Resilience scan | July-September 2016

A review of literature, debates and social media activity on resilience

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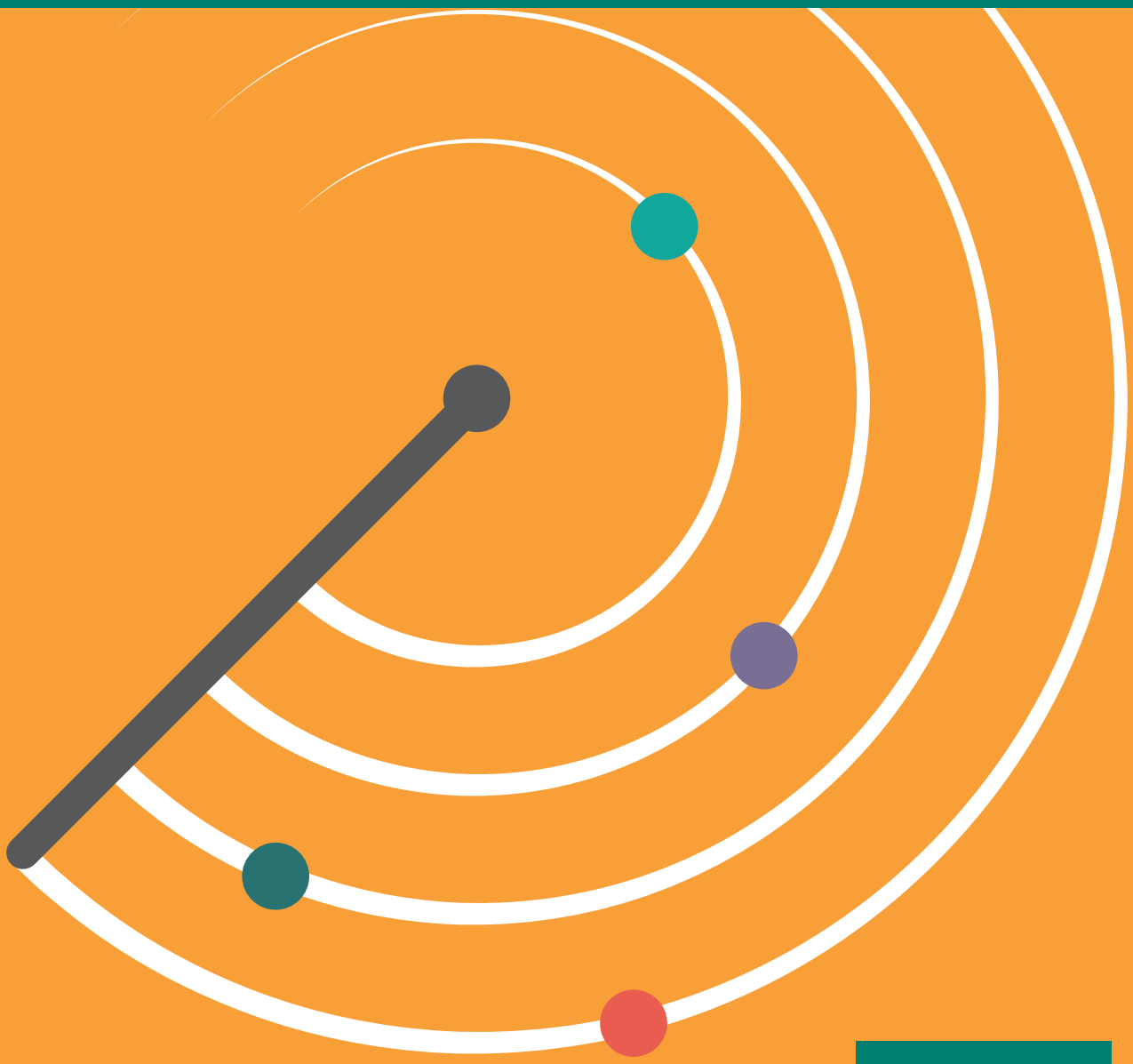

REPORT

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The quarterly resilience scans are complemented by 'deep-dive' analytical papers that focus on emergent aspects of resilience thinking and practice. To date we have published deep-dives focus on measurement of resilience, assessing perceived or 'subjective' resilience, and on psychological resilience.

Please see www.odi.org/resilience-scan for details of these papers and previous resilience scans.

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Abstract

This 'resilience scan' summarises writing and debates in the field of resilience during the third quarter of 2016, focussing primarily on the context of developing countries as well as gender equality and resilience. The scan will be of particular interest to those implementing resilience projects and policies and those seeking summaries of current debates in resilience thinking. It comprises insights on the key international policy processes in 2016, analysis of Twitter activity on resilience, and summaries of high impact grey literature and academic journal articles. The final chapter synthesises the insights from literature in terms of 5 characteristics of resilience- awareness, diversity, self regulation, integration and adaptiveness.

Contents

List of figures and tables

Figures

Tables

Acronyms

ADB	Asian Development Bank
AGRF	African Green Revolution Forum
AMCOW	African Ministers' Council on Water
API	Application Programming Interface
ARC	African Risk Capacity
BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
CBA	Community-Based Adaptation
CDKN	Climate and Development Knowledge Network
CDR	Community Disaster Resilience
CoP	Conference of the Parties
CSA	Climate-Smart Agriculture
DFID	UK Department for International Development
DNC	Dimensions of National Culture
DRC	Democratic Republic of Congo
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EbA	Ecosystem-Based Adaptation
EIU	Economist Intelligence Unit
FAO	Food and Agriculture Organization
FoodSECuRE	Food Security Climate Resilience Facility
FRDP	Framework for Resilient Development in the Pacific
FDRR	Global Facility for Disaster Risk Reduction
HRBA	Human Rights-Based Approach
HLPE	High Level Panel of Experts Food Security and Nutrition of the Committee on World Food Security
ICRC	International Committee of the Red Cross
IIED	International Institute for Environment and Development
INDC	Intended Nationally Determined Contribution
IUCN	International Union for Conservation of Nature and Natural Resources
NAP	National Action Plan
PPA	Programme Partnership Arrangements
PHASE	Providing Humanitarian Assistance for Sahel Emergencies
PICTs	Pacific Island Countries and Territories
SAA	Social Analysis and Action
SDG	Sustainable Development Goal
SDMP	State Disaster Management Plan
SES	Social-Ecological Systems
SIDS	Small Island Developing States
SL	Sustainable Livelihoods
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
UK	United Kingdom
UN	United Nations
UNDP	UN Development Programme
V2R	Vulnerability to Resilience
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WVC	World Values Survey

Executive summary

Gender equality and resilience

The expert review section in this scan covers gender equality and resilience – two topic areas many agencies consider cross-cutting and interlinked. The evidence on the linkages between promoting gender equality and enhancing resilience (including disaster risk reduction and climate change adaptation) is growing (e.g. CARE, 2015; Fordham et al., 2011; Le Masson et al., 2016; Oxfam, 2010; Smyth and Sweetman, 2015; Tacoli et al., 2014) but organisations implementing development projects do not often have opportunities to discuss these intersections in practice and the extent to which they are mutually reinforcing.

Key findings from recent multi-agency discussions and the current literature on the gender and resilience nexus suggest that:

1. Work to promote gender equality and resilience can be based on wider mainstreaming of gender to address structural inequalities and/or targeted actions to enhance resilience in particular groups.
2. Implementing gender equality and resilience as both priorities of work and cross-cutting themes requires overcoming common challenges: lack of organisational commitment, the need for adaptive management and the use of intersectionality.
3. The promotion of both gender equality and resilience needs to transform imbalanced power dynamics and social relations to create lasting and equitable change

Resilience on Twitter

This scan provides an analysis of resilience conversations in a range of different contexts, including climate change, agriculture, food security, conflict, urban development, water and economic resilience. For each of these contexts, table 1 summarises the most prominent discussion themes and key influencers in debates and interactions.

Resilience in grey literature

Our examination of papers on resilience published July–September 2016 includes 31 from research and private sector institutions, donors and multilateral agencies. These span six broad themes. Compared with last quarter's scan there has been a decrease in the number of papers discussing social protection and inclusion issues as well as post-2015 international frameworks, and a marked increase in the focus on migration and conflict.

Grey literature on *frameworks, guides and methods of measuring* resilience suggests:

- Flexible, innovative, diverse and long-term financing is required to support resilience-building activities and the ability to respond rapidly to shocks.
- There is a need for a human rights-based approach to resilience frameworks that addresses the underlying causes of vulnerability.
- Resilience indicators should be generated by communities and programme participants and must be context-specific.
- Resilience measurement methods must be based on dynamic frameworks that include a time dimension.

Grey literature on *urban resilience* suggests:

- There is a need for a low-carbon urban transformation driven by equal transformations in local, national and international urban governance.
- Strengthening capacity at the urban administration and planning level can improve resilience and fight corruption.
- There is a need for increased coordination and cooperation on international urban policy frameworks between UN agencies, non-governmental organisations, civil society and community groups.
- Recent economic growth accompanied by rapid urbanisation in Africa is resulting in increased vulnerability and exposure to a wide range of hazards such as flooding, leading to increased diseases prevalence.
- The New Urban Agenda must build on the work of the Sustainable Development Goals and the CoP21 Paris agreement to reduce discriminatory exclusion.

Grey literature on *food, water and ecosystems* resilience suggests:

- There has been a decrease in the diversity of firms dominating the agri-business sector.
- There is a need for the inclusion of ecosystem-based adaptation within countries' National Action Plans.

Table 1: Resilience on Twitter

Topic	Key conversations on Twitter	Top influencers on Twitter
Climate resilience	• Ways indigenous communities develop climate resilience • Climate disasters • Climate adaptation strategies in different contexts • The role of economic policy and private capital to support climate resilience • Ways to support various global communities to face climate resilience	@worldbank: World Bank @wwatercouncil: World Water Council @cechr_uod: Centre for Environmental Change & Human Resilience @icrisat: International Crops Research Institute for the Semi-Arid Tropics @wfp: World Food Programme @cgiar: A global agriculture partnership
Agriculture resilience	• Climate-smart agriculture (CSA) • Ways open data can support promoting agriculture resilience • The impact of water shortages on farming and food security • Innovation in farming technologies (such as the use of solar energy)	@rockefellerfdn: The Rockefeller Foundation @sd_ag_labs: South Dakota Agriculture Labs @agraalliance: Alliance for a Green Revolution in Africa @theagrf: The Africa Green Revolution Forum @nature_org: Nature Conservancy
Food security resilience	• The intersection of food security and conflict • Developing innovative farming technologies and efficient agriculture value chains to improve food security resilience • The role of climate justice in promoting food security resilience • The integration of climate and water policy • Threats from invasive pests to food security resilience	@newsecuritybeat: New Security Beat @faophilippines: The Food & Agriculture Organization of the United Nations (#UNFAO) in the Philippines @icraf: The World Agroforestry Centre @cropptotection: European Crop Protection Association @thegef: The Global Environment Facility
Conflict resilience	• Ways to mitigate the impact of conflict on vulnerable populations • The intersection of conflict, access to resources and food security • Strategies for post-conflict recovery • Ways to develop conflict resilience in contexts of protracted and intractable conflicts • The intersection of disasters, conflict and climate change	@tji_: The Transitional Justice Institute @UNDP_GCRED: UNDP Global Centre focusing on resilient ecosystems & livelihoods @ christianaidirl: ChristianAid Ireland @newsecuritybeat: New Security Beat @katiepetersodi: Katie Peters, Research Fellow at Overseas Development Institute
Urban resilience	• Innovative engineering and design for building smarter cities • Urban economic resilience • The impact of climate change on urban resilience • Ways to strengthen urban resilience against disasters and natural hazards • Ways to strengthen the resilience of vulnerable urban communities • Emerging technologies and how they can be used to strengthen urban resilience	@acccrn: Asian Cities Climate Change Resilience Network @SaleemulHuq: Director, ICCCAD and Senior Fellow, IIED. @rockefellerfdn: The Rockefeller Foundation @urbanresilienc: Urban Resilience @urbaninstitute: Urban Institute @geag_india: Gorakhpur Environmental Action Group

- Climate and rainfall in particular affect farmers' Climate-Smart Agriculture (CSA) decisions and therefore their overall farm income.
- There is a need for farmers to adopt a combination of CSA practices.

Grey literature on *conflict and migration* suggests:

- There is a need for further consideration and development of best practice for the use of managed population retreat as an adaptation strategy.
- Migration and forced displacement can result in a multitude of negative and positive impacts for host communities.
- There is a need for collaboration and scaling-up of successful projects in areas where institutional and organisational capacity is lacking.
- With increasing converging crises, risk must become a central and cross-cutting feature of development and humanitarian agendas.
- Risk and resilience is emerging as a lens through which to understand intersections of climate, disasters, conflict and fragility.

Grey literature on *climate and disaster* resilience suggests:

- There is a need for strong political leadership and inter-sectoral ministerial coordination.
- National ownership is crucial to capacity-building efforts.
- There is a need for inbuilt flexibility to offset and manage the uncertainties around future climate change.

Grey literature on *frameworks and organisational approaches* to resilience suggests:

- Women can use self-help and community groups to develop a culture of saving, access to loans and engagement in income-generating activities to enhance their economic and social status.
- There is a need for increased gender-sensitive vulnerability and risk assessments.
- A decentralised and community-based approach to disaster preparedness and response is important.
- Social protection has the potential to have a positive impact on communities' ability to overcome economic hardship.

Resilience in the academic literature

Our review this quarter includes analysis of 31 peer-reviewed journal articles on resilience published in July–September 2016, during which five dominant themes emerged.

Academic literature on *gender, culture and power* suggests:

- Resilience thinking is increasingly integrated into concepts of climate and food security and now coexists with such approaches rather than replacing them.
- Cultural characteristics of a society critically shape disaster risk management and the chosen approach to community disaster resilience.
- Considerations of social justice and equity are intrinsic to the concept of vulnerability, while resilience thinking may overlook these aspects.
- Communal farming can enhance personal and social resilience through collaboration, intergenerational support, and shared gendered identities.

