p><b>Research-for-Impact Massive Open Online Course (MOOC)</b></p>                             | <p>The Research for Impact Massive Open Online Course (MOOC) is a six week, free-to-access online course focused on ‘Research-for-Impact’ (R4I) which continues ASSAR’s mission to respond to the ever-increasing imperative of development research programmes contributing to impact beyond the academic sphere. The course, hosted by ASSAR’s institutional lead, the University of Cape Town (UCT), and co-branded with Oxfam, covers the five key areas of the R4I approach in dedicated modules as well as an introductory module. These are: 1. Theory of Change and Monitoring, Evaluation &amp; Learning, 2. Strategic Partnerships and Stakeholder Engagement, 3. Strategic Communications, 4. Capacity Development, and 5. Influencing. Further to the R4I key areas, the course also features case studies telling stories of impact and transformation from across the ASSAR consortium, and the wider Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA) programme. It is aimed at the following audiences: I. Academic researchers and consultants working on development-related research; II. Post-graduate students enrolled in development studies courses and research; III. Development practitioners (for example, where a development agency wishes to mainstream climate change into their operations); IV. Professionals from different sectors working in developing countries (e.g. engineers, water).</p>  |
| <p><b>Using a multimedia approach to reach ASSAR’s local to national Namibian audiences</b></p> | <p>Communities in the semi-arid Omusati Region of Namibia are highly vulnerable to climate variability and change, and it is increasingly urgent that Namibia implements effective adaptation measures. ASSAR’s work in Namibia has focused not only on understanding key vulnerabilities and identifying adaptation options for addressing</p>  |



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|  | <p>them; but has sought to share these important messages in innovative ways with a range of different audiences, using diverse forms of media. One way that this has been achieved is through the <a href="#">broadcasting of ASSAR's work on radio</a>, a medium that reaches over 90% of the population. The show, which was conducted in the local Oshiwambo language, stimulated public dialogue on climate change and discussed key topics related to adaptation. These broadcasts were complemented by a series of news articles that covered some of ASSAR's main research findings e.g. on <a href="#">water governance</a>, <a href="#">culture as a barrier to the sale of livestock</a>, <a href="#">the role of tradition and religion in farming decisions</a>, and <a href="#">the need for support for smallholder farmers</a>, in Namibia. Developed by science writer Leonie Joubert, these articles were published in print and online in several newspapers including The Namibian, The Mail and Guardian, New Era and The Patriot. Whilst academic and policy audiences were targeted through the publication and sharing of various journal articles, information briefs, working papers and a book chapter; communities were reached (in both English and Oshiwambo) through an <a href="#">information manual</a> that explains what climate change is; as well as a <a href="#">brochure</a> that describes what communities might do to adapt. A <a href="#">video documentary</a> was also produced that explores how droughts and floods impact local farmers in Omusati, and how they are adapting to these ongoing challenges.</p>   |
| <p><b>Using theatre to recognise our biases and seek for solutions from different perspectives</b></p> | <p>The use of the theatre of the oppressed (TO) as a transformative social learning tool has proven to be a highly effective, yet underappreciated, mechanism for knowledge co-production and empowerment. Opposite to top-down approaches, TO creates supportive environments where people from diverse backgrounds come together to experience first-hand, understand, analyse and challenge unjust realities. The TO is a methodology conceptualised by Augusto Boal in the 1970s, where the audience has the opportunity to walk into the play and become actors, effectively rewriting the narrative and changing the outcome. In doing so, we are all encouraged to recognise our own biases and seek for solutions from new perspectives. Effectively, TO helps people move from a situation where only the obvious, traditional and socially/politically tolerated solutions are pursued, to one where thinking about more just, liberatory and hopeful futures is possible and encouraged. ASSAR's experimentation with the TO has proved to be a successful way to engage people in thinking differently about the problems and relating to them as human beings, and not just from the perspective of the role they are playing professionally. ASSAR TO sessions have played at (i) the <a href="#">Adaptation Futures conference</a> in June 2018 in Cape Town, South Africa, where we worked with semi-professional performers from the Drama School of the local university (theme: achieving research impact); (ii) Transformations 2017 conference in Scotland; (iii) for practitioners and students at Wageningen University and Reading University; (iv) UNFCCC COP 24's side event Development and Climate Days in collaboration with IDRC (theme: gender justice in the context of climate change); and (v) the first one ever at one of ASSAR's project annual meetings.</p> |
| <p><b>Strengthening farmers' ability to access information in innovative ways in Ghana</b></p>         | <p>In the Upper West Region of Ghana, increasing climate variability, lengthy dry spells and water stress create pressing challenges for agricultural production and food security. With inadequate access to extension services</p>   |

and a low base of knowledge about adaptation options, many vulnerable farmers have to make the hard choice of migrating to southern Ghana, or else to engage in relatively low-yielding, unprofitable dry season farming. As climate change exacerbates these challenges, there is an increasingly urgent need to capacitate farmers to implement effective adaptation measures that will enable year-round farming. In this light, ASSAR's Ghana team resolved, with the support of a START [Scenario Based Capacity Building grant](#), to establish [Climate Advisory Resources Centres](#) (CARCs) in the Nandom and Lawra districts. These CARCs are digital information centres aimed at training farmers and extension officers in practical adaptation, water management and agronomic practices that will build resilience to climate change whilst enabling higher crop productivity, including through [dry season farming advisories](#). To complement this, and given the rapid increase in the use of smartphones in Ghana, the ASSAR team used funding from a Small Opportunities Grant to develop '[The Adaptation Hub](#)' mobile application. This platform is aimed at extension officers, community development workers, researchers and students, and supports information transfer and knowledge sharing about climate change adaptation. This initiative has inspired other ASSAR countries, such as Namibia, to consider developing their own mobile application to create sustainable links between extension workers, farmers and the private sector; and support their research dissemination and stakeholder engagement efforts.

For a complete list of ASSAR research and communications outputs, please see Annex 1.

# Chapter 5: Stakeholder engagement efforts and impact achieved

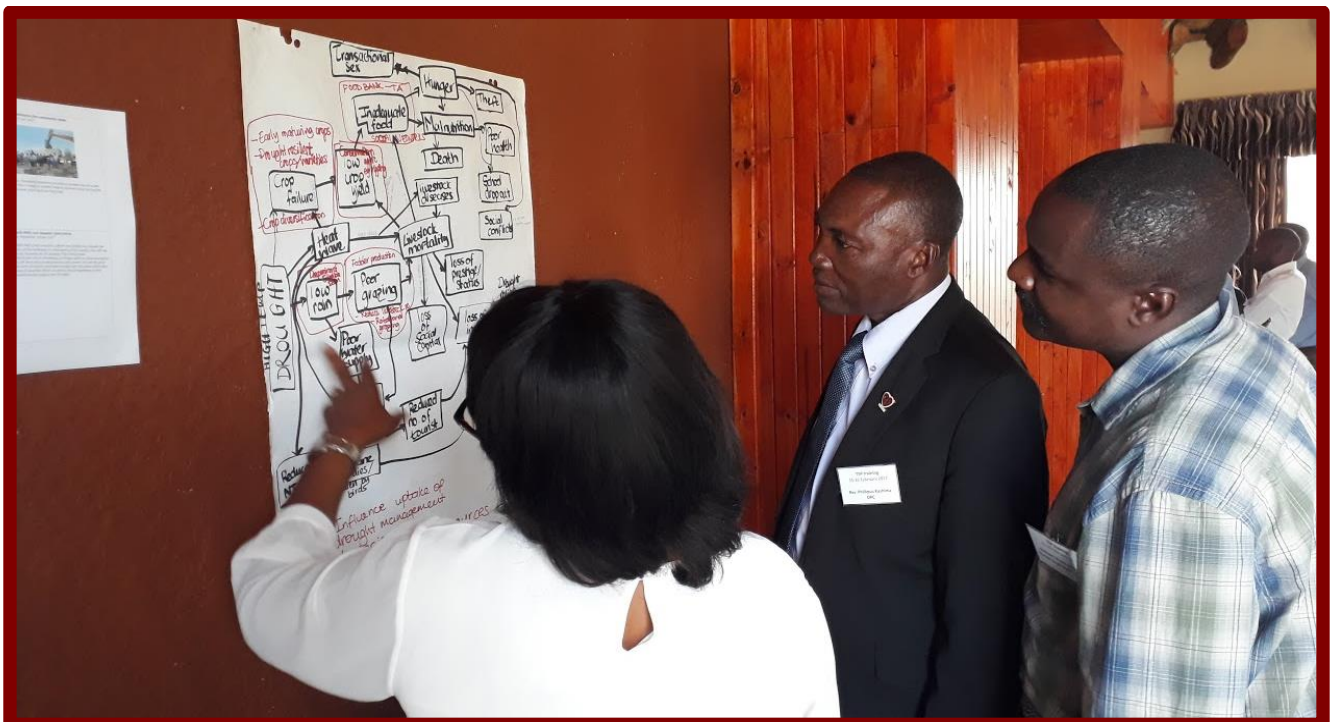
## **i. Summary of stakeholder engagement efforts and impact achieved**

From the outset, it should be noted that ASSAR's approach is rooted in the idea that stakeholders of many different kinds exist, and that they exist at all levels. Indeed, we conceive of our primary stakeholders as those people directly exposed to, susceptible to and adapting to climatic change. In order to reduce their vulnerability and enable them to adapt, a number of other key stakeholders also then come into play, including international, governmental, non-governmental and private organisations.

ASSAR's approach to Research for Impact was, furthermore, underpinned by early and continued interactive assessments with stakeholders. Specifically, early on in the project we ran collaborative stakeholder mapping and analysis workshops at local levels, sometimes complemented by a similar exercise at national levels. We deemed important that the stakeholder landscape should be defined in close collaboration with key actors (incl. primary stakeholders), thus ensuring a multi-faceted understanding of the challenge.

This approach supported Regional Research Teams to frame the research *with* and *for* stakeholders. The stakeholders identified, and the types of engagement were determined by the specific focus of each country-level context and subsequently, the impact pathway. While it is difficult to generalise who was engaged, ASSAR's approach was to work with relevant actors at different levels (i.e. from those directly affected in local communities, to civil society organisations, to sub-national and national government and institutions, as well as the private sector).

From the beginning, impact pathways helped connect research users (e.g. marginalised residents of a climate hotspot, government decision makers) with researchers. The relevance of each impact pathway and that of related stakeholders were periodically reviewed to ensure ASSAR's work remained meaningful and with continued prospects of influencing. This review, however, was done in a less structured way than originally done through the collaborative stakeholder mapping and analysis workshops.





We fully recognised the challenge of co-creation with stakeholders, particularly in a highly complex project like ASSAR, which dealt with multiple research streams, intersections and cross-regional perspectives. So, while we did not aim for a process of co-creation with stakeholders throughout the project, nor do we claim to have achieved that, we strived to find opportunities to engage stakeholders in the identification and analysis of the problem and in being part of the solutions-thinking.