Academic literature on *understanding community* resilience suggests:

- Integrating disaster risk reduction and sustainable livelihoods approaches in practice can create mutual reinforcement and contribute towards both aims.
- Natural disasters have a transformative potential that may actually decrease inequality and change community structures.
- A stronger consideration of historical-cultural and structural barriers to equitable adaptation is necessary to enhance community resilience.
- Unclear ownership and responsibility for building resilience and a lack of social trust and cohesion present substantial challenges to community resilience.

Academic literature on *livelihood resilience* suggests:

- Local context is crucial for understanding livelihood resilience. Participatory and people-centred approaches should therefore inform planning and support to adaptation measures.
- Livelihood diversification may be driven by prospects of economic development rather than by a distress reaction to environmental stress.

Academic literature on *policy, planning and operational approaches to building* resilience suggests:

- Integrating both bottom-up and top-down knowledge is necessary in policy and planning for adaptation, risk management and resilience.
- Hazards may impose trade-offs between resilience and short-term economic development for individuals and societies; the complexity of multi-hazard environments presents particular challenges to planning and policy-making in this context.
- Local government is crucial in post-disaster recovery and resilience-building but can inhibit equity and

efficiency as a result of limited capacity and political or economic motivations.

Academic literature on *social-ecological systems (SES)* suggests:

- SES are complex, nested and situated on multiple scales.
- Household resilience does not necessarily co-evolve with SES resilience.
- Adaptation processes may result in trade-offs and adverse consequences within a SES, which should be questioned based on their underlying power structures and effects on social justice.
- The concept of panarchy – an interrelated set of different evolving systems and sub-systems – recognises the dynamics and interactions within SES and thus contributes to an understanding of resilience in such systems.

1. Gender equality and resilience

The expert review section in this Resilience Scan covers gender equality and resilience, two topic areas many agencies consider cross-cutting and interlinked. The evidence on the linkages between promoting gender equality and enhancing resilience (including disaster risk reduction (DRR) and climate change adaptation) is growing (e.g. Oxfam, 2010; Fordham et al., 2011; Tacoli et al., 2014; CARE, 2015; Smyth and Sweetman, 2015; Le Masson et al., 2016) but organisations implementing development projects do not often have opportunities to discuss these intersections in practice and the extent to which they are mutually reinforcing.

Key findings from recent multi-agency discussions and the current literature on the gender and resilience nexus suggest that:

1. Work to promote gender equality and resilience can be based on wider mainstreaming of gender to address structural inequalities and/or targeted actions to enhance resilience in particular groups.
2. Implementing gender equality and resilience as both priorities of work and cross-cutting themes requires overcoming common challenges: lack of organisational commitment, a need for adaptive management and the use of intersectionality.
3. The promotion of both gender equality and resilience needs to transform imbalanced power dynamics and social relations to create lasting and equitable change.

1.1 Promoting gender equality and resilience through mainstreaming or targeted approaches

There is not one standard approach to mainstreaming gender equality into resilience initiatives, or resilience into gender initiatives. Development and humanitarian organisations create their strategies according to their values, strategic objectives, expertise, target context and/or the requirements of their donors, which sometimes relate to gender equality and/or resilience but not always. A recent attempt to suggest a common framework is the Theory of Change on Achieving Gender Equality and Women's and Girls' Empowerment developed by the Department for International Development (DFID) Learning Partnership on Gender (DFID PPA Learning Partnership Group, 2015). This partnership of several development agencies aims to share new evidence of what works to tackle gender inequalities in development work. It encourages the sharing of best practice examples, as well as providing lessons learnt from what has not worked so well.

This Theory of Change framework was developed to guide organisations towards addressing gender issues and to better articulate women and girls' empowerment approaches across a range of project and policy initiatives. According to this guiding document, the promotion of gender equality can follow different strategies but these all fall under two major categories: mainstreamed and targeted. In the first case, gender mainstreaming in resilience programming aims to tackle inequalities and foster fair opportunities for all social groups, where gender-responsive programming can improve resilience outcomes for women and girls. In the second case, targeted activities focus on tackling specific inequalities or address gender gaps in order to enable people to build their resilience, where resilience programming can transform gender inequalities. Targeted activities and targeted groups can help agencies focus their efforts and resources on one area that will contribute to strengthening people's resilience, but this requires strong partnerships and additional resourcing. However, organisations can both adopt a cross-cutting strategy and implement targeted activities.

When working on both gender and resilience there are parallels in the different social norms that the Theory of Change presents as 'barriers'. 'Integrating this approach requires long-term engagements and iterative adaptation of projects and necessitates broader partnerships to concurrently tackle the variety of areas identified. All of this challenges the way implementing organisations are often set up to operate' (Policy Officer, Practical Action). In most resilience programming there will be similar barriers to overcome to enhance the resilience of populations, especially when focusing on women and girls.

A project developed by ActionAid Bangladesh aimed to measure and compare men and women's resilience to disaster risks at local levels and to enable

community members to identify actions to build their own resilience. The methodology drew on the Women and Resilience Index (EIU, 2014) to compare gender- and age-disaggregated data and between different geographical contexts. This pilot highlighted imbalances between women and men in terms of their access to economic resources, basic infrastructures and services as well as institutional and social support (ActionAid, 2016). ActionAid's aim was to initiate discussions with community members based on these documented differences and inequalities to help women and men recognise such gender imbalances, and to identify the main issues that should and could be addressed. Women have developed action plans to build their resilience, and ActionAid is facilitating their empowerment through training and skills development to strengthen their leadership within the community to enable them to meet government officials and access sustainable sources of finance.

Other examples of different non-governmental organisation (NGO) approaches to mainstreaming gender considerations in their resilience-building activities are emerging in the Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) programme. All NGOs working with the BRACED programme aim to enhance communities' resilience to climate extremes and disasters, and the majority recognise gender differences and associated inequalities in their partner communities (Le Masson, 2016). Agencies might engage in different domains of interventions (e.g. strengthening food security, developing financial services, establishing early warning systems), but a gender-sensitive approach means they aim to tackle barriers to communities' resilience, including social inequalities. Many NGOs do so by specifically targeting women as their main beneficiaries through developing women-led savings and loans associations and improved access to financial services, and also working with men's groups to discuss and sensitively address stereotypes of gender roles that restrict women from accessing equal opportunities. 'We do both domains of interventions in our work: programming with women and girls directly to build their skills, capacities and voice, and working with men and boys to address gender norms and unbalanced power relations' (Climate Change & Resilience Team Leader, CARE International UK).

An interesting observation of several BRACED case studies is that the general narrative is moving away from considering women as victims of climate change and disasters (e.g. Hilton et al., 2016; Opondo, et al. 2016; Rigg et al., 2016). Instead, practitioners are pointing out the structural inequalities that are impeding women's capacities to build their own resilience and that of their family and community, and the empowerment opportunities that are possible through gender-transformative resilience programming. In other words, the emphasis is as much on the symptoms of inequalities (i.e. women being disproportionately affected by disasters) as on the drivers (i.e. patriarchal norms), maintained by and affecting different people, including men, albeit in different ways. This echoes the recent literature on DRR that is increasingly documenting masculinities and the experience of men and boys in shaping their vulnerabilities and capacities to deal with shock and stresses (e.g. Enarson and Pease, 2016).

Many activities implemented by the BRACED consortia are therefore gender-responsive (one could say they follow an equity approach) because they aim to compensate for gender imbalances to better achieve equality and resilience. When projects aim to achieve gender equality and explicitly promote women's empowerment, they tend to recognise the influence of social norms on people's capacities to build resilience (Kratzer and Le Masson, 2016). In other words, when activities aim to tackle harmful norms and reach wider groups of people (rather than individuals), this translates into a more transformative agenda (see Section 3).

1.2 Challenges for implementing gender equality and resilience as both targeted work priorities and cross-cutting themes

It is now common practice to consider gender equality and resilience as cross-cutting issues, in order to facilitate their inclusion across sectors (e.g. energy, agriculture, DRR, water, sanitation and hygiene (WASH), etc.), and at all organisational levels. One element that supports this mainstreaming process is the creation of core values pertaining to people's rights and well-being, with gender equality and/or resilience defined as core objectives or underlying principles. In recent discussions, many NGO staff regarded this as a critical element, alongside staff trainings to foster and socialise learning and embed gender mainstreaming and resilience-building within organisations.

However, as cross-cutting issues, gender equality and resilience can easily be overlooked in the absence of explicit objectives and strategies. Conversely, activities dedicated to support gender equality and resilience, if implemented as stand-alone 'silos', remain confined to the responsibilities of 'gender experts' or 'resilience experts'. While resilience is often treated as a 'technical' topic that can be integrated through specialist resilience tools and staff, gender equality is considered more as a value. However, gender mainstreaming is often viewed

as the responsibility of social development experts or women's rights organisations which may not be the ones implementing activities or members of the target communities. Mainstreaming new objectives or new values builds on experience and requires adaptive management: flexibility in programming, in funding and in donor expectations to encourage learning and making necessary changes (Sugden, 2016).

While evidence suggests resilience programmes are becoming more gender-sensitive, it is less clear how to make the resilience concept more tangible for wider development interventions across sectors. The need to incorporate multiple cross-cutting issues resulting from the combination of donors and organisations' core values may also be counter-efficient. Ideally, development projects should consider the influence of multiple social vulnerabilities (i.e. not just gender inequalities but also discriminations facing ethnic minorities, low-caste families, children and adolescents, people living with disabilities, homosexuals, etc.), whereas resilience programming should draw on DRR and adaptation to climate change and support people's livelihoods in a holistic manner.

The academic literature increasingly uses 'intersectionality' as a lens when documenting gender-responsive resilience practice. Intersectionality is an analytical tool for understanding how gender intersects with other identities and how these intersections contribute to unique experiences of oppression and privilege as well as access to (or denial of) rights and opportunities (Symington, 2004). For instance, a recent study in Tanzania used an intersectionality framework at the household level to examine how the adaptive strategies of farmers to climate change are not only mediated through their gender but also based on their marital statuses (Van Aelst, 2016). The study found women's marital status significantly determined their ability to engage in adaptive strategies, while this was a less important factor for men (see Figure 1).

Compared with other women, divorcees and widows lack land tenure security, which restricts their power over decisions to diversify their livelihoods. Divorced women also assume relatively more income-earning activities outside the farming sector. In contrast, married men's adaptation position does not typically worsen when they leave their marriage. Such findings highlight that a gender approach to resilience means not only recognising the importance of gender in climate change vulnerability but also going beyond the dichotomisation of men and women as homogeneous categories and the comparison of male- and female-headed households (Van Aelst and Holvoet, 2016).

A comparative study in cities of Peru, Kenya and India explored the benefits and challenges of building resilience with a gender perspective (Kratzer and Le Masson, 2016). Key findings highlight that the design of resilience-building interventions must draw on an explicit objective to promote gender equality right from the beginning of the project. If this goal is not clearly articulated by donors, practitioners and researchers, and based on insights from targeted beneficiaries, it then becomes challenging to dedicate adequate financial, human and technical resources to implement gender-sensitive activities and to monitor and evaluate any gender and social-related outcomes (Sogani, 2016). The study also shows that making risk assessments gender-sensitive can mean better recognising people's different needs and interests to inform the implementation of more tailored and sustainable activities (Kratzer and Le Masson, 2016). A key recommendation from this research is that climate resilience and gender inequalities are interdependent and need to be addressed together to achieve sustained transformative change for climate-vulnerable urban communities.

Overall, mainstreaming strategies need to be propositional, not just reactive. Although a 'tick box exercise' is often a first step towards changing practice, setting minimum standards alone does not enable

Figure 1. Typology of access to adaptive strategies by marital status in the Morogoro region, Tanzania

	LOW agricultural water management	HIGH agricultural water management
LOW livelihood diversification	Widows Married women Unmarried women	Widowers
HIGH livelihood diversification	Divorced women	Divorced men Married men Unmarried men

Source: Van Aelst (2016).

lasting changes in values. The Gender Marker tool based on the framework mentioned above (DFID PPA Learning Partnership Gender Group, 2015) has been useful in providing practitioners with a proxy indicator against which to measure progress, push colleagues, foster traction and develop accountability. Tools could be developed through a similar process to developing the Gender Marker to help mainstream resilience.

1.3 Gender equality and resilience require transformative change

To improve people's quality of life, gender mainstreaming and resilience-building both need to be 'transformative'. This means fundamentally changing power relations and recognising the societal structures that both undermine and constrain resilience (Bahadur et al., 2015). In other words, this is using a gender-transformative approach as a means to transform power imbalances between those who decide, those who control resources, those who have their voices heard and those who do not. However, transformation as a concept has not been commonly defined, with usages varying from 'transformation of gender relations' to 'social transformation' or 'transformative agendas' or 'transformational projects' (Moser, 2016). In the context of urban areas, Moser highlights that transformation means going beyond a focus on women's basic needs, vulnerabilities and exclusion and 'moving toward collective action capable of challenging fundamental inequalities'.

CARE has adapted the Social Analysis and Action (SAA) approach to address social norms and barriers in resilience programming as a foundation for broader transformation. Within pastoral communities in Ethiopia, many social norms hinder women and girls in building their resilience capacity. Whether women are able to own livestock and other assets, their voice in household economic decisions, their ability to participate in community decision-making and harmful traditional practices such as early marriage are examples of significant factors that can reduce their ability to deal with shocks and stresses. The SAA approach encourages critical reflection, dialogue and action around these underlying causes of poverty and inequality.

The starting point for the approach is an internal reflection from the NGO implementing staff on their own positions and cultural background that influence their work with communities, and how they can effectively address sensitive social norms with communities. Through the follow-on stages of reflection with the community, participatory development of action plans and inclusive and knowledgeable facilitation, the aim is to foster behaviour change coming from within the community. CARE's application of this approach in its resilience programming in Ethiopia has demonstrated how transforming social norms within individuals and in communities is fundamental to supporting women and girls' capacity to build their resilience.

Other initiatives that currently link gender-transformative approaches with resilience-building include the action plan drafted by the Asian Ministerial Conference on Disaster Risk Reduction for implementing the Sendai Agreement on Disaster Risk Reduction in Asia. GenderCC – Women for Climate Justice is also implementing a project that integrates gender and social aspects into climate policies, in several pilot cities. It aims to both promote gender equality in policy-making and enhance the effectiveness, inclusiveness and acceptance of mitigation and adaptation strategies, such as providing access to clean and affordable energy and transport services (Gender CC – Women for Climate Justice, 2016).

The goal of moving towards an improved state or more positive and enabling social norms implies programming needs to be flexible and develop gradual steps to adjust with incremental change. Agencies aiming to change social norms are likely to encounter resistance, which points to the need for caution and the importance of relying on and working with local organisations and potential gate-keepers in the long term (Sugden, 2016).

1.4 Moving forward: Asking difficult questions to foster more equitable and lasting changes

Academics and practitioners who have documented the mainstreaming of gender equality and resilience in development work stress the challenge of translating concepts into practice. In particular, the emphasis on transformation implies that programming is informed by contextual and power analyses, to understand the root causes of inequality and exclusion, and the subsequent vulnerabilities, capacities and risks of people according to their social identities.

A more transformative goal for gender mainstreaming and resilience-building calls for organisations to go beyond simply implementing gender-sensitive activities towards activities that challenge the root causes of socioeconomic inequalities. Specific outcomes of a transformative programme would include women's inclusion in, and leadership of, decision-making at all levels to enhance their community's resilience to deal with shocks and stress and adapt to new situations, not just survive. Broader outcomes would include change that benefits

not just the participants of projects but also their wider communities and beyond the completion of interventions.

The Learning Partnership on Gender framework (DFID PPA Learning Partnership Gender Group, 2015) is helping articulate how development projects can mainstream both gender equality and resilience, making these concepts core objectives. However, integrating these linkages into existing organisational theories of change requires long-term engagement beyond traditional project cycles, and iterative adaptation in dynamic contexts.

Areas for further action to support the linked goals of resilience and gender equality include:

- defining what transformation means when mainstreaming gender equality and resilience and the fundamentals for transformative approaches (which can help guide future programming)
- improving ways to measure transformation; developing monitoring and evaluation that goes beyond measuring gender sensitivity and participation
- further research in demonstrating the long-term impact of transformative programming in achieving gender equality, women and girls' empowerment and building resilience (compared with gender-sensitive and non-transformative approaches)
- establishing a sustained learning process with donors and implementing agencies, with approaches that have not worked also documented
- striving towards gender equality in organisations themselves to better inform and implement transformative changes in social structures

Mother and child from Mosul area at a displacement site in Koysinjaq, Iraq. Photo: IOM/UN Migration Agency, 2014.

2. Resilience on Twitter: Insights on influencers, networks and topics

2.1 'Listening in' on Twitter conversations on resilience: Methods

Short-form social media platforms like Twitter offer opportunities to tune into conversations around research uptake and policy-influencing processes. The informality and the few participation barriers of the media lend themselves to potentially unlocking insights that would otherwise be unobtainable through traditional means of media monitoring. Social media is rapidly changing how research is communicated and the ways in which audiences engage with the communication process.

This section provides an analytical snapshot for April–August 2016 of:

1. the key influencers generating and catalysing online conversations on resilience
2. the popular topics in online conversations on resilience and the prominent themes
3. the origins of the social media chatter on resilience, and who is talking to whom

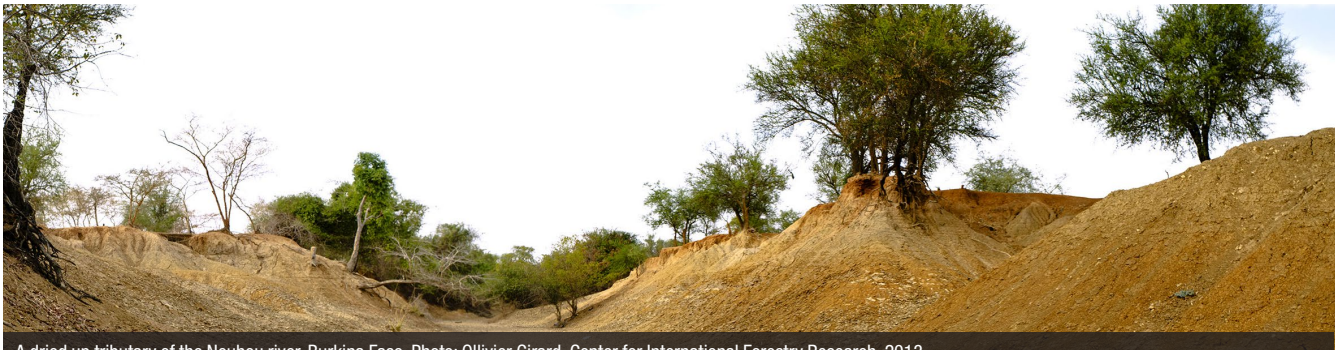
Seven datasets comprising of Twitter conversations on or specifically relevant to resilience in the context of eight sectors (climate, disasters, agriculture, food security, conflict, urban, water, economic) were created using the Twitter Application Programming Interface (API). The datasets are analysed in two ways: content analysis (to explore thematic structures) and social network analysis (to map conversational and influence networks). For each of the seven sectors, the analysis is summarised in three sections:

1. a word cloud showing the most frequently used terms on the concept of resilience in the sector; this represents a visual snapshot of the thematic focus of these conversations
2. a list of the most prominent discussion themes
3. a conversational social network map: the network maps comprise of nodes (which represent Twitter handles of organisations or individuals) and ties, which are the lines connecting the nodes (representing relationships and interactions)

a The node size (or handle font size) helps the reader determine at a glance the key players in a network. The larger the node, the more its influence in terms of organisational prominence and/or conversational interaction.

b The maps show conversational clusters that represent who is talking to whom on the pertinent topic (e.g. climate and resilience), with the Twitter accounts of prominence often (but not necessarily) driving the conversations, in the centre. The closer a node is to the centre of its conversational cluster, the more vocal or influential in conversations on this topic the player in question is.

The cross-cutting insights from this analysis are discussed at the end of the section.



A dried up tributary of the Nouhou river, Burkina Faso. Photo: Ollivier Girard, Center for International Forestry Research, 2013.

2.2 Climate resilience

What has changed since the last scan?

The climate resilience Twitter networks exhibit more overlap with the water and food security resilience contexts than in previous scans, reflected in both the conversational network maps and the topic analysis. Some topics continue to feature prominently, as in previous scans. An example is how island communities develop climate resilience, which can be directly linked to conversations driven by central influencers like @worldbank to promote new research (see the #pacificpossible hashtag).

Top influencers on climate resilience:

- @worldbank: The World Bank
- @wwatercouncil: World Water Council
- @cechr_uod: Centre for Environmental Change & Human Resilience
- @icrisat: International Crops Research Institute for the Semi-Arid Tropics
- @wfp: The World Food Programme
- @cgiar: A global agriculture partnership

Conversations on climate resilience focus on:

- ways indigenous communities develop climate resilience
- climate disasters
- climate adaptation strategies in different contexts
- the role of economic policy and private capital to support climate resilience
- ways to support various global communities to face climate resilience

Figure 2: Influence map of conversations on climate resilience:

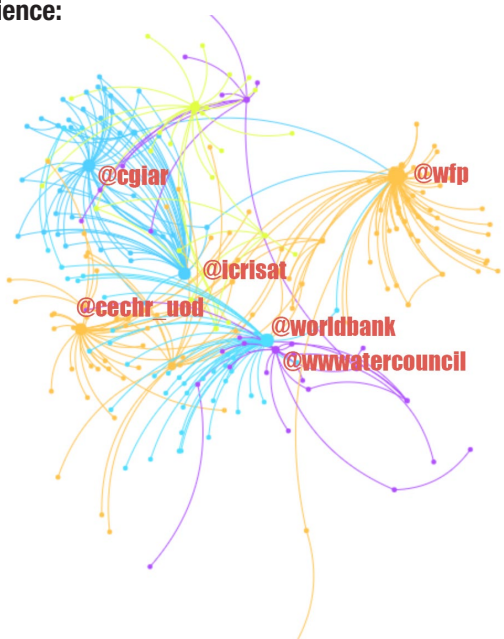
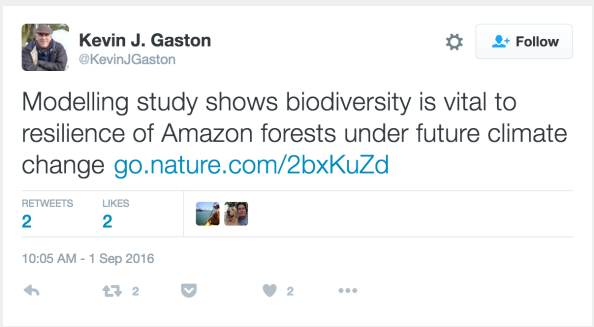


Figure 3: Climate resilience word cloud:

Figure 4: Examples of climate resilience tweets:



2.3 Agriculture resilience

Conversations on agriculture resilience focus on:

- climate-smart agriculture (CSA)
- ways open data can support promoting agriculture resilience
- the impact of water shortages on farming and food security
- innovation in farming technologies (such as the use of solar energy)

What has changed since the last scan?

As in previous scans, conversations on agriculture resilience continue to feature prominently. Conversations on the African regional context are amplified during this quarter, largely because of the #agrf2016 hashtag (African Green Revolution Forum).

Top influencers on agriculture resilience:

- @rockefellerfdn: The Rockefeller Foundation
- @sd_ag_labs: South Dakota Agriculture Labs
- @agraalliance: Alliance for a Green Revolution in Africa
- @theagrf: The Africa Green Revolution Forum
- @nature_org: Nature Conservancy

Figure 6: Agriculture resilience word cloud:

Figure 7: Influence map of conversations on agriculture resilience:

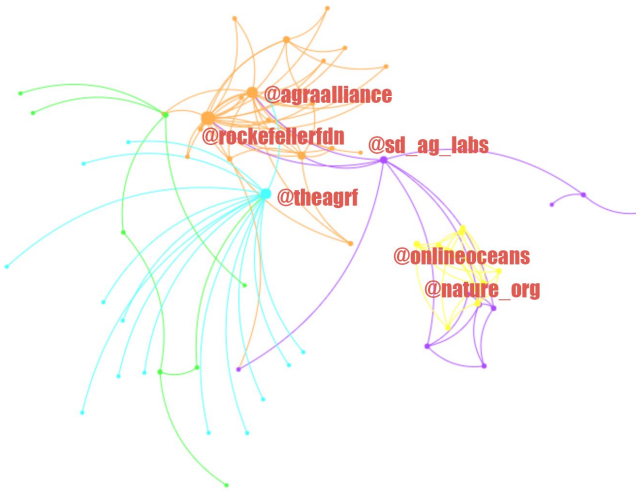


Figure 5: Examples of agriculture resilience tweets:

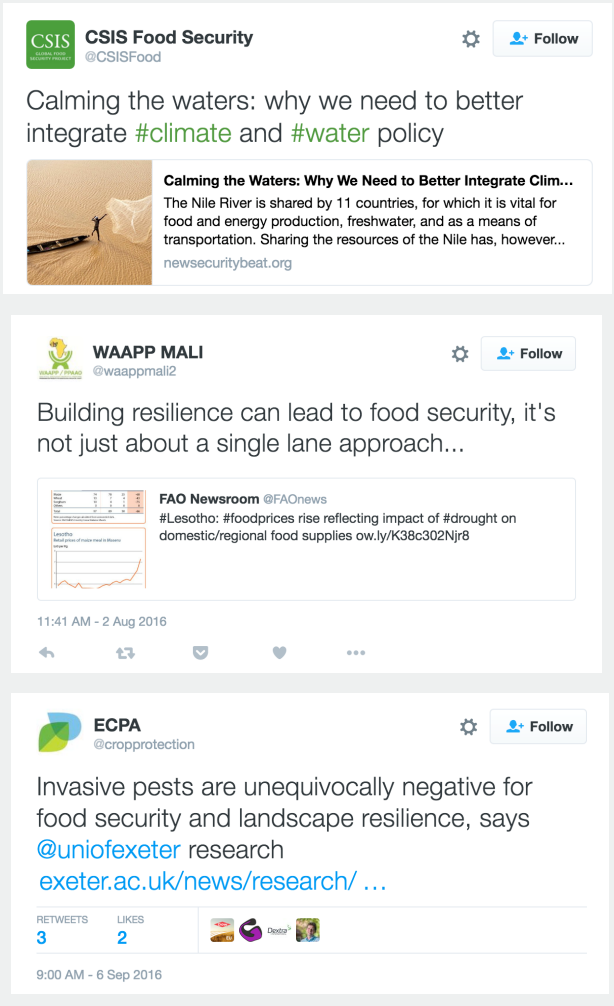
2.4 Food security resilience

Figure 8: Food security resilience word cloud:

Conversations on food security focus on:

- the intersection of food security and conflict
- developing innovative farming technologies and efficient agriculture value chains to improve food security resilience
- the role of climate justice in promoting food security resilience
- the integration of climate and water policy
- threats from invasive pests to food security resilience

Figure 9: Examples of food security resilience tweets:



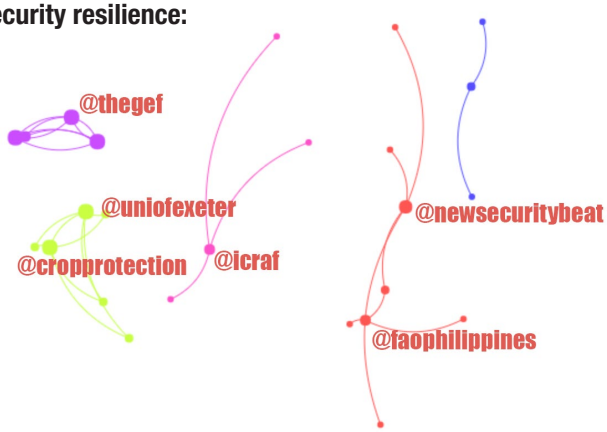
What has changed since the last scan?