Stakeholder engagement is often accompanied by challenges such as finding ways to ensure existing power dynamics don't play a detrimental role in the process, nor bias the outcome; or the time, effort, patience, resources and skills required for working with a diversity of stakeholders. Special attention must be paid to the frequency of engagement activities, to avoid stakeholder fatigue. Expectations must be clearly set, likewise, in order to avoid disappointment. Another challenge ASSAR faced, in some cases, was to prove (to the research team) that engaging with stakeholders was a worthwhile effort and could deliver benefits to our research and its outcomes. In this respect, ASSAR's experience was a highly rewarding one for the converted, and for the 'proselytisers' alike.

Some other challenges we faced included: long time spans between subsequent community meetings; delayed or insufficient communication with stakeholders following engagement activities; difficulty or impossibility to link consortium partners and project stakeholders with ASSAR's RiU leads in Oxfam, especially at the local levels (as a result of ASSAR's and Oxfam's work often having different geographical locations); inability, due to the nature of our work, to do the final mile of the work, i.e. the implementation, with stakeholders, for example in the context of TSP processes (see Box 5); unmet expectations at local, and sometimes higher levels, to deliver results at a faster pace, due to research processes often taking longer than the need for decision making outside academic/research circles.

#### **BOX 5: THE TRANSFORMATIVE SCENARIO PLANNING PROCESS IN ASSAR**

In contrast to community-level engagement methods, the [Transformative Scenario Planning process](#) aimed to convene a team of influential stakeholders with diverse and conflicting perspectives who work together to instigate change. Reos Partners took the lead on coaching regional research teams, beginning with [training workshops](#), so ASSAR partners could get a firmer grasp of what the process entailed. The immediate academic impact was firstly, the interrogation of transformation as a conceptual contribution to climate change adaptation. Secondly transformative scenario planning elevated the level of critical reflection about the extent to which using conflict and inertia, [as an opportunity to unite people irrespective of social and political differences](#), was appropriate for the climate-related issues in semi-arid regions. Although these contributed to theoretical debates, in practice, skepticism meant there was resistance to getting started on transformative scenario planning by some ASSAR team members. Thus the impact that ASSAR's stakeholder engagement processes had, including Transformative Scenario Planning, was related to teams' [commitment](#), open-mindedness and [willingness to experiment](#). This gradually waned over time, meaning that [post-workshop implementation of activities](#) with [observable actions](#) mostly occurred in regions [where workshops took place sooner](#) rather than [later](#). This allowed time for an iterative approach to [changing relationships, understanding and language](#) towards collaborative action, that dovetailed with ASSAR's other stakeholder engagement efforts. Hence Transformative Scenario Planning alone did not lead to a paradigm shift but was one part of ASSAR's stakeholder engagement tapestry.

On the positive side, we had encouraging experiences with influential stakeholders seeing the benefit of our consortium - a mix of reputed research and NGO/civil society organisations. Positioning ourselves as a consortium that could deliver strong evidence, while being well rooted in social issues linked to climate change, facilitated or even enabled our participation in key fora and our contribution to key policy and practice processes. Innovative and highly interactive research processes with stakeholders delivered valuable insights,

and likewise were welcomed and appreciated by participants (from members of marginalised groups to national and global level actors).

Existing relationships of ASSAR partners in all regions enabled a smoother, or quicker, RiU process. In India, for example, the strong networks of the three ASSAR partners in country, and the fact that these organisations were already working in the research-policy interface (to different extents), helped move ASSAR work forward with fewer initial challenges.

## ii. Highlighted examples of contribution or endorsement

**Responding to diverse government requests in Botswana:** The Vulnerability and Risk Assessment ([VRA](#)) research methodology has been described as “what the doctor ordered for community engagement in Botswana”, by the Assistant Minister for Presidential Affairs Governance and Public Administration. The VRA was first undertaken in Botswana in 2015 in the Bobirwa Sub-District with the aim to understand what stakeholders from various levels of governance (and, importantly, those most marginalised at the local level) considered to be the key hazards and issues, and what actions they thought should be undertaken to respond. The local and district government officials who participated in the exercise were impressed with the new knowledge that surfaced and its usefulness in development planning. As a result of government interest and UB’s brokering and partnerships, in August 2018 the ASSAR team trained economic planners and District Development Officers in all major districts of Botswana (an activity co-funded by the government). Following the 2015 VRA in Bobonong, the ASSAR team was asked to review the Central District Development Plan to add a chapter on Climate Change. The VRA methodology has been acknowledged for making development planning participatory, representative and inclusive at all levels of governance. The VRA process and the perceived relevance of the process has led to additional opportunities for ASSAR in Botswana, which also included the government’s demand for ASSAR’s support on the framing of the National Drought Management Strategy.



**Enabling a re-thinking of the future of humanity and of climate change adaptation:** We recognised that a key contribution of ASSAR had to be a reconsideration of the way stakeholders interact and view the climate change problematic. One such consideration was shifting the idea that climate change is something for ‘experts’ to deal with, leaving the layman and laywoman in climate hotspots with little to offer for addressing the problem, to an understanding of climate change as a fundamentally social challenge exacerbated by biophysical impacts.

One of the key contributions of ASSAR in this respect were our [findings on social differentiation and gender](#), such as with our exploration of intra-household dynamics and the importance of recognising people’s

aspirations and wellbeing as an element of effective adaptation. The considerable contribution of ASSAR researchers to the UNFCCC 1.5 Special Report also contributed to this vision.

Through innovative and experiential stakeholder engagement approaches, ASSAR managed to open up spaces for stakeholders to think differently, and together, about climate change - and most importantly about possible futures - and how they *too* can contribute to reduce negative impacts and adapt. These methodologies include the [Transformative Scenario Planning](#) (which was widely implemented throughout the ASSAR countries), the Participatory Scenario Analysis (which made special efforts to include the most marginalised within the most marginalised groups in society), the Vulnerability and Risk Assessment, [experiential games](#), and the [Theatre of the Oppressed](#).



**Strengthening capacities through scenario analysis in East Africa:** Continued stakeholder engagement based on the impact pathway, including the [Participatory Scenario Analysis](#) (PSA) developed and used by the East Africa Regional Research Team, has generated relevant and meaningful research as well as spurring government demand for ASSAR's support. One such example is the Government of **Ethiopia's** request for ASSAR's expertise through Oxfam's participation in the national Pastoralist and Agro-Pastoralist Task Force and the former national Prosopis Task Force. At the local level, the PSA led to capacity development with the Awash community on possible management and other related issues on Prosopis (i.e. climate smart soil and water conservation, rangeland management and rehabilitation, and pastoral and agro-pastoral livelihoods). The reach of this work has also extended to Oxfam programme staff in Somali region who are now learning from ASSAR's work in Southern Afar on issues that help to strengthen the capacity of local communities. This knowledge co-generated through the PSA will also contribute to Oxfam humanitarian and development work in the region.

The PSA in **Kenya** helped to identify the gaps and lead to capacity development through [peer-to-peer learning](#) in Isiolo. This peer-to-peer learning on animal husbandry with Boran communities led to the consideration of possible changes in the practice of camel husbandry. The activity also strengthened people's understanding on the importance of grass seeds, as well as growing grass as an adaptation action to increase pasture. It also



contributed to beginning to change the practice of the local community on fodder production and pasture management.

**Influencing policy and practice at multiple levels in Ghana:** In Ghana, ASSAR developed several activities of high impact and in collaboration with stakeholders. Some examples are: the incorporation of the term 'Research-into-Use' into two national policy documents, namely *The Ghana National Science Technology and Innovation Policy* and *The New Directions Science Plan (2018 - 2028) of the Earth Systems Governance Programme*. ASSAR's findings helped shape the principles of the National Climate Change and Green Economy Learning Strategy (CCGELS). In a separate example, the [Scenario-Based Capacity Building activities](#) provided the opportunity to operationalise, at the local level, the new Legislative Instrument (LI) on irrigation which requires the formalisation of irrigation groups and associations in order to enable them to access irrigation facilities easily. This ensured that farmers dependent on irrigation came into direct contact with officials of the Ghana Irrigation Development Authority (GIDA). As a third example, in collaboration with a local partner, the team in Ghana also developed [Adaptation Hub](#), a mobile application that provides information on climate change adaptation and food security and which can be used by extension officers, community development workers, or small scale farmers directly.



**Engaging at multiple levels and in diverse ways in India:** IIHS, ATREE and WOTR held continuous engagement with critical and key stakeholders from the early stages of the project, through annual stakeholder consultations, participation and presentation in internal or external events and meetings, and through inputs to various policy-making processes of regional, national or international locus. IIHS convened national and regional stakeholder policy dialogues concerned with ASSAR research themes (2014, 2015, 2016, 2017, 2018). These consultations helped disseminate research findings, gather inputs for shaping and fine-tuning research, and influence policy. ATREE's ASSAR work in the Moyar-Bhavani region was instrumental in consolidating established networks with government officials, researchers, NGOs and communities in the region. ATREE worked closely with researchers in Tamil Nadu Agricultural University, Mettupalayam Forest College and Research Institute and Bharathiar University, Coimbatore to share data, resources and research outputs. ATREE also worked with practitioner organizations to engage with communities, particularly in implementing the RiU aspects of ASSAR. In addition, an international "Consultation on Climate Adaptation and Services for



Health Security” was organized by WOTR with a focus on the growing heat stress being experienced in the country. Government departments, medical practitioners from the rural areas, academic institutions and NGOs discussed the findings of research studies ([Heat stress paper](#) and the [Heat stress film](#)), which resulted in a [Communique](#). An international consultation on “Adapting Agriculture to a Global Temperature Rise of 1.5°C”, organized in October 2018, brought together scientists from various disciplines, academic institutes, government representatives, practitioners and farmers. Various ASSAR research papers were presented, which together with those of other scientists highlighted the need for an interdisciplinary and sustainable approach to addressing agriculture in a global temperature rise scenario.