There is a relatively lower volume of conversations on food security resilience compared with the January–March scan. However, new topics appear in conversations in this context, such as 'Ecotheology'.

Top influencers on food security resilience:

- @newsecuritybeat: New Security Beat
- @faophilippines: The Food & Agriculture Organization of the United Nations (#UNFAO) in the Philippines
- @icraf: The World Agroforestry Centre
- @cropptotection: European Crop Protection Association
- @thegef: The Global Environment Facility

Figure 10: Influence map of conversations on food security resilience:



Gender transformation is key to lasting agricultural development in the face of food insecurity. Photo: Chris Bene, 2003.

2.5 Conflict resilience

Figure 11: Conflict resilience word cloud:

What has changed since the last scan?
Conversations on the regional contexts of conflicts in Syria and Yemen are dominating the conversations on conflict resilience. As in previous scans, there is significant topic overlap between conflict resilience and food security resilience.

Top influencers on conflict resilience:

- @tji_: The Transitional Justice Institute
- @UNDP_GCRED: UNDP Global Centre focusing on resilient ecosystems & livelihoods
- @ christianaidirl: ChristianAid Ireland
- @newsecuritybeat: New Security Beat
- @katiepetersodi: Katie Peters, Research Fellow at Overseas Development Institute

Conversations on conflict resilience focus on:

- ways to mitigate the impact of conflict on vulnerable populations
- the intersection of conflict, access to resources and food security
- strategies for post-conflict recovery
- ways to develop conflict resilience in contexts of protracted and intractable conflicts
- the intersection of disasters, conflict and climate change

Figure 13: Influence map of conversations on conflict resilience:

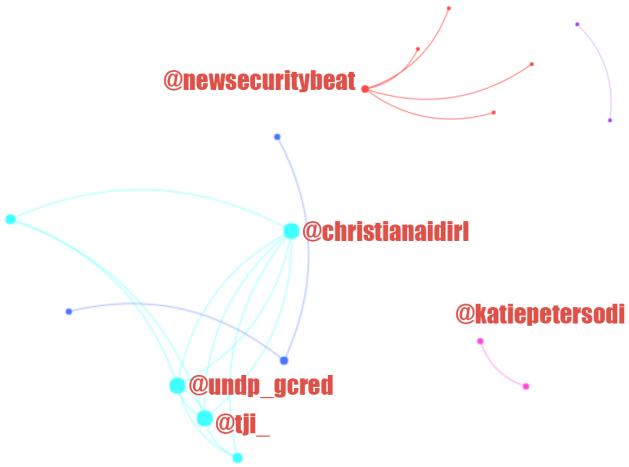


Figure 12: Examples of conflict resilience tweets:

2.6 Urban resilience

What has changed since the last scan?

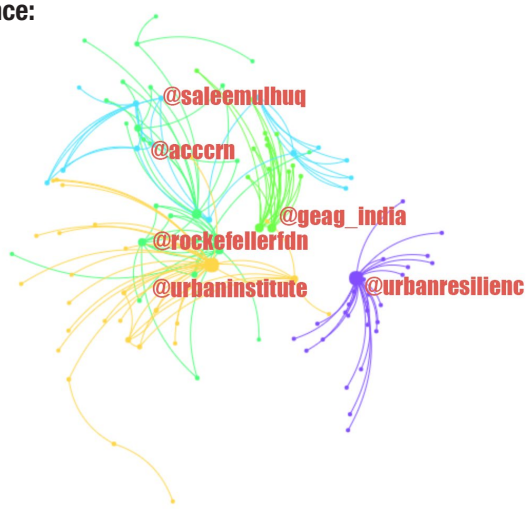
Conversations on innovative design, technology and engineering to strengthen urban resilience continue to feature prominently. There is notable convergence of conversations on the urban and economic resilience sectors.

Top influencers on urban resilience:

- @acccrn: Asian Cities Climate Change Resilience Network
- @SaleemulHuq: Director, @ICCCAD and Senior Fellow, @IIED.
- @rockefellerfdn: The Rockefeller Foundation
- @urbanresilienc: Urban Resilience
- @urbaninstitute: Urban Institute
- @geag_india: Gorakhpur Environmental Action Group

Figure 14: Urban resilience word cloud:

Figure 16: Influence map of conversations on urban resilience:



Conversations on urban resilience focus on:

- innovative engineering and design for building smarter cities
- urban economic resilience
- the impact of climate change on urban resilience
- ways to strengthen urban resilience against disasters and natural hazards
- ways to strengthen the resilience of vulnerable urban communities
- emerging technologies and how they can be used to strengthen urban resilience

Figure 15: Examples of urban resilience tweets:

2.7 Water resilience

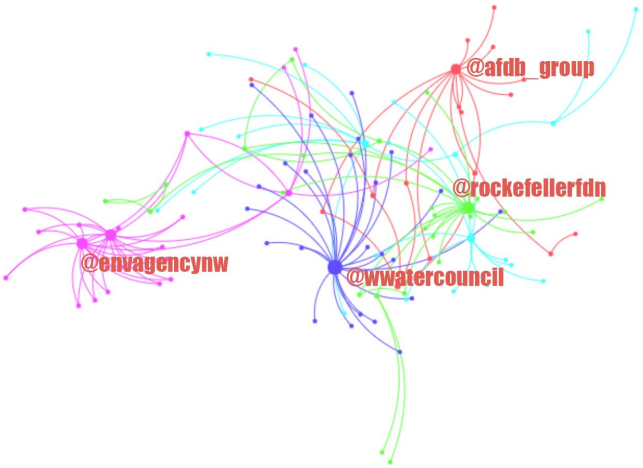
What has changed since the last scan?

Conversation networks in this sector remain largely institution-driven. Conversations on droughts, floods and access to water for drinking and agriculture still feature prominently.

Top influencers on water resilience:

- @rockefellerfdn: The Rockefeller Foundation
- @afdb_group: The African Development Bank Group
- @wwatercouncil: The World Water Council
- @envagancynw: A UK-based environmental agency

Figure 17: Influence map of conversations on water resilience:



Conversations on water resilience focus on:

- strengthening water resilience of communities in flood- and drought-prone areas
- impact of access to water for agriculture on food security
- innovation in water management and technologies
- water management strategies in vulnerable contexts

Figure 19: Water resilience word cloud:

Figure 18: Examples of water resilience tweets:

2.8 Economic resilience

What has changed since the last scan?

The economic resilience sector remains thematically diverse. The most prominent conversations are those on measuring economic resilience and strengthening economic resilience in cities. A new topic under this sector in this scan is cyber-resilience and its impact on global economics.

Top influencers on economic resilience:

- @worldbank: The World Bank
- @r4resilience: R4 Resilience
- @unglobalpulse: The United Nations Global Pulse
- @davos: The World Economic Forum
- @urbaninstitute: Urban Institute

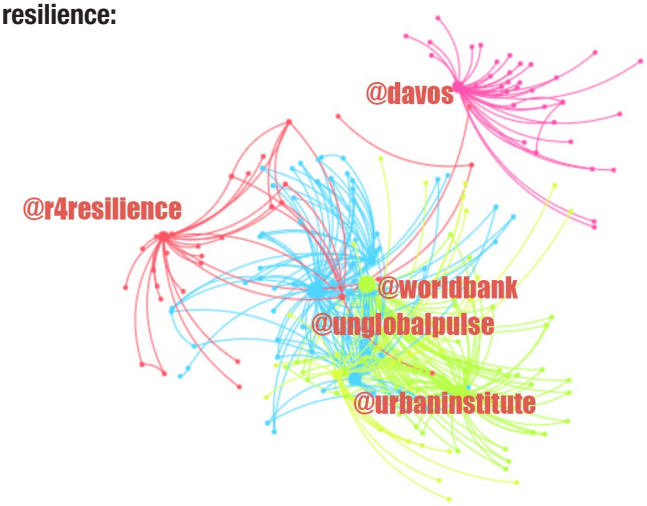
Conversations on resilience focus on:

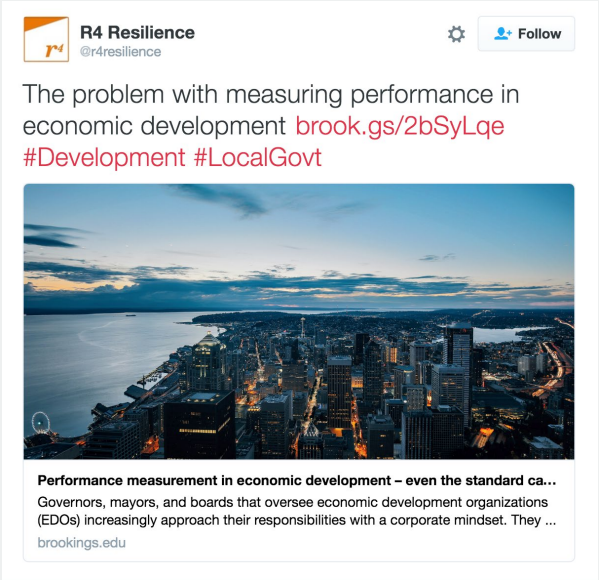
- post-Brexit economic crisis
- strategies aimed at bolstering economic resilience in different contexts
- ways to strengthen economic resilience in cities
- metrics for measuring economic resilience

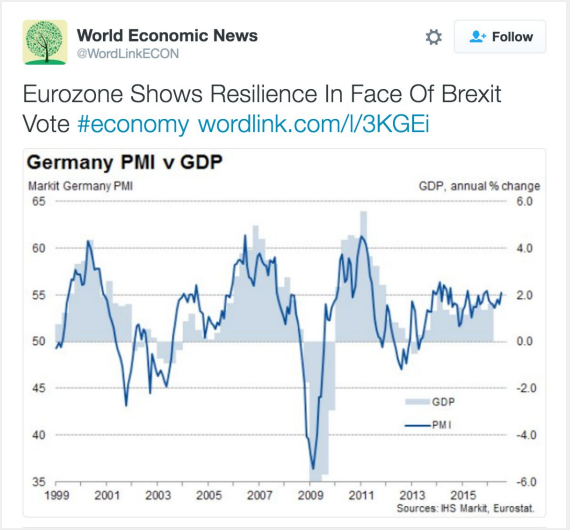
Figure 21: Economic resilience word cloud:

Figure 20: Examples of economic resilience tweets:

Figure 22: Influence map of conversations on economic resilience:







2.9 Reflections on Twitter analysis

As in previous resilience Twitter scans, climate resilience claims the largest conversational prominence. Water resilience conversations have lower visibility compared with in the previous scan, whereas urban resilience tweets have increased, which may be attributed to the wide-ranging relevance of the topic (cities and urban areas are present in discussions on resilience in nearly all seven sectors) and the build up to the Habitat 3 conference. The other five sectors have experienced little fluctuation in terms of conversational visibility since the last scan. Themes of gender, innovation and context-appropriate responses and success stories remain common denominators across all sectors. A topic of increasing cross-cutting prominence is the role of big data in strengthening and studying resilience in various contexts.

Who tweets about resilience?

Institutional voices still enjoy the widest discursive visibility, largely because of the professional social media management resources most institutions are able to employ, but more individual experts and academics are joining the conversations and acquiring their share of discursive visibility.

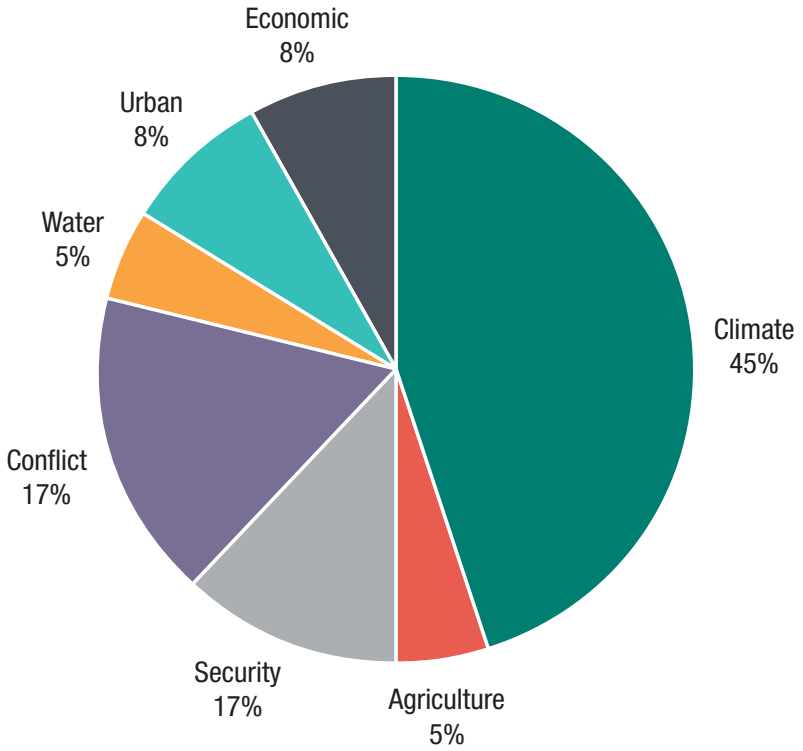
'As in previous resilience Twitter scans, climate resilience claims the largest conversational prominence.'

How is resilience tweeted about?

As the dominant mode of tweeting about resilience is expert-driven, formal and more link-broadcasting than discursively interactive, a defining feature of these conversations remains the expert/institution 'echo chamber' effect. That is, aside from a few exceptions, there is little engagement between top Twitter resilience experts and wider Twitter communities that may be of relevance to resilience themes but that does not specifically focus on resilience. Additionally, most conversational clusters are driven by a few very central and visible influencers, as a comparison with previous scans' conversational networks shows. There is significant overlap between several topic networks, such as the water and agriculture sectors, conflict and food security and the economic and urban sectors.

It is important to note that this study adopts a topic-driven approach. Since the network maps and conversational clusters generated from the datasets represent the accounts that are central to how the relevant topics are discussed at a certain point in time, these networks are in constant flux, and 'influence' as a measure of impact on how a topic is communicated and who is driving the conversations is constantly changing. Another factor to consider is the extent to which a temporary spike in the conversational visibility around certain themes happen owing to events such as academic and professional conferences with themes of relevance to the sectors under analysis, as noted by some of the relevant hashtags in the sectors analysed.

Figure 23: What does Twitter discuss when discussing resilience?



3. Resilience in the grey literature

Our examination of papers on resilience published from July to September 2016, includes 31 papers from research and private sector institutions, donors and multilateral agencies. These span six broad themes: frameworks, guides and methods of measuring resilience; urban resilience; food, water and ecosystem resilience; conflict and migration; climate and disaster resilience; and inclusion and protection. Compared with last quarter's scan there has been a decrease in the number of papers discussing social protection and inclusion issues as well as post-2015 international frameworks and a marked increase in the focus on migration and conflict.

3.1 Frameworks, guides and methods of measuring resilience

Grey literature on frameworks, guides and methods of measuring resilience suggests:

- Flexible, innovative, diverse and long-term financing is required to support resilience-building activities and the ability to respond rapidly to shocks.
- There is a need for a human rights-based approach (HRBA) to resilience frameworks and programmes so that they address the underlying causes of vulnerability.
- Resilience indicators should be generated by communities and programme participants and must be context-specific.
- Resilience measurement methods must be based on dynamic frameworks that include a time dimension.

Frameworks, guides and methods of measuring resilience represent the most discussed theme in the grey literature from July to September 2016 summarised in this scan. Four of the papers present and consider different resilience frameworks and the best ways to use them, while two add to the growing body of literature on methods to measure resilience. The final two papers describe innovative tools and guides for accruing finance and capacity to build resilience.

Ewbank (2016) draws on Christian Aid's programming experience to compile a report providing insights into the most effective and accurate ways to measure the impacts of resilience programming. This approach involves 1) establishing information-gathering and management mechanisms; 2) creating an environment for learning e.g establishing strong relationships and fostering inclusivity with and among stakeholders; 3) guiding the strategy/theory of change; and 4) supporting dialogue and advocacy. The paper further highlights the importance of context-specific resilience indicators that are specific, measurable, achievable, relevant and time-bound (SMART). Indicators can and should be generated by communities or participants involved in the programme.

Similarly, d'Errico et al. (2016) discuss quantitative methods of measuring resilience through indicators, variables, scales or models. This paper provides a more technical discussion of the methods and considers the procedures that can be used to define the set of indicators that represent resilience; it also considers the procedures used to examine relationships in which resilience is an influencing factor. Much like Ewbank (2016), d'Errico et al. consider resilience as a multidimensional variable, described as a function of a number of dimensions that express different aspects of resilience. The paper also highlights the advantages of dynamic data frameworks that differ from static data frameworks in that they include a time dimension and therefore provide a more complete quantitative analysis of resilience dynamics.

Four of the eight papers within this theme present or consider existing resilience frameworks. Singh et al. (2016) provide a full discussion of ActionAid's Resilience Framework, which adopts an HRBA and is based around three main pillars: empowerment, solidarity and campaigning. The ActionAid Resilience Framework focuses on strengthening the ability of individuals and communities to recognise, challenge and transform the power structures that contribute to their vulnerability, thereby helping build resilience over time. ActionAid as an organisation places 'equal and just power' at the centre of its Resilience Framework and provides four core interventions it considers crucial to achieving this central aim of addressing the risks and vulnerabilities of disaster-prone communities.

‘The paper reiterates the importance of an HBRA that concentrates on understanding people’s vulnerability and tackling the underlying factors that make individuals or communities vulnerable, while also reinforcing inequality.’

These interventions include 1) realising human rights and access to basic services; 2) gaining awareness, knowledge and skills; 3) developing collective action and partnership; and 4) strengthening institutions and influencing policy.

ActionAid (2016) adds to Singh et al. (2016) by providing individual resilience programming frameworks for four specific hazards (floods, cyclones, earthquakes and droughts), and for supporting safe schools in disaster-prone areas. The frameworks aim to support practitioners in developing and implementing more effective and integrated resilience programmes. The paper reiterates the importance of an HBRA that concentrates on understanding people’s vulnerability and tackling the underlying factors that make individuals or communities vulnerable, while also reinforcing inequality.

The Framework for Resilient Development in the Pacific (FRDP) encompasses three main goals: 1) strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters; 2) low-carbon development; and 3) strengthened disaster preparedness, response and recovery. Under each goal, the framework provides a range of priority actions for national and subnational governments and administrations, civil society and communities, the private sector, regional organisations and other development partners. The paper highlights the need for comprehensive collaboration and cooperation between development partners in support of Pacific Island Countries and Territories (PICTs), but also notes that the specific components of the FRDP provide guidance only, and should be implemented in accordance with the individual needs, priorities and context of different stakeholders and of each individual country (Pacific Community et al., 2016).

The Asian Development Bank (ADB) (2016) presents an organisational resilience framework for building the resilience of ADB and its operations. The majority of ADB’s critical operations are located at its headquarters in Manila, Philippines, which is at risk of a range of natural hazards including flooding, extreme storm events and seismic and volcanic activity. The Organisational Resilience Framework aims to shift ADB’s operations from the current focus on recovery and a continuation of a small number of priority business processes, to a more proactive focus on risk anticipation, mitigation and adaptation to changing conditions. At the centre of the framework are the attributes of governance, leadership and culture, and a common vision and purpose. The framework features 10 key operational components into which resilience must be built, which include finance, compliance, supply chain, security and emergency response, data processing and information and communication technology.

Finally, BRACED (2016a) provides an evaluation design to assess how flexible finance and development investments can be combined to deliver enhanced resilience. The report examines how BRACED programme’s implementing partners can make use of Providing Humanitarian Assistance for Sahel Emergencies (PHASE) contingency funding. This funding is designed to provide assistance to vulnerable areas after early warnings to safeguard the resilience-strengthening progress being made through the programme.

3.2 Urban resilience

Grey literature on urban resilience suggests:

- There is a need for a low-carbon urban transformation driven by equal transformations in local, national and international urban governance.
- Strengthening capacity at the urban administration and planning level can improve resilience and fight corruption.
- There is a need for increased coordination and cooperation on international urban policy frameworks between UN agencies, NGOs, civil society and community groups.
- Recent economic growth accompanied by rapid urbanisation in Africa is resulting in increased vulnerability and exposure to a wide range of hazards such as flooding, leading to increased diseases prevalence.
- The New Urban Agenda must build on the work of the Sustainable Development Goals (SDGs) and the COP21 Paris Agreement to reduce discriminatory exclusion.

Four of the 31 grey literature papers presented here focus on urban resilience, all highlighting the importance of effective and participatory local governance in building resilient urban areas. Two discuss the risks facing urban populations in Africa and provide recommendations on how to build resilience

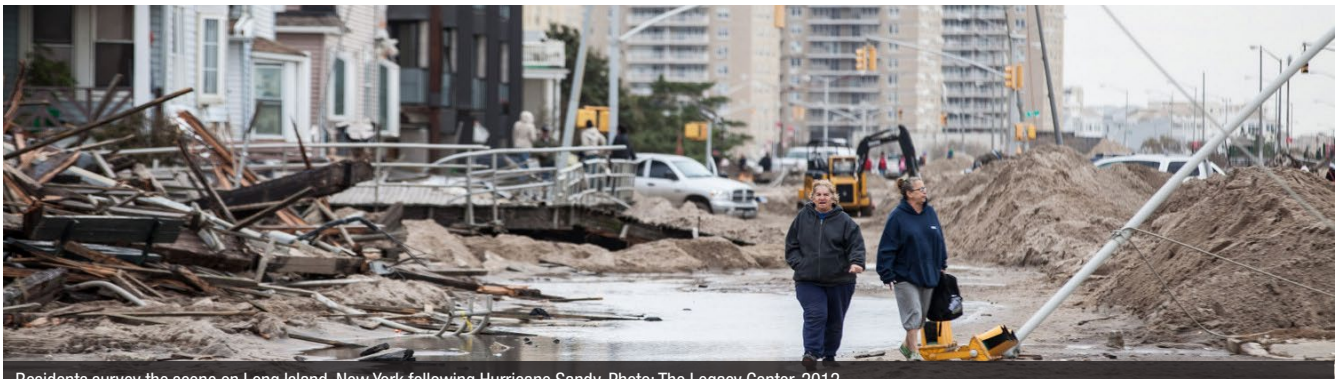
and manage these (Arup, 2016; Pharoah, 2016). Two further papers consider urban resilience in terms of frameworks and guides for building urban resilience (Junghans and Grimm, 2016) and in international policy and the post-2015 international frameworks (Satterthwaite and Dodman, 2016).

Pharoah (2016) draws on a review of the literature on urban risk in Africa and fieldwork undertaken in three cities in Senegal, The Gambia and Zimbabwe to provide insights into some of the risks facing the urban poor in Africa. The author finds strong links between disaster risk and lack of development, thereby highlighting the need for good development that addresses the underlying vulnerability and risks that exist within each given context. The paper provides six overarching recommendations for building urban resilience: 1) empower communities to identify, reduce and manage risk; 2) strengthen government's capacity to reduce risk, particularly at the local level; 3) strengthen urban planning and regulatory frameworks; 4) facilitate dialogue and collaboration to reduce risk; 5) stronger relationships and collaboration between NGOs, UN agencies, civil society and community groups; 6) focus areas to include working with communities to identify, strengthen and diversify livelihood opportunities, particularly for young women and men.

Similarly, Arup in four reports (each focusing on different countries in Africa – Ethiopia (2016a), Ghana (2016b), Mozambique (2016c) and Uganda (2016d) – describes the main threats that large cities face, as well as outlining each country's national urban strategy and specific regional planning typology. Many of the African cities examined are characterised by rapid economic growth and urbanisation, often resulting in trade-offs as rapid urbanisation puts pressure on limited natural resources and public services. Moreover, the reports find most cities face a wide range of hazards, such as flooding, extreme temperatures, drought, water contamination and decreasing air quality.

Junghans and Grimm (2016) synthesise existing approaches and lessons from the many handbooks and guidelines aimed at helping local governments address climate change, develop long-term planning strategies and identify financing mechanisms. The paper advocates for 'urban transformation' in order to cut emissions and advance low-carbon climate-resilient development. It also provides recommendations for local, national and international level policy-makers on how to achieve this transformation. In terms of guidelines for national governments, the paper recommends equipping cities with the necessary powers to make low-carbon and climate-resilient decisions and the capacity to implement those decisions; integrating cities better into national and regional decision-making processes by giving them opportunities for participation in national governance processes; fighting corruption; ensuring responsible private investment; and mobilising private capital for urban infrastructure.

Satterthwaite and Dodman (2016) consider urban resilience at the international policy level by discussing the role of the New Urban Agenda within the post-2015 international framework landscape. The authors note that, as the New Urban Agenda is being developed in the shadow of the SDGs and the Paris Agreement, there is an opportunity to delve more deeply into how actors can build and strengthen institutional, governance and financial frameworks and complement the goals and commitments already outlined in the other post-2015 frameworks. The authors provide five steps needed for a substantial and effective New Urban Agenda: 1) a transformative vision that requires more focus on addressing urban governance transformation; 2) political astuteness so as to remove discriminatory exclusion and ensure prevailing institutions support the agenda and human rights are fully met; 3) Contribute to stronger urban economics by helping reduce distortions, increase the supply and reduce the cost of land for housing and support a re-think of regulations and subsidies; 4) appropriate data, addressing the gap in monitoring performance on achieving goals; and 5) avoiding wrong agendas, such as negative discourse around migrants and the urban poor leading to increased inequality and exclusion of these vulnerable groups.



Residents survey the scene on Long Island, New York following Hurricane Sandy. Photo: The Legacy Center, 2012.

3.3 Food, water and ecosystem resilience

Grey literature on food, water and ecosystem resilience suggests:

- There has been a decrease in the diversity of firms dominating the agri-business sector.
- There is a need to include ecosystem-based adaptation within countries' National Adaptation Plans (NAPs).
- Climate and rainfall in particular affect farmers' CSA decisions and therefore their overall farm income.
- There is a need for farmers to adopt a combination of CSA practices.

The theme of food, water and ecosystem resilience featured in the grey literature four times, with half the papers considering CSA practices and the other half presenting innovative ecosystem-based adaptation (EbA) strategies to build resilience. All of these reports and studies recognise the importance of CSA practices for the most marginalised, and highlight the need for more research on the way various actors and processes could help facilitate its development and progress.

The first report in this theme stresses the importance of agricultural development in improving food security and nutrition as it increases the quantity and diversity of food, drives economic transformation and provides the primary source of income for many of the world's poorest people (HLPE, 2016). The report highlights the increasing demand for global agricultural production owing to increased population and incomes, while also recognising the challenges associated with this change. The authors warn that intensification and industrialisation of agricultural production along with expanding international trade is causing a decrease in the number and diversity of firms dominating the agri-business sector. They stress the following challenges for agriculture in the present day: resource efficiency, economic risks in agricultural markets, safe working conditions, female discrimination, animal disease and welfare. To address these challenges, the paper provides several detailed recommendations that have been tailored to help global farming systems achieve sustainable agricultural development, which they state will contribute to resource efficiency, strengthened resilience and social equity. The recommendations include maintaining and improving grassland management practices, improving connections to markets, creating diversified market opportunities and recognising and enabling the role of women within such systems.