### Lessons learned:

- In a future project, we’d recommend simplifying the architecture of the project, such as (i) the Theory of Change (ToC), which was dense and not easy to understand or implement by our internal stakeholders i.e. project members and partners (in contrast to the simplified [video of the ToC](#) for external consumption, which was highly successful); or (ii) the overly complex management of RiU personnel (i.e. RiU coordinators), especially in Southern Africa, due to the absence of Oxfam offices to serve as liaisons.
- In some countries, there was an imbalance in the focus given to local-level versus national-level stakeholder influencing efforts, which was seen by some as a shortcoming. In India, however, where adaptation action is highly decentralised and susceptible sectors are constitutionally mandated to be a sub-national responsibility, this imbalance was often desirable.
- It often took partners a long time to recognise and appreciate that RiU is a process that must be undertaken throughout the duration of the project, and not largely towards the end of it. This situation likely caused the project to miss some opportunities to generate impact and work with stakeholders more effectively. Stakeholder engagement activities were also often thought of as processes to provide final research results to stakeholders, rather than as opportunities to build relationships, respond to intermediate requests and work together to frame issues and in some cases co-produce results. This meant that in some cases RiU activities were close to paralysed during the middle stages of the project, during which fieldwork and data analysis was occurring.
- Potential synergies between ASSAR research partners and Oxfam teams in East and West Africa did not always materialise. This is partly due to insufficient communication and coordination at the beginning of the project on, for example, strategically choosing the research sites that would be relevant to both the research partner and Oxfam. The sites where ASSAR operated were therefore often not the sites where Oxfam already had a presence, nor a strategic interest to start engagement.
- In Southern Africa, Oxfam’s selection of boundary organisations took longer than initially imagined due to both lengthy administrative processes and to difficulties identifying a partner that fit the task at hand appropriately. Human-resource-related challenges further complicated the endeavour. On the contrary, in India, ASSAR partners that had established relationships on the ground involved external practitioners (like MYRADA in Karnataka) as collaborators in research early on. A similar approach was followed by ATREE in Tamil Nadu, through collaborations with WWF (human-wildlife conflict) and Keystone Foundation (invasive management).
- In India, finding a common agenda for collaboration between the three partners was immensely challenging owing to long-term specialised work of all the partners (WOTR in Maharashtra, ATREE in the Western Ghats region of Tamil Nadu, IIHS in urban Karnataka) and their firmly established individual priorities. Nonetheless, regular partners’ meetings (including the trainings organised by Oxfam) allowed for exchange of views, learning from each other and alignment in their approach.
- Provisions to continue with the important influencing work that was begun towards the end of ASSAR (and to document processes that took place towards the very end of the project, or that spanned

beyond it), were absent. This may have resulted in some key impacts being missed and learning not being properly or fully captured by project partners and stakeholders. Enabling a longer time frame for RiU and influencing activities beyond project completion would have enabled reaping the most benefits from the important research findings that were generated.

- Communications work should be more integrated within stakeholder engagement and RiU activities in order to ensure that communications products are even more appropriately framed depending on target audiences, specific circumstances and needs.
- In light of consolidating effectiveness of the ASSAR Theory of Change, in few cases, it was realised that the foundations of meaningful impact are rooted in participatory processes, strategic communication, capacity building and needs of policy makers. While we realised this and made good progress, these elements should have been emphasised (in a sequenced, structured manner) before simultaneously generating evidence.



## **Chapter 6: Capacity building**

### **i. Capacity building goals and priorities**

Strengthening excellence in research and building greater scientific leadership in semi-arid hotspot regions was a central goal of the ASSAR project. From the beginning, a focus on building capacities of early to mid-career scientists at the postgraduate level was envisioned to be a tangible way for ASSAR to leave an enduring legacy in these regions. It was intended that these capacity building efforts would encourage transdisciplinary network building among scientists from different regions, would be driven by research and flexible in approach to fit the widely varying contexts across the different ASSAR countries. Further, it was anticipated that these efforts would not be designed only to fit the expertise of senior institutional partners, but instead would be issue-based and determined by the regions' critical development challenges.

Over time, as the regional teams progressed with their stakeholder engagement and RiU activities, it was recognized that focusing only on internal capacity building of ASSAR scientists might fall short of potential impact that could be achieved. With that in mind, it was decided that we should attempt to do more to strengthen the capacities of external stakeholders living and working in the ASSAR study sites, especially most vulnerable groups, towards overcoming top barriers to and supporting enablers of their adaptation. Further, by opening up capacity building efforts to external stakeholders, it was expected that ASSAR researchers, and especially early career scientists, could put their creative ideas for increasing the real-world impact of their work or the work of their team into action. And through this, could help build the influencing and communications capacity of the ASSAR researchers, build stronger ties with stakeholders in the regions and bolster the RiU work currently being done by the regional teams.

### **ii. Approach to capacity building within ASSAR**

#### **Academic capacity building**

Given the widely varying institutional contexts and structures that each ASSAR regional team was working, no uniform strategy for involving postgraduate scientists (including post-doctoral researchers, research fellows, technical officers, PhD and master's students) was adopted across the regions. Instead, each team undertook their own recruitment process. In Southern Africa master's and PhD students were recruited to have their programs of study supported at University of Cape Town's African Climate and Development Initiative, the University of Botswana and the University of Namibia. Further, the Southern Africa team also involved post-doctoral researchers with relevant expertise to the ASSAR research themes. A similar strategy was followed in East Africa with a combination of research associates, postdoctoral researchers, and others (such as master's students) being supported through their work with ASSAR. In West Africa, in addition to a core team of primarily research fellows, postdoctoral researchers and technical officers, a focus was placed on master's and PhD students already enrolled at universities in Ghana, and Mali instead of recruiting new students who would have to go through the admissions process and complete coursework. Students were recruited who needed funds to carry out field research related to their thesis or dissertation. Finally, in India, IHS largely followed the East Africa model - a combination of research associates and postdoctoral fellows, but the dominant strategy was to have postdoctoral fellows leading important pieces of work and at the same time, mentoring young researchers. Other partners, like WOTR and ATREE, largely followed the model of young researchers mentored by senior researchers.





These academic and research-focused capacity building awards have helped approximately 100 early and mid-career researchers in reaching their professional goals. For example, [Janet Selato](#), a meteorologist from Botswana who graduated with her master's from the University of Cape Town with assistance from ASSAR, [reflects](#) that *"The scholarship made my almost elusive dream of obtaining a master's degree a reality. Previously, I had not been able to get funding anywhere despite several attempts. The course itself was informative, intense and practical as it was loaded with real situations and examples. It developed my thinking and analytical capacity because I had to review a wide range of literature."*

There have been challenges though too with relying on such a diversity of researchers and approaches in the different regions. For example, in West Africa, maintaining the sovereignty of students over the direction of their own work toward their degrees while at the same time ensuring that ASSAR research objectives were being met did present some difficulties, especially early on when several of the student supervisors were not associated with the project and were not as concerned with its success. Further, language differences between the Ghana and Mali teams meant that sometimes the French-speaking students of the Mali team were left somewhat marginalized from certain opportunities for networking or participation with the broader consortium. In India, high turnover rates of early and mid-career researchers created minor disjunctures but strong internal processes set up by institutions were able to offset any minor impacts in the research and related activities.

The academic dimensions, whether they be attaining an advanced degree, learning a new methodology, or increasing the number of professional publications, are only part of the capacity building that has taken place with the support of ASSAR. For many the exposure to the broader network of ASSAR scientists and opportunities for training has been invaluable. As [Ephias Mugari](#), a PhD student from Botswana, [says](#), *"Considering the multi-disciplinarity of ASSAR, I have become adaptable to natural and social scientists. I have a background in Agricultural Economics but have slowly moved towards Ecology. Although I wouldn't say the sailing was smooth, it has been worth the effort! I've now become a more well-rounded researcher who is comfortable using a combination of methods. For my poster presentation at Adaptation Futures 2018 in South Africa, for example, I used participatory methods with local communities and remotely-sensed data to get a full handle on the dynamics at play"*. Similarly, [Ishmael Lente](#), a Ghanaian student from the West Africa team who was the first and only ASSAR researcher to graduate with their PhD during the course of the project,



states that, “ASSAR helped me to attain the requisite research skills for undertaking this PhD work. They provided the platform for training and skills development to be able to complete this work on time through various meetings and programs. For example, one important training program was the Climate Training Course held at the University of Cape Town, South Africa ... [there] I had the opportunity to meet and interact with researchers from the various participating regions and did learn a lot that changed my world view about research, especially, social research”.

In the Indian context, many young researchers were able to fulfil their higher education and professional dreams. Capacities built during the ASSAR process, aided by professional publications, helped them to convince PhD recruitment committees in many high-ranked universities. For example, Tanvi Deshpande secured a fully-funded PhD admission at Heidelberg University and Divya Solomon also secured a fully-funded PhD admission at the University of Michigan, United States. In addition, exposure to ASSAR research built strong analytical capacities amongst young researchers that enabled them to secure highly competitive positions and move towards realizing their professional dreams. For example, Arjun Srinivas from IIHS was able to outcompete a large number of applicants and secure a professional fellowship with the Data Journalism unit of India’s high-ranked national newspaper. In addition, the Indian team (IIHS, WOTR, ATREE) were able to provide short-term internships to 21 young postgraduate students (who had just graduated or were completing their post graduate education), which enabled them to sharpen their research skills, gain primary research exposure and acquire knowledge about critical analytical tools. Many of these interns are successfully working across institutions and most of them have attributed their professional success to the ASSAR experience.



## Training of ASSAR Researchers

Support of students in their academic pursuits was only one dimension of the capacity building activities undertaken within ASSAR. Another dimension was specialized trainings, schools and workshops that were held throughout the project's five years to build capacities in specific areas of research, approaches, methodologies, tools and participatory processes for team members at all stages of their careers.

Funds were decentralized across the consortium to support these trainings which included programs on [gender with the University of East Anglia](#), [research into use \(RiU\)](#) and [vulnerability and risk assessment \(VRA\) with Oxfam](#), [Transformative Scenario Planning \(TSP\) with Reos Partners](#), [experiential learning with the Red Cross Red Crescent Climate Centre](#), [land use land cover change with the Ashoka Trust for Research in Ecology and Environment \(ATREE\)](#), and the [winter climate school with UCT](#). In addition, in southern Africa, the ASSAR team at UCT worked with a writing consultant on a series of mini workshops where ASSAR researchers got support on writing papers. This was successful in building capacity in writing and completing academic papers.

The value of these activities to ASSAR researchers has been two-fold. Firstly, with the exposure to new sets of knowledge, tools and methodologies with which they could strengthen their work on ASSAR and outside of the project. On attending the Land Use Land Cover Change (LULC) training with ATREE, Botswana researcher [Chandapiwa Molefe reported](#) *"Prior to attending the LULC workshop I had never attempted to work with R as it seemed very complicated. But now I am confident with the software and realise that R is less tedious than I had previously assumed, and that it makes image analyses very exciting. The ATREE team was wonderfully patient and willing to impart knowledge. I am very grateful for this opportunity!"*. Similarly, Mekonnen Adnew Degefu from Addis Ababa University in Ethiopia stated, *"These newly acquired skills will be very useful for us to conduct similar research in our respective areas. In addition, we are now also able to transfer our new knowledge about software packages, global datasets and research methods to others through training and education. In addition, I'd like to say that while my background is in the natural sciences, the ASSAR research project also created an excellent opportunity for me to acquire qualitative research skills and experiences."*

Secondly, these activities have also brought the added advantage of expanding the networks of researchers, building their facilitation techniques, and providing one on one time with experts in their areas of interest. In certain cases, these training opportunities were also extended to external stakeholders in the regions where ASSAR works, such as with the TSP training in India prior to implementing the full TSP process there and the UCT climate school. In these ways, these trainings have served to further solidify the diverse human connections that make working in a consortium a uniquely beneficial, and sometimes a challenging experience. [As stated by Alcade Segnon](#), a PhD student from Benin who is attending the University of Ghana but working as a researcher for the ASSAR Mali team, *"In ASSAR, I have also learned that 'one can't save the world alone'. One of the strengths of the ASSAR consortium is that it brings together people from different backgrounds from physical to social and applied sciences, but who all have the same goal. Working in a consortium can also be challenging though. Sometimes I have the feeling that I am losing my independence and progress is slower than I would like. Before ASSAR I had learnt to work independently, but in ASSAR I am learning to work together"*.