Taklewold (2016) examines the impact of climate change on the choices farmers are making with regard to CSA practices such as agricultural water management, improved crop seeds and fertiliser usage. The study goes on to demonstrate the impact these decisions have had on farm income in Ethiopia. The study found farmers were less likely to use fertilisers in areas of higher rainfall, and net farm income responds positively to agricultural water management, improved crop variety and fertilisers. This relationship was evident when CSA practices were adopted in isolation of each other; however, when the practices were combined, the positive effects were enhanced. Similarly, Cumani and Rojas (2016) present data from the prototype tool DROUGHT SMART (System for Monitoring and Assessment in Near Real Time) developed by the Food and Agriculture Organization (FAO). The study examines the occurrence, frequency and intensity of drought events, as well as the environmental, agricultural and socioeconomic characteristics of drought-prone areas across the globe. The author identifies the specific advantages of the DROUGHT SMART tool in terms of its ability to provide timely, reliable, disaggregated subnational data that is easily accessible. Nevertheless, the paper also recognises the need to supplement and complement this data with field data at the subnational level.

Finally, an International Institute for Environment and Development (IIED) and International Union for Conservation of Nature and Natural Resources (IUCN) (2016) briefing argues for the increased uptake of EbA in NAPs and provides actions to achieve its appropriate implementation. The paper highlights the many benefits and co-benefits of EbA: carbon sequestration, building resilience to hazards, combating desertification, supporting livelihood diversification and promoting sustainability in sectors such as agriculture, forestry, energy, water, social justice and education. Despite the fact that only 17% (23 countries) of Intended Nationally Determined Contributions (INDCs) explicitly mention EbA, the authors found 109 countries were implicitly doing EbA or planning to do so. The paper advocates for clear and measurable targets through which to assess progress towards implementation. It also highlights the need for increased recognition of the potential of EbA in helping countries achieve sustainable and equitable development, while noting the major challenge of making sure adaptation planning is based on both local needs and ecosystem and climate science.

3.4 Conflict and migration

Grey literature on conflict and migration resilience suggests:

- There is a need for further consideration and development of best practice for the use of managed population retreat as an adaptation strategy.
- Migration and forced displacement can result in a multitude of negative and positive impacts for host communities.
- There is a need for collaboration and scaling-up of successful projects in areas where institutional and organisational capacity is lacking.
- With increasing converging crises, risk must become a central and cross-cutting feature of development and humanitarian agendas.
- Risk and resilience is emerging as a lens through which intersections of climate, disasters, conflict and fragility can be understood.

Conflict and migration present the second largest theme within the grey literature, with seven papers focusing on either conflict or migration or a combination of the two, in contrast with in the previous scan, which didn't feature any papers on migration and only a small number on conflict. Within this quarter, one paper explores the nexus between conflict, migration and climate, another discusses planned relocation as an adaptation strategy and two focus on multiple issues surrounding protracted crises, including displacement. Three papers consider the role of international policy and international development organisations in supporting displaced and host communities, while also outlining the specific impacts of forced displacement and migration.

Fan (2016) discusses the inter-linkages and complex relationship between migration, conflict and climate. The paper draws on existing literature on these issues to provide some specific conclusions: conflict and fragility increase vulnerability to hazards and weaken the capacity of governments and local institutions; disasters can exacerbate conflict and social exclusion; and, with increasing converging crises, 'risk' must become a central and cross-cutting feature in development and humanitarian agendas. The paper highlights the emergence of 'risk and resilience' as a lens through which the intersections between disasters, conflict and fragility can be understood.

The International Committee of the Red Cross (ICRC) (2016) and FAO (2016) discuss the issues of protracted crises and conflict. The ICRC presents a theoretical and legal analysis of protracted conflict, whereas the FAO report discusses the impact of protracted crises more generally on migration. The former explains that protracted conflicts are characterised by longevity, unpredictability and instability. It notes that the nature of protracted conflicts has changed in recent times, in that they affect middle-income countries as much as low-income countries. At the same time, they tend to attract more humanitarian and media attention, meaning states and civil society increasingly view the issues through the lens of international law. The consequences of protracted crisis are severe, and can be both immediate and cumulative. The ICRC therefore promotes a combined short- and long-term approach in order to ensure it is able to respond rapidly while also planning for the future.

The FAO report highlights how almost half a billion people live in over 20 countries affected by protracted crisis. It notes that forced migration in these areas is often caused by one or a combination of three factors: 1) conflict; 2) poor governance; and 3) environmental factors and natural resource constraints. Forced migration is described as having a negative impact on host communities owing to increased competition over resources and loss of crops and assets. At the same time, it is seen to have a positive impact as a result of extra capacity to fill labour shortages and through the promotion and sharing of additional knowledge and skills. The paper describes FAO's role as threefold: 1) to help address protracted crisis as the root of displacement; 2) to strengthen the resilience of those affected, or at risk of being affected by protracted crises, including migrants, displaced people and host communities; and 3) to help communities harness the potential positive contribution of migrants and displaced people, whilst fostering sustainable integration.

The UN Development Programme (UNDP) (2016b) draws on the experiences of five great lake countries, Burundi, the Democratic Republic of the Congo (DRC),

'The FAO report highlights how almost half a billion people live in over 20 countries affected by protracted crisis. It notes that forced migration in these areas is often caused by one or a combination of three factors: 1) conflict; 2) poor governance; and 3) environmental factors and natural resource constraints.'

Displacement in Zam Zam camp for Internally Displaced People (IDP), North Darfur. Photo: UN/Albert Gonzalez Farran, 2014.

Rwanda, Tanzania and Uganda, to discuss cross-border and multi-country approaches to addressing forced displacement. The UNDP describes its actions to address displacement at the country level, which are focused around six main areas: 1) strengthening the evidence base through joint assessments and analysis; 2) analysing and addressing the root causes of displacement and drivers of migration; 3) supporting government partners with national and local strategies; 4) policy and institutional development; 5) supporting host communities and local integration; and 6) enabling voluntary return and community-based reintegration.

Koskinen-Lewis et al. (2016) highlight the use of managed population retreat as an adaptation and resilience strategy. The paper presents case studies from São Tomé and Príncipe and Samoa, where sea level rise, flooding and coastal erosion have forced communities to leave their homes and often their livelihoods too. Lessons learnt from the case studies include the need to engage with the population, provide compensation where necessary, ensure access to livelihoods and services in relocation areas, plan for human resource requirements and prevent people returning to at risk areas, while at the same time ensuring coastal access.

Lahn et al. (2016) discuss the need for humanitarian action and strong national governance in terms of maintaining energy security in the face of increasing pressure from refugees, particularly in the case of Syrian and other refugee influx into Jordan in recent years. The paper highlights the increased pressure on public services, water and energy resources since the crisis began in 2011. The paper presents the Jordan Response Plan, which provides funding and investment, and includes three objectives focused on the energy sector: offsetting incremental energy demand, promoting energy efficiency and renewable energy and providing safe and sustainable energy for refugees and Jordanians. Participants of the workshop agreed that humanitarian agencies that lack capacity to initiate and manage new energy and water projects needed to help scale up proven successful projects. With this in mind, the report suggests the need to map ongoing projects and their details along with a clarification of the barriers for implementation of or scaling up such projects.

Finally, UNDP (2016a) presents its position on key commitments made to the New York Declaration for Refugees and Migrants, as well as a number of in-depth recommendations for the upcoming Comprehensive Refugee Response Framework and the Global Compact on Safe, Orderly and Regular Migration. UNDP reiterates its dedication to implementing the following commitments within the next five years: 1) mainstreaming migration and displacement into national development plans and SDG implementation; 2) analysing and addressing the root causes and drivers of displacement and forced migration; 3) promoting humanitarian–development cooperation in preparing for, analysing and addressing large movements of displaced persons; and 4) scaling up the response to large movements by strengthening the resilience of host communities and displaced peoples.

3.5 Climate and disaster resilience

Grey literature on climate and disaster resilience suggests:

- There is a need for strong political leadership and inter-sectoral ministerial coordination.
- National ownership is crucial to capacity-building efforts.
- There is a need for inbuilt flexibility to offset and manage the uncertainties around future climate change.

Six of the 31 grey literature papers focus on climate and disasters, with three discussing national climate resilience and disaster plans (AMCOW, 2016; Bahadur et al., 2016; Redda and Roland, 2016) and the other three presenting recommendations and examples of enhanced disaster preparedness and response (Markham, 2016; Pacific Possible, 2016; WFP, 2016).

Redda and Roland (2016) present the results of a study entitled 'Lesson learning from national climate compatible development planning', which was supported by the Climate and Development Knowledge Network (CDKN). This report presents a case study from Ethiopia and provides insights into how the country emerged as one of Africa's champions in responding to the implications of climate change. The factors behind Ethiopia's success, as presented in the report, include strong political leadership, previous experience of extreme climatic events and strong economic arguments. Other factors include the creation of an enabling governance structure, inter-sectoral ministerial coordination and the establishment of entities to attract and channel climate finance, such as national climate or green infrastructure funds.

In a similar vein in terms of considering national actions, Bahadur et al. (2016) examine five of India's State Disaster Management Plans (SDMPs), from Odisha, Uttarakhand, Gujarat, Bihar and Assam. The report highlights the need for increased clarity and demarcation of national-level responsibilities, as it found that multiple Indian authorities and ministries tasked with disaster management often overlapped in their mandates and therefore created uncertainty over specific responsibilities. Many of the plans feature detailed disaster response activities but lack such depth of detail in describing risk reduction activities. The paper highlights the need for a greater understanding and consideration of socioeconomic vulnerabilities, which includes the need for comprehensive vulnerability assessments and increased recognition and identification of the impacts of climate change. The paper also highlights the need for more in-depth consideration and guidelines for addressing the needs of women and other marginalised groups, and ensuring their meaningful participation across all disaster risk management (DRM) activities, as opposed to only within response and relief activities. Finally, the study found that the SDMPs address many of the Sendai Framework objectives but they require clearer baselines and targets, and accurate and comprehensive data collection in order to effectively measure progress against these.

AMCOW (2016) presents insights and lessons learnt from a capacity development programme entitled The Economics of Adaptation, Water Security and Climate-Resilient Development in Africa, being implemented in Burkina Faso, Burundi, Cameroon, Ghana, Mozambique, Rwanda, Tunisia and Zimbabwe. The aim of the programme is to enable planners and technical officers to identify, develop and appraise no-/low-regret investment options; these options are described as investments that bring benefits under both the current climate and a range of future climate change scenarios, and include for example increasing the height of a new bridge in order to withstand not only current but also future flood projections.

In contrast with the previous three papers, which focus on national governments and authorities, the fourth and fifth papers focus on the role of humanitarian organisations in building resilience to disasters. Markham (2016) presents World Vision's recent work aimed at minimising the impacts of climate-related disasters by focusing on preparedness and response, resilience, DRR and recovery. For example, World Vision develops agri-fishery programmes and preparedness plans in the Philippines; it also helps reduce the risk of disease outbreak by providing access to clean water through drilling boreholes and repairing water points in Zambia. The paper also describes World Vision's pioneering recovery lending programme, which successfully helped individuals restore their livelihoods through small-scale loans in the aftermath of typhoon Haiyan in the Philippines. The paper does note, however, that these recovery lending schemes should complement and not replace other more traditional forms of humanitarian assistance.

The World Food Programme (WFP) (2016) also describes its activities and initiatives in helping communities, international donors and development

'The factors behind Ethiopia's success, as presented in the report, include strong political leadership, previous experience of extreme climatic events and strong economic arguments.'

organisations develop new tools to improve the capacity of at-risk communities to prepare for, respond to and recover from climate-related disasters. These initiatives include the African Risk Capacity (ARC) Replica Policies, which match or replicate already established (through the ARC Treaty 2012) 'natural' disaster risk insurance in 32 African states. This consequently aligns WFP's financing and operational response with government-led efforts and doubles the insurance coverage for vulnerable populations. The second featured activity is the Food Security Climate Resilience Facility (FoodSECuRE), which is a multilateral and multi-year fund developed by WFP to financially and programmatically support community-centred action to reinforce and build climate resilience. Critically, the facility links hazard forecasting and multi-year financing, thereby providing governments with the opportunity to access funding and scale up DRR, food and nutrition responses and activities before and after a disaster occurs.

In the grey literature there has been a particular focus on resilience for island nations, with three of the 31 papers discussing resilience in island nations and two of those discussing Pacific island nations specifically (Koskinen-Lewis et al., 2016; Pacific Community, 2016; Pacific Possible, 2016). Pacific Possible (2016) presents compelling evidence to highlight the vulnerability of PICTs. The paper describes the physical vulnerability of PICTs to climate change, their geographic features and location and their social and economic vulnerability, owing to a reliance on subsistence farming and fishing, limited access to education and health facilities, etc. However, the paper also highlights the uncertainty of changing risk and climate change, as well as the challenges in applying climate data to small-scale local areas. The second part of the report provides recommendations for achieving climate-resilient development in PICTs, which is centred around the need for inbuilt flexibility so as to offset and manage the uncertainties around future climate change; a context-specific approach and a combination of initiatives to avoid a 'one-size-fits-all' attitude; advocacy of low-cost low-regret options in order to adapt now to future changes; and an identification of the trade-offs and synergies between the multiple priorities and objectives of different sectors.

Men on the banks of the Harirod River in Herat, Afghanistan build a retaining wall to limit flooding. Photo credit: UNOPS, 2011.

3.6 Social inclusion and social protection

Grey literature on frameworks and organisational approaches to resilience suggests:

- Women's self-help and community groups can be used to develop a culture of saving, access to loans and engagement in income-generating activities to enhance their economic and social status.
- There is a need for increased gender-sensitive vulnerability and risk assessments.
- A decentralised and community-based approach to disaster preparedness and response is important.
- Social protection has the potential to positively impact communities' ability to overcome economic hardship.

Although 11 of the 36 papers in the last quarter's resilience scan discussed social aspects of resilience, including social protection, this quarter only three out of the 31 papers reviewed discuss issues around social inclusion and protection. Two papers within this category discuss issues around gender and inclusion (BRACED, 2016b; Oxfam, 2016); the final paper discusses the impact of social protection on economic resilience (Rocca and Ferrer, 2016).