## Small Opportunities Grants (SOGs)

After a number of the training and capacity building events described above were completed, it was found that the costs were not as high as anticipated and so a portion of the capacity building funds remained available. START held some of these leftover funds, in particular approximately \$42,000 USD that remained leftover from the Gender course. START sought feedback from the other regional teams and the PMU on the most impactful use of these funds. The greatest degree of interest was in support of funding early career scientists from the regional teams to come together with experts from other regional teams to bolster their knowledge and skills in that expert's specialty area and in-turn to advance their own research capacities. Further, such opportunities were seen to offer potential for energizing work toward joint outputs across the ASSAR regions. These aims set the stage then for the development of the first round of Small Opportunities Grants (SOGs). Six small grants were awarded during the first round of SOGs.

## First Round Small Opportunity Grants

- Tanvi Desphande and Kavya Michael-[Examining effects of climate change on marginalized groups in Bangalore](#)
- Divya Solomon-[Impact of depleting groundwater on women's livelihoods, wellbeing and adaptive capacities](#)
- Udita Sanga-[Piloting a role-playing game to better understand farmer decision making in Mali](#)
- Ritwika Basu-[Exploring trade-offs, challenges and incentives of the private sector when it comes to supporting development goals](#)
- Arjun Srinivas-[Streamlining household surveys on social differentiation and gender across the ASSAR research regions of East Africa, India and Southern Africa](#)
- Mark Tebboth, Dian Spear, Chandni Singh and Adelina Mensah-[Exploring the methods and analysis of research on mobility as a livelihood strategy](#)

After the first round of small grants was deemed a success for those that took advantage of the opportunity, it was decided that there would be another round of SOGs. This time, however, it was agreed by the regions that there should be two different types of grants, one being a second round of SOGs very similar to the first round, focused primarily on cross-regional research exchanges, and another that would be focused on RiU activities. It was anticipated that these RiU-focused SOGs would help to sharpen the abilities of research teams and individual researchers to use their on-the-ground, contextualized knowledge to develop capacity building ideas, translate ideas into successful proposals, and to carry these ideas to fruition with regional stakeholders across different levels. Eleven small grants were awarded in this second round, four SOG2 awards and seven RiU SOG awards.

### Small Opportunities Grants 2 (SOG 2)

- Aradhana Yaduvanshi- [Regional impacts of extremes under 1.5 and 2 degree global temperature rise](#)
- Soundarya Iyer- [Networks migrants use to negotiate vulnerability](#)
- Bhavana Rao- [Using Oxfam's VRA methodology to strengthen WOTR's CoDrIVE](#)
- Natasha S. Koshy- Work on Social Differentiation and Gender Research Stream Outputs

### Research into Use Small Opportunities Grants (RiU SOG)

- Prince Ansah- [Using mobile apps to support agriculture and adaptation planning in Ghana](#)
- Prosper Adiku and Rahinatu Sidiki Alare- [Climate change adaptation through youth innovation](#)
- Bernadette Shalumbu- [Climate change radio show in Namibia](#)
- Staline Kibet- Sharing lessons from ASSAR Kenya on Conservancy model and PSA
- Alemayehu Zewdie- [Documenting Peer – to – Peer learning on Pasture Management in Kenya](#)
- Greeshma Hedge- [The role of knowledge brokers for adaptation in India- One & Two](#)
- Maitreyi Koduganti- [Using Games to gain better insight into the complexities of living in peri-urban Bangalore](#)





Feedback from SOG2 and RiU SOG awardees has been highly positive. SOG2 award recipient Aradhana Yaduvanshi from the Watershed Organisation Trust (WOTR) in India [explained that](#), “[ASSAR] provided me with a platform to work on my dream research, whereby I can seek to bridge the gap between the science of climate change and practice on the ground. I used to be in a box of analysing and interpreting data in research, but never thought of converting it into useable information for people on the ground. ASSAR provided me, and WOTR, with a framework to do this differently”. In Ghana, RiU SOG awardees [reported that](#), “Mr Jacob Dumba, a tutor of the Lawra Senior High School [which was a part of the Climate Change Adaptation through Youth Innovation competition], asserted that the students ‘learnt so much about the environment and climate change through the competition’. He is of the firm view that establishing more environmental clubs in the schools will enhance students’ knowledge on environmental issues. Mohammed Ibrahim of the Nandom Senior High School, on the other hand, was grateful for being inspired and having his confidence built: ‘I learnt that you can’t be a good innovator if you don’t want to try’”. Also in Ghana, the Director of Operations from a local NGO in one of the ASSAR research sites reports [explained that](#), “[the Adaptation Hub] mobile application is a first-of-a-kind information platform for development workers like us to access research information conducted by a research project in this area. Due to the nature of our work where we move from community to community, we don’t need to look for a computer before we get the information we need to support our farmers. We can now conveniently access it on our phones”.

Di Spear, team lead in Southern Africa, further reflected that, “I think the RIU SOG awards were very successful, in part because they required a focused proposal with a good and well justified idea, budget etc., as well as being required to be done within a certain time. I think this process got people to really think about what we could do and to come up with good ideas and act on them with a sense of ownership. This [also] applies to other [ASSAR] grants. Something else is that these ideas were more bottom up in contrast to other activities.”.

The activities undertaken through these small grants have not only built the capacities of the ASSAR researcher recipients and relevant local stakeholders, but have also strengthened the legitimacy of ASSAR’s work on the ground with local communities and supported the sustainability of ASSAR’s work in some cases. The processes and knowledge outputs generated through these initiatives are expected to get institutionalized within the regions and continue to be used for policy influencing, capacity building and on-ground stakeholder engagements by our local and district level partners.

## Grants for Local Adaptation Support (GLAS) and Scenario Based Capacity Building (SBCB)

Strengthening relevance, legitimacy and sustainability of ASSAR research and findings was also the inspiration for the final two capacity building initiatives undertaken within the consortium, the Grants for Local Adaptation Support (ASSAR GLAS) and the Scenario Based Capacity Building (SBCB) awards.

### GLAS

At the ASSAR annual meeting in Ethiopia (2016) it was recognized that there was a need to go beyond capacity building of ASSAR team members and to do more to strengthen the capacities of those living and working in the ASSAR study sites, especially those identified through ASSAR research as most vulnerable or those institutions that are working with the most vulnerable. Therefore, the GLAS awards were developed in order to draw from findings of ongoing ASSAR research to support the most vulnerable groups in each region on overcoming top barriers to and supporting enablers of their adaptation or in building the analytical capacities of frontline institutions, particularly around assessing the linked challenges of climate change and development. A \$40,000 USD portion of START's year 3 capacity building funds were directed to supporting these awards of \$10,000 USD for each regional team (though some of these \$10,000 portions were split when one region had more than one proposal).



In order to be eligible for these funds, regional research teams used their stakeholder maps (part of each region's RiU work) and local research experience to identify reputable local groups such as NGOs, faith-based organizations, and others who had concrete experience working with vulnerable people. In some cases, such as in India, in addition to organizations that were working for vulnerable local groups; a specific organization (MYRADA) was also chosen to benefit from the GLAS opportunity. MYRADA was IIHS's field research partner and helped in facilitating research implementation in the rural areas of Karnataka. The regional teams then selected one or more of these groups with which to co-develop a GLAS proposal aimed at extending existing work or jump starting new work on overcoming barriers or supporting enablers for the adaptation of vulnerable groups through targeted capacity building. In all there were six GLAS awards supported across the ASSAR regions.

## ASSAR Grants for Local Adaptation Support (GLAS)

- [Disaster Risk Management and Experiential Learning in Onesi, Namibia](#)
- [Building the adaptive capacity of women in Mali's Koutiala District](#)
- [Women, work and adaptive capacity: enhancing the adaptive capacity of vulnerable women in Upper West, Ghana](#)
- [Building capacities in India through unlearning, training and sharing](#)
- [From cows to camels: How pastoralists are adapting to climate change in Kenya's drylands](#)
- Training village level functionaries in India for preparing village level water budgeting plans.

In Ghana, where women's groups were identified through ASSAR research and the Ghana TSP as being particularly vulnerable, feedback on the GLAS workshops showed promise. For instance, one workshop participant from Nandom (one of the ASSAR study districts) and leader of a group involved in soap and pomade making, [commented](#) *"I have learnt a lot from this workshop, especially about marketing. Most of my group members do not know how to start a business, how to retain their customers and how to package their products to make it marketable. Also how to access loans – I never knew that we could access loans ... as a group to enhance our businesses."* Further, the chairwoman of the Lawra district's women platform [added](#), *"Previously, we found it difficult as women to go to some offices like the district assemblies and financial institutions to ask for certain services, but with the help of ASSAR's participatory method of engaging with us and other stakeholders, we feel confident to go to these offices. We were not united as well and were working in isolation, but through the GLAS project we now have women platforms that have been formally registered with the district assemblies working together to improve the wellbeing of women."*

In Kenya, where herders in Isiolo County, are struggling with shrinking pasture and the impacts of a changing climate, ASSAR researchers used support from the GLAS award to help herders in the drylands adapt by building capacities on camel rearing. Camels cope better than cattle in times of drought, and a traditional land management system of the Boran pastoralists, known as Dedha, offers a way to cope with the harsh climate. The East Africa team held a [Peer to Peer learning exchange](#) for farmers to learn more about camel rearing and this traditional system. Of this exchange, one participant, Nasibo, from Kinna explained, *"Now we know a lot about camels, for those of us who have been meaning to start camel production, we now know where to go for advice. Growing fodder would be easy for those of us who are already involved in crop production. We can then comfortably feed the young and sick animals which cannot walk to distant pastures during droughts..."*

## SBCB

As each region proceeded with their respective scenario workshops and processes ([transformative scenario planning \(TSP\)](#) in West and Southern Africa and India, and [Participatory Scenario Analysis \(PSA\)](#) in East Africa) there was a need to build on the momentum, insights, and connections made therein and to align these with ongoing ASSAR research findings to attain actionable results. With that in mind, the scenario based capacity building (SBCB) grants were developed so that ASSAR regional research teams could support key follow-up actions for the regional scenario processes. These actions were intended to include capacity building of those stakeholders that were recognized as playing vital roles in overcoming barriers to or supporting enablers of adaptation (e.g. extension officers, local or district decision makers, emergency managers, natural resource managers etc.). It was anticipated that each regional team would be eligible for \$10,000 USD from START's capacity building funds in support of these grants, however, the Southern Africa and India teams decided in the end that they would not pursue this opportunity as they were already dealing with a full plate with their Vulnerability and Risk Assessment processes and other capacity building activities and so a portion of that \$10,000 was instead diverted to extending some of the ongoing SBCB activities in other regions. Further, the Mali team's award was funded from their internal ASSAR budget and so the Ghana team was eligible for the full \$10,000 USD designated for the West Africa team. There were three SBCB awards granted within ASSAR.