BRACED (2016b) describes the impact of climate extremes and disasters on women in Ethiopia and Burkina Faso. The paper presents two case studies that show ways to reduce female vulnerability to climate extremes and disasters, from two projects being undertaken by Christian Aid as part of the BRACED programme. In Ethiopia, Christian Aid has helped establish 91 self-help groups, which allow women to support each other and develop a culture of saving, access to loans and engagement in income-generating activities in order to enhance their economic and social status. The paper reports that, as a result of the groups, women have started to collect and store large amounts of grass for use during pasture scarcity and have saved a total of £7,250 through weekly collections and interest gathered from loans. In Burkina Faso, the Christian Aid project has helped set up classes for isolated desert communities with the aim of teaching women how to provide a nutritious diet for their children in the face of extreme temperatures and drought.

Oxfam (2016) highlights issues of inequality in Nepal and the resulting disproportionate impacts of the 2015 earthquake on single women. The paper highlights how nearly all of the 495 single female-headed households that were studied remained in temporary shelters, with little protection or comfort, following the disaster; they also often lacked access to basic services such as toilets and drinking water. The paper asserts that, with reconstruction and recovery underway, the country has the unique opportunity to improve conditions and build on the capacity of single women in Nepal. In order to achieve greater single female participation, the paper outlines the need for a decentralised and community-based approach to disaster preparedness and response. Finally, the paper highlights the need for gender-sensitive risk and vulnerability assessments; coordination of recovery initiatives; strengthened livelihood and asset ownership; the promotion of women's registration on land ownership certificates; improved gender-specific WASH programmes; and strategies for gender-responsive budgeting.

Although social protection was a strong theme in last quarter's resilience scan, with four papers focusing on the topic, this quarter, only one paper in the grey literature discusses the relationship between social protection and resilience. Roca and Ferrer (2016) investigate the relationship between social protection and economic resilience. The paper considers the impact of social protection on income and the impact of social protection policies on a society's capacity to overcome economic hardship. The study found social protection had a strong positive impact on income and growth, owing to improved health, education and minimum wage, but there was insufficient evidence to prove social protection policies influenced a society's capacity to overcome economic hardships. The authors note that the study is limited by a lack of consistent and comparable social protection data, particularly with regard to unemployment benefits, old age pensions, subsidies targeting children, food allocation and other forms of social support.

4. Review of resilience in the academic literature

Our review this quarter includes an analysis of 31 peer-reviewed journal articles on resilience published between July and September 2016. During the review process, five dominant themes emerged, around gender, culture and power; understanding community resilience; livelihood resilience; policy, planning and operational approaches to building resilience; and social-ecological systems (SES).

4.1 Gender, culture and power

Academic literature on gender, culture and power suggests:

- Resilience thinking is increasingly integrated into concepts of climate and food security and now coexists with such approaches rather than replacing them.
- Cultural characteristics of a society critically shape DRM and the chosen approach to community disaster resilience.
- Considerations of social justice and equity are intrinsic to the concept of vulnerability, while resilience thinking may overlook these aspects.
- Communal farming can enhance personal and social resilience through collaboration, intergenerational support and shared gendered identities.

Three articles in the gender, culture and power section focus on discourses, with Boas and Rothe (2016) and O'Connor et al. (2016) analysing the introduction of resilience thinking and practice into climate and food security and Sword-Daniels et al. (2016) addressing risk and uncertainty.

Boas and Rothe (2016) study climate security and resilience discourses in the UK. They understand the rise of resilience as the result of a struggle over what climate security means and entails. The analysis traces this rise back to a global climate governance crisis, the failure of neoliberal policies such as on emission trading and the openness and broadness of the resilience concept, which equally accommodates security and development actors. O'Connor et al. (2016) describe a similar 'turn towards resilience' within the context of food security, examining the practices and policies of the WFP. The authors question claims that a new embrace of uncertainty in the disaster management–resilience nexus has replaced the development–security nexus of previous decades in the governance of food insecurity. Both articles find resilience thinking has been integrated and now coexists with previous storylines and concepts of security, rather than replacing them. The authors diverge, however, in their conclusions on some of the broader implications of the rise of resilience thinking. While Boas and Rothe show how resilience can be used as a challenge to pre-existing market-based concepts, mechanisms and practices in the field of climate security and conflict, O'Connor et al. critically discuss the notion that resilience strategies create people capable of adapting to instable neoliberal food systems instead of dealing with the sources of instability and avoiding disaster from the outset.

Within risk studies, uncertainty is often presented in terms of the absence, inadequacy or contested nature of knowledge. Sword-Daniels et al. (2016) challenge this definition, arguing that uncertainty is intrinsic to social processes. Therefore, it is a subjective experience for people exposed to natural hazards that depends on social norms and identities, values, beliefs, past experiences, available resources and institutional structures. This requires greater recognition in disaster response and management agencies, with the author suggesting that a better understanding of how uncertainty is 'embodied' by individuals and societies – that is, filtered, managed and contextualised – which would contribute to an enhanced consideration of uncertainty in this context.

Kasdan (2016) echoes the calls above for greater recognition of societal context within DRM. His exploratory study assesses the World Values Survey

'resilience thinking has been integrated and now coexists with previous storylines and concepts of security, rather than replacing them'

(WVS) and Dimensions of National Culture (DNC) in relation to DRM outcomes represented by the index of the World Risk Report 2015. He finds a significant correlation between the majority of cultural measures and DRM outcomes, thus confirming the relevance of socio-cultural considerations in DRM. The analysis implies that lower risk is related to secular-rational values, individualism, greater self-expression and lower power distance, and has a weak correlation with long-term societal orientation. To conclude, Kasdan underscores the need to establish a grounded theory on the relationships between cultural characteristics and disaster risk.

Ostadtaghizadeh et al. (2016) support the relevance of social and cultural aspects for Community Disaster Resilience (CDR) in their analysis of interviews with Iranian disaster experts. The authors categorise the social, managerial, economic, physical, cultural and environmental as the six domains of CDR. They argue that culture-bound attributes of CDR, including shared responsibility and coexistence, have so far received insufficient attention but are crucial for community capability to mitigate and reduce disaster risks.

Two papers this quarter specifically address gender in the context of community and social-ecological resilience. Vibert (2016) explores the particular role of women in social economy as part of a case study of Hleketani Community Garden in South Africa, where women entered into collaboration to overcome poverty through empowerment, employment and sustainable food provision. Communal farming allows community members to free up cash from food purchases for other uses, provides health benefits, increases economic capacities, facilitates access to resources and supports risk taking. As a consequence, the women enhance personal and social resilience in the community through intergenerational support and shared gendered identities that were formed by struggles over resources in the colonial and apartheid eras. The under-appreciation of communal farming in the context of neoliberal economic policy is thus countered through collaboration and reclaiming productive farming as a social identity.

Kawarazuka et al. (2016) argue there has been limited integration of gender into social-ecological resilience approaches to natural resource management. The paper highlights fundamental differences between the two fields with regard to the nature of knowledge and the methodology with which it is obtained, making integration particularly complicated. Therefore, the authors advocate against a single unifying framework to integrate gender into social-ecological resilience research and instead call for close interdisciplinary collaboration that provides mutual benefits in theoretical, analytical and methodological approaches, as well as an enhanced understanding of integrated social-ecological systems for facilitating pro-poor and gender-equitable adaptation policy.

Focusing on social justice, Popke et al. (2016) assess the implications of resilience, vulnerability and adaptation narratives within the field of climate change impacts. Results from a qualitative study in Jamaica indicate that different opportunities for farmers emerged from differentiated access to resources such as capital and irrigation technology. Climate change increases smallholder vulnerability and further entrenches inequality between well-capitalised farmers with access to agricultural technology and poorly capitalised smallholders based on established unequal market structures. Popke et al. conclude that, out of the three paradigms of resilience, vulnerability and adaptation, vulnerability is the only one to which climate justice is intrinsic and it therefore demands particular attention to the interrelated nature between the consequences and causes of climate change and inequality.

The USAID Paani program will enhance Nepal's ability to manage water resources through climate change adaptation. Photo: Satyam Joshi/USAID, 2016.

4.2 Understanding community resilience

Academic literature on understanding community resilience suggests:

- Integrating DRR and sustainable livelihoods (SL) approaches in practice can create mutual reinforcement and contribute towards both aims.
- Natural disasters have a transformative potential that may actually decrease inequality and change community structures.
- A stronger consideration of the historical-cultural and structural barriers to equitable adaptation is necessary to enhance community resilience.
- Unclear ownership and responsibility for building resilience and a lack of social trust and cohesion present substantial challenges to community resilience.

Coping strategies at the community level, as well as assessing the links of resilience and DRR with SL and Community-Based Adaptation (CBA) are the primary foci in this quarter's literature on community resilience. In an empirical analysis in Samburu county, Kenya, Ng'ang'a et al. (2016) assess two different coping strategies that (agro-)pastoral households employ for protection against climate shocks: individual households' accumulation of wealth in the form of livestock, and investment in social capital as a community-based strategy. The authors find mixed support for the hypothesis that adverse environmental conditions lead people to accumulate livestock wealth at the household level. Furthermore, different measures for social capital show no clear general correlation with the climatic environment. The analysis is thus inconclusive with regard to the relevance of social capital as a community-based coping strategy that the authors had expected to find. Based on these results, Ng'ang'a et al. emphasise a need for addressing environmental risks through multifaceted approaches rather than through singular asset-focused interventions.

Osuret et al. (2016) assess coping strategies and drivers of vulnerability in the Mt Elgon region of Uganda. The authors find communities' capacities to cope with floods and landslides may be diminished by a cultural attachment to particular land irrespective of the related risks, poverty, limited knowledge around preparing for disasters and population pressure. However, the study suggests adapted agricultural practices, livelihood diversification and external support from government and other partners can strengthen a community's response to disasters. Osuret et al. conclude that a lack of community involvement, funding challenges and cultural attachment have rendered the maintenance of infrastructure and relocation of displaced people ineffective or insufficient, thus confirming the previously highlighted need for planning that takes communities and local knowledge into account (Cho et al., 2016; Wilkinson et al., 2016).

'Ng'ang'a et al. emphasise a need for addressing environmental risks through multifaceted approaches rather than through singular asset-focused interventions.'

The mutually reinforcing relationships between DRR and SL have been established in theoretical work but are less integrated in practice. Ahmed et al. (2016)'s empirical study examines closer integration of SL and DRR in order to address simultaneously poverty, vulnerability to disasters and community resilience. Their evaluation of the Vulnerability to Resilience (V2R) programme in Bangladesh traces the integration of DRR and SL under the programme and the consequent achievement of higher levels of community resilience. They find improvements in knowledge and health, access to services, infrastructure, economic opportunities, social cohesion, connection and management of natural assets, which they attribute to community members' involvement in the integrated activities.

Abdullah et al. (2016) expand on this quarter's SES literature (see Section 4.5) by framing their analysis of resilience and community inequality in Bangladesh on the theoretical concept of panarchy. Contrary to expectations, the authors find relatively wealthier households suffered from higher losses in both absolute and relative terms after cyclone Aila, and some among the poorer households actually managed to increase their income post-cyclone. Economic losses were higher and the potential for recovery lower for relatively wealthier households because they owned most of the livelihood assets destroyed by the cyclone, had fewer skills and capacities to retrieve other resources, for instance from mangroves, and faced societal stigmatisation in carrying out livelihood activities that helped poorer people cope. In addition, favourable governance of forests and mangroves by local authorities after the disaster supported income generation by relatively poorer households. These factors influenced how the cyclone affected community structures and resulted in a decrease in inequality, thus realising the transformative potential of natural disasters within affected communities.

The remaining two papers on understanding community resilience revolve around the relationship

‘an explicit integration of resilience thinking into CBA and closer attention to structural and historical-cultural barriers to equitable adaptation actions are necessary if resilience is to be a progressive framing for CBA’

with adaptation, as well as communities’ adaptive strategies and capacities. Ensor et al. (2016) test the prevailing claim that CBA increases resilience. They argue that, despite common references to resilience in CBA literature, the concept lacks clarity and definition, thus inhibiting critical reflections on achieving resilience through CBA. At the same time, the CBA discourse may disguise local variation and power relations. The authors make the case that ‘an explicit integration of resilience thinking into CBA and closer attention to structural and historical-cultural barriers to equitable adaptation actions are necessary if resilience is to be a progressive framing for CBA’ (p.3).

Ahadzie et al. (2016) describe a paradigm shift in flood risk management towards an emphasis on community preparedness and social cohesion. Drawing on focus group discussions in Kumasi, Ghana, they find that, even though communities are aware of risks from flooding, they have no systematic strategy or initiative to develop adaptive capacities. Both study communities instead demand that government play a stronger role in flood risk management, thus revealing limited interaction between different scales and unclear lines of responsibility. They also underscore the challenges to community risk management that emerge from a lack of social responsibility and limited trust in public and private institutions in complex urban environments.

4.3 Livelihood resilience

Academic literature on livlihood resilience suggests:

- Local context is crucial for understanding livelihood resilience. Participatory and people-centred approaches should therefore inform planning and support to adaptation measures.
- Livelihood diversification may be driven by prospects of economic development rather than by a distress reaction to environmental stress.

While papers on livelihood resilience also speak to the community-level analysis in the previous section, they focus more on the processes of, and strategies for, building resilience. Two of the reviewed papers on livelihood resilience analyse the strategies people use to grapple with the environmental stress and climate change affecting their livelihoods. In doing so, both, Ayeb-Karlsson et al. (2016) and Musinguzi et al. (2016), highlight the need to focus on people’s perceptions and priorities for climate change adaptation and resilience. Two additional articles focus particularly on diversification and its relationship with livelihood resilience. Assessing drivers and constraints to livelihood diversification is seen as crucial to understanding the adaptive potential of households and represents an overarching thematic concern in these four studies.