#### Scenario Based Capacity Building (SBCB) Awards:

- Capacity building of Stakeholders on Natural Resource Management and Invasive Species (*Prosopis juliflora*) in Ethiopia
- [Capacity development around soil and water management in the district of Koutiala, Mali: from need to deed](#)
- [ASSAR supports dry season agriculture in semi-arid Ghana with Climate Advisory Resource Centres](#)

In Mali, ASSAR researcher Amadou Sidibe [speaks about anticipated sustainability](#) when he foresees that *“the [SBCB capacity building] process is likely to go beyond ASSAR’s lifetime but is certainly an adaptive capacity development that the project is leaving behind for stakeholders across scale in Koutiala, who see the construction of these basins for collecting run-off water as an interesting perspective for agricultural intensification in the district.”* In Ghana, farmers and extension officers in the Upper West region are hopeful about the future of the [Climate Advisory Resource Centres \(CARCs\)](#) with one extension officer from Lawra commenting, *“Anytime there is an initiative in the district, it only serves the interest of farmers. The CARCs are the only innovative initiative I know that will build the capacity of both the extension officer and the farmer at the same time.”* Similarly, a farmer group leader from Nandom district explained that, *“The number of extension officers in the district is very small compared to the number of farmers in the various communities. This centre will enable farmer group leaders like us to bring our groups to learn more about climate change and how different crops can be effectively cultivated with limited water.”*

Though these efforts are now outside ASSAR’s sphere of control, attention to sustainability during their planning, through innovative partnerships with local institutions and organizations for example, is likely to continue the ASSAR impact as time goes on and help to build the legacy of strengthened adaptive capacities in semi-arid regions. This is already taking shape in some cases: in Ghana for instance, the team used their work on smallholder irrigation with the SBCB award as a building block to partner with ASSAR colleagues at UEA to develop a proposal for an action group of the [Africa-EU Innovation Alliance for Water and Climate](#)

[\(AfriAlliance\)](#). Their proposal for the Planning for Drought (P4D) action group was among four out of eighty applicants selected for this round of the project. The activities of the P4D, will be based on key research findings on water management for vulnerable communities in the Upper West Region of Ghana and is focused on promoting dry season farming in semi-arid Ghana by enhancing the capacities of vulnerable farmers and local agriculture stakeholders (extension officers and input dealers/marketers). This will be achieved through participatory planning processes to enhance farmers' capacities in efficiently managing water resources, especially during drought and dry spells. The working group also aims to share experiences and knowledge gained with other stakeholders within and outside the Upper West region.

### **iii. Additional capacities built outside of designed activities**

While all the aforementioned activities were intentionally planned with capacity building in mind, capacities of those associated with ASSAR (both internal team members and external participants) have also been significantly strengthened by simply being involved with the consortium. For example, a woman who has a senior position in district government in Namibia and was involved in a number of ASSAR stakeholder engagement events and processes with the southern Africa team such as the TSP and VRA commented that *"a person who has gone through ASSAR thinks about things differently"*. This effect can be seen at many levels of involvement from building collaboration and management skills at the project steering committee level to capacity building in workshop planning and facilitation among technical officers and RiU coordinators, to capacity building in proposal writing and other skills for local and district level partners. [Stanislaus Nasaal](#), Projects Manager of the Nandom Deanery Integrated Rural Development Programme (NANDIRDEP) in the Upper West Region of Ghana, who has worked closely with the ASSAR West Africa team throughout the project states, *"my collaboration with ASSAR has influenced my thinking on the power of teamwork and the need to plan together ahead of time. I have also gained new insight into the dynamics and role of politics and governance in contributing to development through constant interaction with relevant stakeholders in the district."*





Amir Bazaz, research lead of the India team, highlighted the capacities built through participation in ASSAR with regard to influencing policy and practice, “[capacities] have been built [with regard] to influencing climate policy discourse - had we not been in ASSAR and not working on climate adaptation - none of us, except [our director] would have been a part of IPCC chapter writing teams and making contributions to the structure and tone of climate policy discourse. ASSAR research brought legitimacy to our work, was grounded in empirics and theory, and had a practice/policy orientation.” For example, Chandni Singh and Amir Bazaz of the India team were contributing authors on chapters 3 and 4 (respectively), and Aromar Revi of the India team a coordinating lead author on chapter 4 of the 2018 IPCC Special Report on Global Warming of 1.5 °C. Likewise, [Edmond Totin of the West Africa \(Mali\) team is a lead author for chapter 9](#), Chandni Singh of the India team a lead author for chapter 10, and Aromar Revi of the India team a coordinating lead author for chapter 18 of the upcoming IPCC Sixth Assessment Report (*AR6 Climate Change 2021: Impacts, Adaptation and Vulnerability*).

Formal training processes were also not the only avenues that enabled sharpening of research and policy skills for early and mid-career researchers. Researchers throughout the consortium were encouraged to present their research in important international and domestic conferences, workshops and discussion forums. The most notable example being ASSAR presence in two iterations of the Adaptation Futures Conference ([2016, 2018](#)). [Maitreyi Koduganti of the India team reflected](#) on her first time attending such a large international conference that, “Attending the [Adaptation Futures (2018)] sessions inspired research ideas of my own. They also exposed me to different styles of presentation: world cafes, one-on-one presentations, and performing arts”. [Rabiatu Abass of the Ghana team](#) had a similarly positive experience at the 2018 Adaptation Futures saying, “The many opportunities to interact with senior researchers and practitioners from various fields and universities confirmed my desire to remain in the academia”. In addition, regular externally directed stakeholder consultations allowed for young researchers to interact with the larger policy, practice and academic community; which helped fine-tune their research and policy work and thereby built sound analytical capacities.

Participation in the intensive stakeholder engagement processes that are part of ASSAR also had deep impacts on the capacities and mindsets of ASSAR researchers. As stated by Dian Spear, research lead of the Southern Africa team, “Most of the researchers in Southern Africa had never done stakeholder engagement or been involved in participatory processes. Some didn't even see the value of it but have been “converted”. This is evidenced with the insights from [Dr. Hillary Masundire](#) from the Botswana team who says, “[The Vulnerability and Risk Assessment] was the defining moment for me in regard to RiU. It exposed me to working directly with people who depend on ecosystem services to varying degrees: some very directly; others less so. It also proved to be an opportunity for me to learn from the people whose interests and aspirations I purported to serve, as well as to review the relevance of my research to the end-users...I can confidently confirm that I have been transformed from a sceptic of the RiU concept to an ardent advocate. I do not see any other lens through which I will carry out my future research aside from the RiU approach.”. Likewise, [Divya Solomon](#) from the India team reflects on her time with ASSAR reporting that, “Willingly or unwillingly (i.e. through our Research-into-Use/RiU colleagues constantly pushing us), my mind has been transformed from three years ago in terms of how I think about research. I don't want to just write articles and hope they will be picked up, I want to be part of the process”.

Stakeholder engagement has also benefited team members by building skills on planning, coordinating and facilitating participatory stakeholder workshops, meetings and conferences, skills that have resulted in a strengthened legacy and element of sustainability for ASSAR. For example, in Namibia, the ASSAR team worked with the regional government to organise a climate conference that included dialogue on what actions needed to be taken in the region regarding climate and adaptation, this then culminated in the ASSAR team and the regional government developing a proposal for funding. Similarly in West Africa, the role of the Mali and Ghana teams as deeply embedded in the planning and coordinating of the TSP workshops there not only led to team members developing proposals with local stakeholders for the external SBCB capacity building grants detailed earlier in this section, but also resulted in the work with the AfriAlliance described above. Further, these activities built team members' skills on communicating with stakeholders, securing meeting



venues, arranging meals, accommodation and transport for participants, and compiling deliverables in a timely manner, skills researchers do not always strengthen during their academic studies alone.

Team members at higher levels of leadership and management have also had their capacities built through working in new ways as part of a large consortium. Not all experiences of working in such a complex project structure have been positive, but skills have been sharpened in communication, time management, collaborative writing and multiple levels of management. One project steering committee member reported that, *“some of the most important things that I have learned through ASSAR are the strengths and weaknesses of working as part of a very large consortium. The ability to be flexible within an agreed structure has been good set against the often [high] transaction costs of working with larger numbers of people and organisations. That said, the opportunities to engage with and learn from a range of people with different skills and experiences has been really wonderful (it has been one the most enjoyable elements of ASSAR). Personally, I think that I have developed as a researcher and it has been great see research projects through from beginning to end. Lastly, working with Oxfam has enabled me to gain good insights into the working and approaches that advocacy / practitioner organisations use and I think this will stand me in good stead moving forwards”*.



#### **iv. Strengthened legacy for ASSAR**

Collectively, all of the aforementioned capacity building dimensions of ASSAR have exceeded the original intention of bolstering excellence in research and scientific leadership in the four project regions. This progress has been achieved through the new understandings and mindsets of individual researchers and stakeholders, the work on advanced degrees by early career researchers, and connections made with ongoing projects, policies, and global processes. Together, the regional researchers and stakeholders from different levels from national government to local farmers have stronger ties with each other, along with strengthened technical and interpersonal skills, many of which we anticipate will continue to extend the work of ASSAR in semi-arid areas and beyond.

## **Chapter 7: ASSAR's intended and actual outcomes**

### **i. ASSAR's Theory of Change**

The ASSAR's consortium level theory of change (TOC; see Figure 4) was necessarily broad, speaking to the overall research questions and objectives, the engaged (transdisciplinary) approach to research, and the recognition that a suite of ongoing and evolving activities was required to maximise the uptake of research evidence by different key actors and communities in society, practice and policy.

Three high-level ASSAR outcomes were identified in the TOC:

1. Changed (and enhanced) attitudes, knowledge, capacities and behaviours of organisations and individuals to remove barriers and enhance enablers for adaptation.
2. That these same actors have improved access to financial and other resources, which will enable them to act to work in enhancing adaptation.
3. Communities, individuals and organisations who previously had little influence would have greater power and agency to act to remove barriers and enhance enablers for adaptation.

Further, the ASSAR TOC propositioned that, within the project's sphere of control, two key principles and mechanisms were fundamental to achieving these outcomes:

1. Research questions must (i) target improving knowledge and evidence of barriers and enablers to adaptation in SARs, and (ii) address local priorities and contexts in generating this wider evidence on barriers and enablers. The research activities were structured in a phased approach to allow this: the regional diagnostic studies (RDS) allowed the local context to be identified and the appropriate local partnerships to be developed, before the regional research programmes kicked off to generate new research evidence.
2. A portfolio of RiU activities, that aimed to ensure the research was relevant to multiple actors, to build the capacity of actors to engage with adaptation evidence and action, to translate and communicate the research into knowledge products that were appropriate for different audiences, and to influence key actors to adopt ASSAR evidence in policy and practice. These activities are discussed in more detail in section 5 which describes and reflects on ASSAR's RiU and communications activities in more detail.

Key reflections on the TOC include:

1. While not unique in explicitly embedding RiU processes into the overall TOC, this explicit recognition of the importance of deliberate, proactive and ongoing efforts to link the research to pathways to impact and change in key audiences was a novel experience for many ASSAR project members. Therefore, adopting a TOC, and more specific country-level impact pathway plans, enabled (or deliberately encouraged) ASSAR researchers to be much more proactive making their research relevant, engaged, and participatory. The extent to which this occurred, did depend on context, and the importance of local research partners in understanding this context was critical.
2. As part of implementation of the TOC, regional teams developed country-level impact pathway plans; these supported realisation of the ASSAR level TOC in each country, so that each country team had a much clearer understanding of who, and how, to engage with and influence.
3. While the Regional Diagnostic Studies helped to ensure the research addressed local context, in some instances there was criticism from key stakeholders that "the train had already left" by engaging them only after the project started, and not in the proposal stage; in hindsight, the ASSAR pre-proposal grant could have been used to draw in key non-research stakeholders. Additionally, the year spent on the RDS

meant that new research only started one year into the project, compressing the time available to complete this research.

4. Multi-stakeholder processes played an important role in linking the research to actors and institutions, and establishing channels for explanation of research issues, communication of research results, and for refining research questions.
5. To a large extent ASSAR’s ambition to enable improved access to finance was not realised; the specific pathway through which this was intended to occur was via ASSAR leading or supporting proposals to climate change funds for projects whose need was supported by ASSAR evidence and engagement. In practice, this did not happen, as the research evidence arrived late in the day, and the resources were not there to proactively engage.
6. The extent, and degree of stakeholder involvement in the Regional Diagnostic Studies phase varies between country quite extensively; in countries where members of the ASSAR team had pre-existing relationships with key stakeholders, such as Namibia and Ghana, the Regional Diagnostic Studies phase was extremely useful in building the relationships and partnerships that would assist with RIU through the remainder of the project.

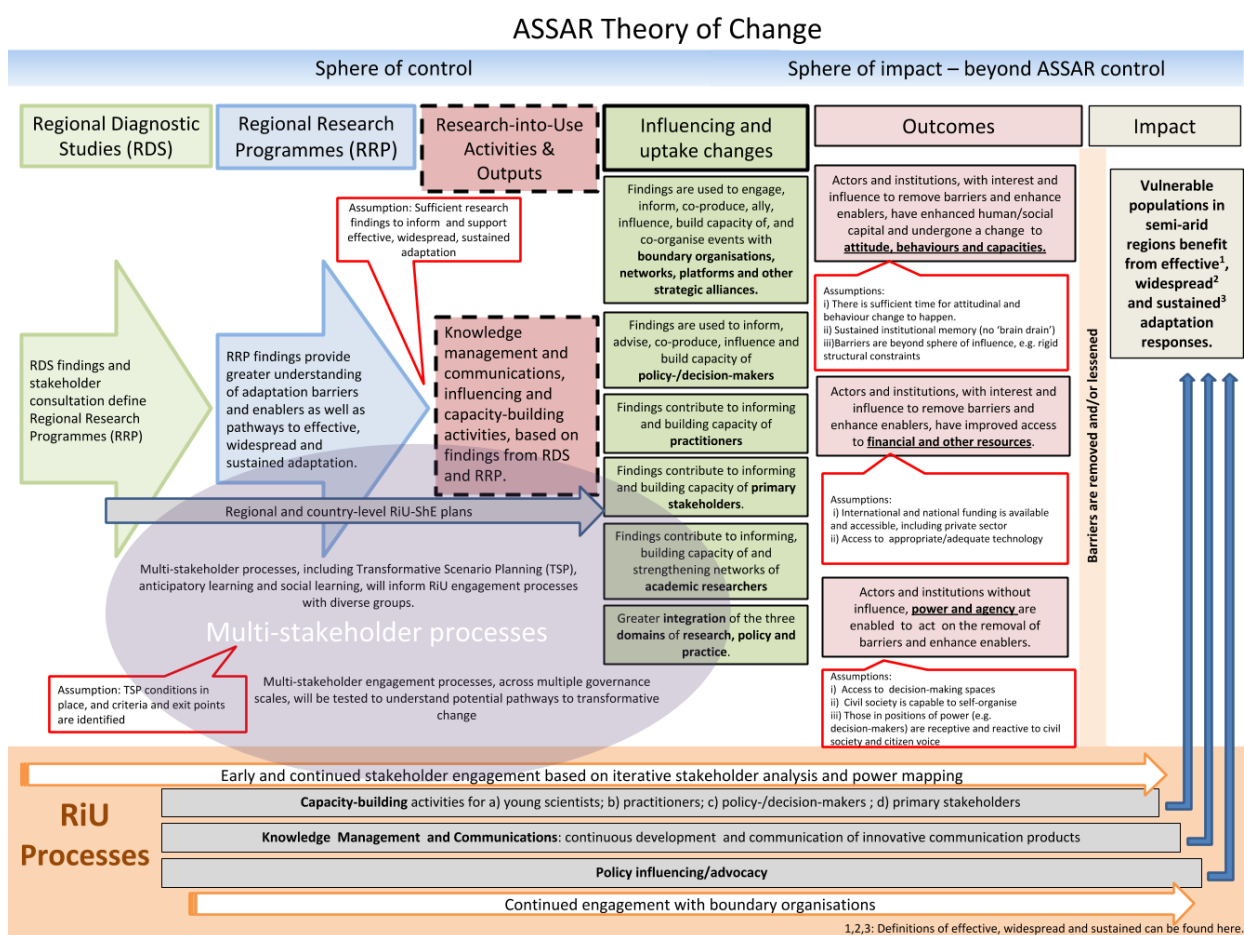


Figure 4: The ASSAR Theory of Change



## ii. ASSAR’s project objectives

In our original proposal, ASSAR had five overall objectives. These are listed in the table below, along with our assessment of the extent to which these objectives were achieved.

**Table 7: Extent to which ASSAR objectives were met**

| OBJECTIVES   | DEGREE OF ACHIEVEMENT   |
|--|---|
| <p>1. To undertake high-quality, innovative, transdisciplinary research to generate new stakeholder-driven knowledge on vulnerability and adaptation to climate change in SARs, with a specific focus on understanding what enables effective, long-term and sustainable adaptation.</p> | <p>ASSAR has largely achieved this objective. We have generated in-depth, inter-disciplinary knowledge about vulnerability, responses and barriers (and enablers) to adaptation in nine case study sites guided by its integrated research framework, focused on five research streams (governance, social differentiation, dynamics of ecosystem services, gender and knowledge systems). A number of ASSAR cross-regional teams explored some of the responses socially-differentiated marginalised groups have taken to climatic and non-climatic stressors (e.g. migration, intrahousehold changes), as well as broader trends that impact on adaptation (e.g. decentralisation in governance systems, land use and land cover changes). ASSAR’s placing of gender, social difference and wellbeing at the heart of analysis - rather than tackling it from the margins - has resulted in a depth and richness of findings - strongly linked to environmental change/ management themes - which have the potential to genuinely challenge more technocratic thinking. The participatory stakeholder processes that have been pursued (e.g. TSP, PSA and VRA) not only shed light on different tools that can contribute to enhancing adaptation outcomes for the most marginalised, but also enabled the co-creation of adaptation responses with government authorities and marginalised people. Similarly, our work around defining and populating a framework for effective adaptation enhances our understanding around the complexity of adaptation and the fact there are inevitably winners and losers in its implementation. Through this work, combining environmental, socio-economic and political dimensions, we argue that we have brought a more critical people-centred approach to research on climate change in hotspot environments - one that pays due attention to both the imperative for, and the implications, of adaptation for the more vulnerable population groups. Key in all this has been the readiness, commitment and skill fostered within the ASSAR team to integrate disciplinary approaches in both data collection and analysis, with findings having emerged not just in parallel but with team members from different disciplines cross-informing one another from the very outset in how work in each research stream was designed and executed. Moreover, the way that RiU ideas and activities were driven through the course of ASSAR enabled impact considerations (for multiple stakeholders at multiple scales) to evolve and be integrated ever more effectively into project work - creating what we argue is a genuinely transdisciplinary approach oriented to more equitable, as well as sustainable, forms of long-term adaptation.</p> |

2. To develop and trial relevant and actionable strategies for adaptation that inform and influence key stakeholders within, across and beyond CARIAA SAR hotspots.

The original intent of this objective was to develop adaptation strategies (called Local Adaptation Plans of Action or LAPAs) with the communities and stakeholders that were involved in the [transformative scenario planning \(TSP\)](#) processes and based on ASSAR research evidence. Compared to this initial intention, this objective was not achieved, as no specific strategies were developed. However, a number of activities that could support better adaptation processes, outcomes or strategy development were pursued. ASSAR's participatory processes, which brought together stakeholders from different sectors and levels to discuss adaptation challenges and potential responses achieved both a degree of success in themselves, and paved the way for future action. In the case of the Vulnerability and Risk Assessment training, ASSAR has potentially contributed to a change in how district-level planning takes place in Botswana, through the [training of district development officers](#) who have now bought into the importance of working with stakeholders on the ground to achieve more sustainable outcomes. The participatory scenario analysis processes in East Africa have opened the door for a different type of dialogue about future management options [for invasives](#) and [pasture scarcity](#), considering different types of scenarios and the perspectives of different groups about those. The TSP enabled stakeholders who had previously not interacted to hear each other's views and knowledge, and to explore potential solutions to the barriers that were identified, particularly relating to access to water and food security. A number of follow-up steps were enabled through the use of the START funds aimed at building the capacity of the most vulnerable. In the case of [Ghana](#) and [Mali](#), concerns that emerged from the TSP (and the student research) led to strengthening connections between different women's groups and institutions that can support their adaptive capacities, particularly during times of stress. Access to information resources for farmers and extension officers were expanded through the set-up of [climate advisory resource centres](#) in Ghana, and water management skills were strengthened with the [piloting of basins to harvest runoff in Mali](#). Both initiatives have high replication potential, thanks to strong collaborative approaches with NGOs and district authorities. Similarly, a [school competition](#) in Ghana spurred youth in the study sites to develop innovative adaptation solutions for their communities; and a [mobile telephone app](#) is providing adaptation-related information to agricultural extension officers, district authorities and civil society groups in northern Ghana (and is under replication in Namibia). In the case of Kenya, the team organised a [peer to peer learning](#) among community groups to promote camel-rearing practices and the use of their products (which are more suited to drylands), and different techniques to enhance pasture availability. In the case of the WOTR team in India, ASSAR and other sources of funding promoted water budgeting training for farmers, which are being replicated in different areas; the [use of games](#) to spur a change in unsustainable groundwater extraction practices; and the [use of drip irrigation](#) through the example provided by water stewards. In Namibia, funding proposals, written in collaboration with the Omusati Regional Council were submitted to the Environmental Investment Fund in Namibia which is the Implementing entity for the Green Climate Fund, as a follow-up process to the TSP. Unfortunately these were unsuccessful, but potentially paved the way for future follow-up.

3. To create innovative communication approaches for effective knowledge sharing on climate change vulnerability and adaptation in SARs.

The original intent of this objective was to contribute to research networks and virtual knowledge interfaces to support south-south (and south-north) knowledge transfer. In addition, we intended undertaking research to understand which means of communicating climate information are more effective, using that information to influence how ASSAR communicated its findings, followed by monitoring the effectiveness of our approach. Although the West Africa team conducted some preliminary interviews with stakeholders to identify which communications platforms held the most potential for effective communication (e.g. radio, TV, songs, drama) - which for example helped to decide against reaching women through radio, considering they don't have the power to decide which station is played - these initial efforts were not taken further, due to a number of partner and staff changes. Nonetheless, ASSAR's work has been featured on the [weADAPT page](#) and we produced a variety of communications outputs targeted at different audiences (from global, to national, to local) and experimented with different means of communications (from traditional briefs and videos, to more innovative). Among the most successful were a [theatre of the oppressed session](#) organised by Oxfam at Adaptation Futures, a series of infographics about our [gender](#) and [1.5 degree work](#), the [Adaptation Hub app](#) referred to above, and a series of mobile, tented exhibitions in multiple languages to convey research findings to case study communities in East Africa. However, we also worked on a [radio series](#) and [annotated community graphics](#) in Namibia, pictorial depictions of our [East Africa](#) impact pathways and PSA scenarios, interactive videos for implementing [experiential learning](#), the use of games for communicating complex concepts to stakeholders and webinars to share our research findings to broader audiences (e.g. on [gender](#), the [consortium model](#), [experiential learning](#)). Additional examples can be seen in our top 12 RiU outputs table.

4. To enable systemic capacity strengthening for adaptation in SARs, in research, policy and practice domains, and create a new cadre of Southern adaptation specialists who can take on leadership positions in these domains.

In contrast to the previous two objectives, this is one in which we probably made the most progress. **Internally**, ASSAR trained approximately 90 early-career researchers (ECRs including master's and PhD students, research assistants, post-docs and interns), who played a critical role in implementing ASSAR's research framework (through fieldwork, data collection and analysis, and RiU activities) and taking part in ASSAR meetings and specific training opportunities. Over its lifetime, ASSAR funded and organised approximately 30 workshops and writeshops on a range of topics ([gender](#), [research into use](#) - including influencing methods and tools, [transformative scenario planning](#) and [experiential learning](#), - landuse and landcover change, [governance](#), [climate science](#), [migration](#)), which benefitted ECRs and senior researchers alike. Aside from furthering knowledge on vulnerabilities, climate adaptation and responses, these activities strengthened facilitation, curricula development, workshop planning and scenario development skills of both researchers and practitioners. In addition, a specific fund was established (the [Small Opportunities Grant](#)) to support professional development of ECRs by strengthening individual research, science communication and networking capacities. Focused on fostering knowledge and skills in relevant specialty areas, some of these grants were specifically aimed at bolstering the influencing and communications capacity of the ASSAR researchers, building stronger ties with stakeholders in the regions and boosting the regional teams' RiU work. **Externally**, also through START's support, we strengthened the capacities of the most vulnerable through Grants for Local Adaptation Support ([GLAS](#)) and Scenario Based Capacity Building ([SBCB](#)) awards, which supported post-scenario process activities. Through the numerous



participatory processes that ASSAR facilitated (such as [Transformative Scenario Planning \(TSP\)](#), [Participatory Scenario Analysis \(PSA\)](#), [Vulnerability and Risk Assessments](#)) we strengthened adaptive capacities of stakeholders from the policy and practice domains, fostered dialogue between actors who generally do not interact, and encouraged inclusive adaptation planning by enhancing stakeholders' understanding of the impact and consequences of climate change as well as potential responses. Some of our partners, like IIHS, also engaged in formal training activities aimed at government officials or young leaders, to ensure that the latest ASSAR thinking influences current and future decision makers. Similarly, the Namibia team [trained the Onesi Constituency Development Committee](#) on including through the use of experiential learning activities.

5. To ensure that the ASSAR research is used during – and well beyond – CARIAA so as to shape policies and practices that enable, at widespread scales, vulnerable populations or sectors adapt to climate change.

This objective remains (and will continue to be) a work in progress, as we hope that ASSAR research findings increasingly make their way into policies and practice in ASSAR countries and beyond, through a combination of well-packaged and user friendly communications outputs, and the ASSAR “alumni” - those working for and with ASSAR - whose capacities and perspectives were changed through the project. The achievements obtained to date include, among others: having inputted into Namibia’s national climate change communications, into a technical document of the UNFCCC Technical Examination Process on Adaptation, and one of the Nairobi Work Programme; informing Botswana’s drought management strategy, the work of Ethiopia’s Pastoralist-Agropastoralist Task Force and of India’s Ministry of Earth Science policies and plans; and training all district development officers and economic planners of Botswana to undertake vulnerability and risk assessments and change the way development planning is undertaken. Importantly ASSAR’s integrated, multi-disciplinary approach and strong collaborative spirit (among researchers, practitioners, communities and government stakeholders), focused on impact, has changed the way ASSAR colleagues think and work, meaning that there is a cadre of mostly southern adaptation researchers that will further spread this thinking and approach in future. We have already started that through the involvement of key ASSAR researchers in the IPCC processes (1.5 degree study as well as for the upcoming Assessment Report (AR6)), which testifies to the emerging leadership and capacities that have been developed through ASSAR. As we finalise ASSAR’s communications outputs (including the ASSAR legacy product, which will showcase all of ASSAR’s work), we are tying the regional and synthesis findings in such way to form evidence-based narratives that can help to shift the adaptation thinking for the benefit of the most marginalised. ASSAR’s strong social differentiation and gender lens, that highlights the importance of carefully taking cognisance of the local context (down to individual and households level) underpins much of the research findings and consequently is a critical element of our communications and narratives. Similarly, we are promoting a stronger consideration of the features of SARs (marginal, isolated, etc.) in long-term planning processes, particularly in light of the climatic projections that indicate a dire future for many of these areas.



### iii. ASSAR's work plan

The ASSAR lead partners developed six-monthly institutional workplans that were collated into a consortium-level plan which included regional and cross-regional activities. The consortium workplan did not undergo major changes, although there were some modifications in the East Africa team sites and some activities incurred delays:

- In Ethiopia, due to the state of emergency that affected the country for approximately one year, it was not possible to also include the Yabelo site (located 16 hours' drive from Addis Ababa), thus making the focus of the work only the Middle Awash Valley. Similarly, while the original intention was to also work in Uganda, after the first year of the project, the team decided to drop this site, to focus resources more in depth on Kenya and Ethiopia.
- Ethiopia also suffered from a very serious drought up to 2016, which was both distressing for the team and meant that work could not proceed in one community, due to the agony the villagers and pastoralists were facing. Fortunately, there were good rains later in the year, which meant that the situation and living conditions improved in the area. The fieldwork also resumed, and delays were caught up.
- The household survey work was also critically delayed in Southern Africa, due to a number of reasons. A significant amount of time was spent on trying to standardise the survey questions across all ASSAR regions, and even more so across Namibia and Botswana, to enable comparative analysis. The actual implementation of the survey was then further delayed due to the multiple commitments



of the UNAM, UB and UCT teams tied to the academic year, as well as to avoid the hottest months in which fieldwork is too strenuous. This meant that the originally envisaged comparisons (e.g. between the Southern Africa and India teams) were not able to take place.

- Although the transformative scenario planning (TSP) work was undertaken successfully in six locations (Ghana, Mali, Namibia, Botswana, and Bangalore and Maharashtra in India), most of the TSP workshops took place later than planned. A relatively long time was invested in deciding and testing different implementation modalities for TSP (e.g. training teams to facilitate the workshops themselves, having mixed facilitation teams - e.g. with the Red Cross Climate Centre or local facilitators, including the exploration of adaptation pathways). This meant that although we were adaptive and sought to learn from each of these different approaches, the uncertainty also meant that the work was delayed, thus leaving less time for follow-up actions which would have led to more concrete outcomes. The most progress was made in Ghana and Mali - through the implementation of the START-funded capacity building activities - which were the first countries to move ahead with TSP (in 2016).
- The knowledge systems work was also delayed, due to the team changes that occurred as a result of INTASAVE's withdrawal from the consortium (originally in charge of this work) and the time it took to then hire a postdoc (based at UCT) to take this work forward.
- Minor delays were experienced in different areas due to elections (e.g. Kenya) but these were not significant enough to affect the implementation of the work.





## iv. ASSAR's approach to research into use

ASSAR's approach to research impact looked beyond conventional research uptake as a measure of success. Research impact is understood broadly and is determined not only by easily measurable indicators (e.g. papers published, references in policy documents, or number of stakeholders present in a meeting), but more importantly by changes promoted in policy and practice. This means that research impact and behavioural change are inextricably linked, and as such our approach proposed revisiting traditional understandings of research processes and their objectives.

In ASSAR there was a shift in the terminology used to describe research impact. Whilst the CARIIA Programme, and ASSAR, began with the term "Research-into-Use" (RiU), the term reflects linearity - Research (first) - into - Use (final result). Yet our experience showed how non-linear dynamic research processes contribute to impact, i.e. the non-academic benefits that arise from both the process and outcomes of our research. We thus evolved from using the term RiU into a more all-encompassing concept: Research-for-Impact (R4I).

R4I is about maximising the opportunities for research processes to contribute to changes in practice and policy. The conceptualisation of the R4I approach is about engaging, influencing and communicating, and needs to be integrated throughout research processes - not just at the start or at the end. R4I is based on four complementary strategies: stakeholder engagement, capacity building, knowledge management and communication, and working through strategic partnerships. All of these must be based on robust evidence. Furthermore, the component of monitoring, evaluating & learning should be given special attention in doing R4I work, as it is by nature an exploratory undertaking that benefits from reflection and from applying lessons learned in future efforts.



ASSAR's organisational set-up in relation to R4I varied in each of the four ASSAR regions. In the African regions, where almost all partners were research institutions, this was largely determined by the existing footprint that the R4I lead, Oxfam, had (or didn't) in each region. For instance, given Oxfam's lack of presence in the two Southern African countries where ASSAR worked, Oxfam established partnerships with local institutions and worked with them as R4I partners. Interestingly, in Botswana this process failed twice,

as no productive match was possible with either of the two institutions initially appointed. As a result, Oxfam and the University of Botswana (ASSAR's research lead in country) worked together and appointed an R4I focal point at UB. Arguably, research impact in Botswana was one of the most successful examples throughout the project, despite the challenge at hand. This is likely to be due to the flexibility of ASSAR (and IDRC) to adapt our planning, the constructive working relations between Oxfam and the University of Botswana, and the latter's willingness to take on the R4I agenda and pursue emerging opportunities for impact.

In East Africa, Oxfam's established presence, which enabled the hiring of an R4I coordinator at Oxfam's office in Ethiopia, contributed to a smoother process with partners and stakeholders. In West Africa, although Oxfam does have a strong presence, difficulties about personnel led to ASSAR's partners - namely the University of Ghana and ICRISAT - taking on most of the leadership of R4I processes in Ghana and Mali. In Ghana, for instance, leadership at the top and also at operational levels translated into commendable results. This success was further boosted by the direct collaboration between ASSAR and its sister project DECCMA, who employed one shared staff member. In India, R4I efforts were undertaken directly by the Indian partners, which already had considerable experience in working on the research-policy spectrum.

The flexibility of the R4I approach in all regions in terms of being nimble and opportunistic, and having the ability to easily alter workplans and budgets accordingly, ensured that we could respond to a moving target and to stakeholders' needs.

Having an R4I team that focused on different levels of governance (sub-national, national and global) and with a varied set of expertise to address these appropriately, meant that ASSAR's research and vision could be successfully presented across these various spheres - e.g. from high level UN fora to sub-national decision-making bodies, to intra-household level.

For future undertakings, it may be important to start the R4I work with stakeholders earlier on in the project. In ASSAR, it took us a long time (e.g. the regional internal workshops to develop a common understanding on R4I ran well into year two) to develop a common understanding of R4I (RiU) internally, and this 'delay' prevented having more structured or in-depth interactions with stakeholders in the crucial early stages of the project. To this effect, the contribution and proactive engagement of the CARI AA programme in exploring and challenging the different approaches being developed by the CARI AA consortia helped considerably in giving ASSAR team direction, as well as confidence and moral support. It also encouraged ASSAR to continue doing R4I work in an exploratory manner (as opposed to following a rigid framework), which proved tremendously important for the success of our efforts. Concrete moments of support from the CARI AA programme, such as the cross-consortia meeting held in Oxford in December 2016 provided an important theoretical underpinning to the ASSAR team (and likely to the other three CARI AA project partners). The fact that the ASSAR team co-hosted and co-designed the workshop programme with CARI AA enabled a close collaboration on the subject, as well as access to CARI AA team's valuable expertise on the subject. Having enjoyed a close relationship with CARI AA throughout the project undoubtedly strengthened ASSAR's work on R4I.

On a similar note, it is worth mentioning that a consortium composition that is more balanced between researchers and practitioner organisations may help level the focus of the project slightly more towards impact (though possibly at the expense of a stronger research focus).

Despite the evident importance of the behavioural change element of ASSAR (also referred to as scaling deep) and, more broadly, the need for transforming structures and mindsets in order to better pursue effective climate change adaptation, this agenda could have been pursued further in the project. There was, arguably, a sense that this aspect was too 'fluffy' or abstract in order to consider it more seriously. That in itself may show a systemic barrier to the implicit obstacle among climate and social scientists in academia of speaking more openly about the emotional element of climate change adaptation. Surprisingly, this barrier

existed despite ASSAR's focus on wellbeing (which includes subjective elements) as a core aspect of effective adaptation.

Building R4I capacity within research institutions - at early career as well as senior level - cannot be underestimated. While working with NGOs or other civil society organisations is important and constructive, it is not a substitute to dedicating considerable efforts to building R4I capacity within academia and research bodies. While Oxfam may have underestimated the resources and time needed to do this, and while conveying the meaning and importance of R4I to partners may have been easier through a more prescriptive, less exploratory, approach, Oxfam believed that R4I in the specific context of climate change needed to largely be an exploratory activity for all partners involved, one to be co-developed among all partners based on everyone's expertise and the project's needs (i.e. the needs of the most vulnerable groups living in semi-arid regions). Similarly, researchers may have underestimated - or simply not fully recognised - the complexity of the task that they were embarking on.

On a practical note, R4I could have been given more 'air-time' in the early stages of the project - where it was often underrepresented due to it being viewed or understood as something that 'comes towards the end'. Giving R4I prominence from the beginning is likely to deliver benefits to project partners and stakeholders alike, as a result of increased integration of both efforts - which are, effectively, one.





## **Chapter 8: ASSAR's approach to risk management**

ASSAR's risk management process was formalised through a risk register approximately one year after the project started. Although the requirement to produce a risk register was met with scepticism amongst consortium members, the process of developing and subsequently updating the register did provide a forum through which we could think about and discuss potentially problematic issues and the ways in which we could try to positively manage them. The risk registers were discussed at the project steering committee (PSC) level and updated twice-yearly, to reflect both the dynamic way risks changed over the lifetime of the project and the most appropriate responses (these were recorded in the different versions of the risk register). Although problems were generally resolved without recourse to the risk register (it was primarily a retrospective document), the process of identifying pertinent risks and thinking through possible ways to manage them provided a framework to enable us to respond effectively as and when the identified risks materialised.

The most substantial risks facing ASSAR in the initial phases of the research project related to (i) the challenges of effectively working together in light of the very different organisations and organisational cultures (exacerbated by the large size and dispersed nature of the consortium), (ii) the risks of delays to key aspects of the work (linked to i), and (iii) the challenges of finding agreement between consortium priorities and regional and institutional ones. The mitigation measures adopted to address these risks related to establishing coordination mechanisms that would ease the flow of information (e.g. regular meetings of the PSC and cross-regional working groups), maintaining open communication channels (through the PSC virtual meetings and face to face ones), and setting up and implementing the processes that were common across regions (e.g. scenario planning), to create more common ground across partners. Perhaps the most effective mitigation measure, although one that was not stated in the risk register, primarily related to establishing working (and personal) relationships between disparate partners spread over four continents. Establishing strong and positive working and personal relationships were crucial to the success of the consortium in the long term and in facilitating smoother and more effective collaboration (and achievement of intermediate outputs) in the short term. In short, the relationships forged at the outset of the project provided the strong foundation that we could build off for the remainder of the project. Reflecting back, a greater focus on team building activities in the early phases of the project (and investing in even more face to face time then), would have perhaps sped up the process, though it is also important to note that it takes time to build trust.

To mitigate against the delays that affected the production of (research and non-research) outputs, ASSAR's project management unit (PMU) developed a weekly digest which was sent to all consortia members. The digest included all important deadlines, critical project documents, and regionally-relevant material. Principal investigators were also given the responsibility to keep regional partners on track and, once again, open communication was encouraged to identify warning flags of critically delayed items. Although this risk of delays in producing outputs was identified at the beginning, it remained high throughout the lifetime of the project and the mitigation measures did little to reduce its likelihood. The fact the consortium often experienced delays became the norm and, to a certain extent, accepted amongst partners. While these delays did not prevent us from delivering on what we had formally committed to, the delays affected numerous outputs which were identified as the project evolved but that reflected a tendency to often be overly ambitious, and thus include perhaps more than what could be achieved within the required timeframes. The difficulty many part-time ASSAR staff had with deadlines (referred to previously in section 1) should also be recognised, especially in the context of a four-year project, where people naturally take new commitments and roles (external to the project) and thus find themselves under time pressure for reasons not linked but impacting on the consortium.

Some of the initial challenges that were identified, such as finding agreement between consortium priorities and regional and institutional ones, resolved themselves as the consortium began to establish itself and what it stood for. For example, as clarity on ASSAR's research framework increased, dialogue between partners improved (as the risk register mitigation measures suggested) and expectations and ambitions were

adjusted (not envisaged, but something that happened as clarity was gained on what ASSAR could/should and could/should not do). The development of the consortium into an entity rather than a collection of institutions brought a sense of identity and greater clarity on what ASSAR was and what it was trying to achieve. This identity provided something that institutions, researchers, practitioners - all those involved in ASSAR - could relate to and coalesce around.

As the consortium matured, the risk profile changed to some extent. The most significant risks related to (i) ongoing issues with some key relationships, (ii) mismatch between expected versus actual progress (as mentioned above), (iii) limited comparability of research results stemming from different research methodologies, and (iv) stakeholder dissatisfaction. Though health checks were used at the annual meetings to encourage open dialogue and facilitate improved relationships (which did result in improvements in working relationships), some issues remained, in part due to inherent differences between lead and partner institutions. The inability to address these poorly functioning relationships suggests more effort should have been made in the initial phases of the project to identify and actively tackle differences arising from organisational culture, mismatched expectations and power asymmetries. Although not specified in the risk register, and perhaps a lesson in hindsight learned from one of the other ASSAR regional teams, is for members of the lead organisation to invest a lot of time in the field with partner teams (especially at the outset of the project). This builds trust and honesty, levels out hierarchies, and can create a relationship based on reciprocal collegiality, i.e. a readiness among all partners to understand the other's perspective, develop shared goals and work together to resolve issues.

To deal with the risk of limited comparability between different ASSAR regions' research arising from different methodological approaches, several mitigation measures were included. These revolved around the development of a common research framework, from which comparable questions were developed around themes that were consistently applied in all regions. The ASSAR research framework facilitated collaboration and engagement between ASSAR research stream working group members supporting the sharing of ideas, progress and challenges; and the implementation of similar research methods and methodologies in more than one country/region. In the end, as already mentioned, the cross-regional working groups only had limited success and were replaced by teams working on specific outputs within the different research streams. However, the research framework did ensure that, at an analytical and theoretical level, the research was comparable. For example, in a number of cases teams developed outputs through comparing data that had not been necessarily generated by asking the same research questions. In other cases, common methods and questions were used (e.g. in the case of the migration or the land use land cover change work), which was often tied to capacity building opportunities (e.g. training workshops, ASSAR's small opportunities grant). Therefore, this risk was mainly overcome by making analytical and theoretical comparisons across ASSAR (in absence of a common method or question) and by harnessing opportunities to pursue common approaches for specific research goals. This meant that some opportunities for developing cross-regional outputs were missed. In the cases where we ensured that the same questions and methods were used, such as for the household surveys, the complexity of the work and the length of time taken to standardise meant that outputs from this work are still in development and will not be realised in the lifetime of the consortium.

The mitigation measures to attenuate the risk tied to stakeholder fatigue and/or dissatisfaction centred on ensuring the research was not a purely extractive process and would provide benefits to stakeholders involved in the research process. As the RiU philosophy became more embedded in the teams' approach and thinking, this risk attenuated. The START-funded capacity building activities aimed at vulnerable groups ensured that the project resulted in benefits for a number of the communities that were involved in the research process. In many cases, the testimonies from some of these individuals confirm that ASSAR's RiU approach of re-visiting the communities multiple times, including to feed back the research results, was valued and often considered unusual, in light of their previous experience of research projects (which tended to extract information without returning to provide feedback). However, in some areas, in the middle stages of the project, some dissatisfaction was felt as there was little that RiU coordinators could

feedback to stakeholders while the research was still underway, thus making it difficult to maintain an interest in the project.

In the latter stages of the project the main risks related to exchange rate fluctuations and loss of key personnel (see section 1) – both of which were anticipated, and mitigation measures discussed and agreed in advance.

Over the course of the project several risks emerged that were not anticipated and therefore included on the risk register. These included a partner becoming insolvent, issues tied to delayed disbursements to partners and currency exchange fluctuations (see section 1). These risks were managed dynamically as they occurred and subsequently included in the risk register. Overall, the main risks at the outset and end of the project were anticipated but these ‘black swan’ risks in the middle period of the research project had some of the most significant impacts on progress but had not been identified (unsurprisingly). This suggests that more flexible contingencies are required to adjust and respond to these emergent situations as they occur whilst those risks at the beginning and end of the project’s life are more predictable and can be managed through traditional risk management approaches.





## Annex 1 - LIST OF ASSAR OUTPUTS

### JOURNAL ARTICLES (31)

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