Ayeb-Karlsson et al. (2016)’s study examines the advantages and costs of adaptive strategies. Using personal livelihood history interviews, the authors identify agricultural adaptation, livelihood diversification and migration as the central strategies to address environmental stressors. However, the paper also highlights the potential for failure of adaptation and its possible adverse effects, such as weakened social structures, conflicts over access to resources,

Supporting the resilience of the most vulnerable communities in Burkina Faso. Photo credit: United Nations Development Programme Burkina, 2015.

illegal activities and a decline in well-being after migration. Based on their findings, Ayeb-Karlsson et al. underscore the crucial importance of local participation in adaptation planning and a key role for people-centred research as a tool to transmit local knowledge on environmental and social vulnerability to decision-makers.

Musinguzi et al. (2016) support this perspective by arguing that understanding local context through local knowledge is essential to strengthen community resilience to environmental change. The authors identify 'innovators' who successfully enhanced their levels of food security and income through a variety of different strategies, including adapting fishing practices and diversifying livelihoods. Drivers of diversification in the community are access to information, services and resources, including higher disposable income; limitations include constrained access, dependence on fishing and weak law enforcement.

Martin and Lorenzen (2016) examine the ongoing debate on diversification as a distressed-pushed or progress-pulled mechanism. Their study in southern Laos supports the notion of livelihood diversification as a progress-pulled rather than a distress-pushed mechanism. Asset diversity, but not the quantity of individual assets, is found to relate strongly to households' occupational diversity. The article concludes that poverty may limit households' access to particular livelihood strategies and asset homogeneity poses a constraint to livelihood diversification, thus confirming limitations identified by Musinguzi et al. (2016).

Crop diversification is an adaptive strategy within a CSA framework. Based on household surveys in Zimbabwe, Makate et al. (2016) find it enhances the resilience of smallholder farming systems and agricultural livelihoods through positive relationships with crop productivity, income and food and nutrition security indicators. Partially overlapping with Musinguzi et al. (2016), Makate et al. conclude that location, as well as access to assets, certain services and sector-specific information, positively influences diversification. The authors argue diversification is a crucial adaptation strategy for smallholder farmers to strengthen long-term resilience to climate variability and change.

'understanding local context through local knowledge is essential to strengthen community resilience to environmental change.'

4.4 Policy, planning and operational approaches to building resilience

Academic literature on policy, planning and operational approaches to building resilience suggests:

- Integrating both bottom-up and top-down knowledge is necessary in policy and planning for adaptation, risk management and resilience.
- Hazards may impose trade-offs between resilience and short-term economic development for individuals and societies; the complexity of multi-hazard environments presents particular challenges to planning and policy-making in this context.
- Local government is crucial in post-disaster recovery and resilience-building but can inhibit equity and efficiency as a result of limited capacity and political or economic motivations.

Academic literature on policy, planning and operational approaches to building resilience suggests:
Four papers in this section focus on making a case for bringing together top-down and bottom-up knowledge in adaptation, risk management and resilience planning (Chacko et al., 2016; Cho et al., 2016; Gallagher and Cruickshank, 2016; Gustafson et al., 2016;). To provide a template for practitioners, Gustafson et al. (2016) present a case study of integrated adaptation planning in Thailand. They highlight how community assessment tends to capture short-term processes and their immediate livelihood impacts, while the scientific analysis additionally highlights long-term changes that are critical to a better understanding of vulnerabilities. Limitations to the integrated framework include the difficulty of applying climate projections at higher scales to the community level and community heterogeneity that can complicate effective communication and create challenges to equal participation.

Gallagher and Cruickshank (2016) present a novel conceptual framework that introduces SES-based resilience thinking into infrastructural engineering, applying concepts of system complexity, adaptive capacity and equitable governance. Their approach addresses the bias in engineering towards technical responses over attention to social aspects and systems thinking, a lack of case studies that operationalise resilience concepts in practice and tensions between top-down planning and local-level approaches to decision-making. Drawing on a case study of La Mosquitia, Honduras, Gallagher and Cruickshank highlight the complexity of adaptation and resilience concepts and the need to view both as flexible processes in infrastructure planning.

Chacko et al. (2016) discuss an innovative mathematical model that builds on local input for providing decision support to flexible community-based disaster planning. The model aims to account for the complexities of multi-hazard scenarios and the synergies from simultaneously addressing DRR and long-term recovery. Using example scenarios in Mombasa, Kenya, the authors demonstrate the advantages of their model in comparison with single-hazard analysis, which are manifested in increased long-term economic development and resilience. Limitations of the model include the higher costs of a multi-hazard approach and the differences in timescales between long-term processes of DRR/recovery and faster-paced political cycles.

In their study of vulnerability to volcanic hazards in Indonesia, Cho et al. (2016) describe reluctance among local communities to comply with government relocation plans after the eruption of Mt Merapi. The authors find the volcano represents not only a great hazard but also cultural identity and new economic opportunities to local populations, for instance from selling debris and higher soil fertility post-eruption. Building on these insights, Cho et al. introduce the concept of 'living in harmony with disaster', which consists of economic sustainability, community resilience, design for all and shared responsibility to inform disaster management. The paper acknowledges that local vulnerabilities are complex and multidimensional, resulting in a need for local learning, discharging preconceptions and reframing the planning approach to enhance community resilience.

Wilkinson et al. (2016) further assess the complexity of a multi-hazard environment and the trade-offs and interactions of risk and disaster management with development in the context of small island developing states (SIDS). Using the case of St Vincent, the authors discuss a range of development considerations and political motivations that may increase exposure and challenge the management of risks related to volcanic hazards. They assess the potential of linking DRM to development through the following processes: 1) reduction of existing risk, 2) avoidance of accumulating new risk and 3) building resilience to residual risks. The authors find constraints to all three processes in St Vincent, including limited effectiveness and scope in risk reduction where multi-hazard risks are complex and interrelated; challenges to enforcing risk assessments, monitoring and regulations; and a focus on emergency and disaster management along with limited risk awareness and preparation.

In the context of planning and policy-making for resilience, Tyler et al. (2016) and Bastaminia et al. (2016) focus on definitions and indicators. Tyler et al. assess a contextual methodology for indicator development in Asian cities, underscoring the importance of a coherent conceptual framework. They find a collaborative, deliberative and iterative process enables shared understanding, learning and engagement. Challenges include difficulty obtaining clear and effective indicators owing to complex processes, the importance of context and a lack of explicit frameworks or measurable proxies for outcomes. Operationally, a lack of data, limited resources, unfamiliar terminology and barriers of language and context represent further constraints, leading the authors to highlight trade-offs between community-driven and expert-driven indicator development. Bastaminia et al. trace the diversity of resilience definitions and point to lack of clarity around the concept and its operational implications. Drawing on interviews with local crisis management experts who rated levels of overall resilience and four dimensions of urban resilience – economic, organisational, social and physical –the study finds an unfavourable level of resilience to earthquakes in the city of Dehdasht, Iran. Using a path analysis model, the authors conclude that the four components predict about 75% of overall resilience, with the physical component having the highest impact.

The two remaining papers on planning and policy-making examine enablers and constraints in local governance and the integration of climate information in decision-making. Drawing on a social networks perspective in coastal high cyclone risk zones, Islam et al. (2016) find that support from 'linking' social networks such as NGOs or governments is crucial to achieving longer-term recovery after a disaster, though local governments often focus on short-term relief activities. Islam et al. establish key constraints to efficient and equitable post-disaster recovery and resilience activities at the local governance level, including political favouritism or corruption, a lack of logistic and financial support, uncertainties about access and responsibilities in relief support and limited collaboration. While local government is important for recovery and resilience, owing to its mandate and embeddedness in the community, Islam et al. emphasise the need for processes aimed at reducing corruption and reforming local government practices to address performance limitations.

Jones et al. (2016) present a structured literature review that focuses on the uptake of long-term climate information in planning and investment decisions. The study identifies five overarching categories of constraints to information uptake, consisting of 1) disconnects between users and producers of climate information; 2) limitations of climate science; 3) technical and financial constraints; 4) institutional constraints and political

economy; and 5) psychosocial constraints. Often related to these constraints, the five key enablers for climate knowledge uptake derived by Jones et al. include 1) bridging work and collaboration; 2) enhanced technical capacity; 3) scientific improvements; 4) institutional reform; and 5) trust and windows of opportunity. Similar to others in this review, the authors recommend that information be targeted towards processes on longer-term timescales, relevant stakeholders in science and policy-making establish sustained relationships and producers and users strive towards the co-production of knowledge in order to increase the uptake of long-term climate information.

4.5 Social-ecological systems

Academic literature on SES suggests:

- SES are complex, nested and situated on multiple scales.
- Household resilience does not necessarily co-evolve with SES resilience.
- Adaptation processes may result in trade-offs and adverse consequences within a SES, which should be questioned based on their underlying power structures and effects on social justice.
- The concept of panarchy – an interrelated set of different evolving systems and sub-systems – recognises the dynamics and interactions within SES and thus contributes to an understanding of resilience in such systems.

The complex and multi-scalar, nested nature of SES causes interactions and imposes trade-offs in resilience between different components of a system. Juarez-Lucas et al. (2016) claim that flood risk management approaches that focus on reducing exposure often disregard local coping capacities and the potential benefits that result from flooding. In response, the authors argue that direct benefits from land use and trade-offs emerging from different ecosystem services in flood-prone areas need to be considered as enhancing people's resilience to hydrological hazards. Juarez-Lucas et al. find livelihoods and coping strategies vary between dry and flood-prone locations, and livelihoods in dry areas are relatively more homogeneous, which suggests a natural diversity in coping mechanisms and livelihood strategies as a response to regular flooding.

Chelleri et al. (2016) critically discuss the notion of 'positive adaptation' and the positive connotation often ascribed to resilience. Using original field data collected in the Bolivian Altiplano, the paper assesses how communities' adaptive strategies and local responses to the Quinoa revolution resulted in trade-offs between vulnerabilities to different hazards. Instead of regarding resilience and vulnerability at opposing ends of a continuum, the authors thus argue that responses and adaptation to exogenous drivers of change not only present opportunities and positive effects but also may result in new threats. Chelleri et al. underscore the need to question critically the management of adaptation processes and their resulting trade-offs, highlighting considerations of social justice and power within SES approaches.

Similarly, Rasch et al. (2016) advocate for assessing resilience in SES as an integrated approach that recognises the complex, multi-scalar nature of resilience. The authors propose a framework that connects household resilience with SES-level resilience. Their empirical analysis of South African communal rangelands relates a biophysical model to an agent-based model in order to assess 1) the impacts of drought shock; 2) social stress imposed on the SES; and 3) a basic income policy intervention. The analysis shows household resilience does not inevitably co-evolve with SES resilience, and a decrease in social embeddedness has the largest detrimental effect on SES resilience.

Berkes and Ross (2016) focus on SES at the community level. Similar to Rasch et al. (2016), they highlight a need for multi-scalar considerations, exploring factors that have an impact on resilience at the community level but may emerge elsewhere. The authors argue that the concept of panarchy – an interrelated set of different evolving systems and sub-systems – is a useful investigative approach for SES thinking. The particular advantage of applying the panarchy concept to understanding SES resilience is that it recognises the dynamics and interactions within and across their nested and multi-scale levels. In addition, the authors draw on the panarchy approach to highlight concepts, specifically power and agency that have received limited attention in literature on SES related to resilience and sustainability in the past.

'responses and adaptation to exogenous drivers of change not only present opportunities and positive effects but also may result in new threats. Chelleri et al. underscore the need to question critically the management of adaptation processes and their resulting trade-offs'

5. Understanding the characteristics of resilience in 2016 literature

As the preceding sections show, multiple disciplines and domains of practice employ resilience thinking. This section draws out connections between them to understand the directions in which this growing field is moving. It interprets the literature discussed in the scans of blogs, academic and grey literature based on five broad characteristics of resilient systems identified by the Rockefeller Foundation. These are distilled through a consideration of a wide body of research on the topic.

5.1 Awareness

Awareness is the ability to constantly assess, learn and take in new information on strengths, weaknesses and other factors through sensing, information-gathering and robust feedback loops.

Key messages

- If people are aware of their rights, they are more likely to mobilise themselves and demand action from their governments.
- There is a strong focus on different tools and methodologies for measuring climate-related impacts and resilience initiatives.
- There needs to be a stronger focus on the use of disaggregated data and baselines in order to monitor progress against the post-2015 development frameworks.
- Collaborative and iterative production of knowledge supports resilience planning and facilitates the uptake of information for policy-making.

Awareness is included within a number of the organisational frameworks and is promoted as a means to measure progress towards the post-2015 development frameworks within the grey literature. ActionAid advocates for an HRBA that centres around active agency – that is, helping people recognise their vulnerability, rights and capacity to change. As such, 'gaining awareness, knowledge and skills' is included as one of the key interventions required in order to fulfil the central aim of equal and just power (Singh et al., 2016). ADB's organisational framework focuses on the need for awareness as one of its five components of resilience (ADB, 2016). Data collection and monitoring of progress are central to the literature on post-2015 frameworks too. Bahadur et al.'s (2016) recommendations reflect characteristics of awareness and integration. The report highlights the need for comprehensive and enhanced data collection and vulnerability assessments as well as clear baselines and socioeconomic data to adequately assess the effectiveness of SDMPs in line with the Sendai Framework. Satterthwaite and Dodman (2016) support this recommendation by highlighting the need for greater focus on the disaggregation of data and development indicators by city and city districts, to help support progress towards a progressive and complementary New Urban Agenda within the context of the post-2015 international frameworks.

The grey literature provides different tools and methodologies for measuring resilience. Cumani and Rojas (2016) promote a tool that uses earth observation datasets to provide reliable, timely and accessible data about drought hotspots, while also considering their impacts on communities. D'Errico et al. (2016) emphasise the need for resilience estimation models to help measure resilience dynamics at the household level, through the use of household surveys and panel datasets; they also suggest complementing this analysis with community or ecosystem data. Meanwhile, WFP (2016) highlights that climate data and hazard forecasting can provide up-to-date seasonal weather hazard information that can help communities prepare for and respond to climate-related disasters that affect food security and nutrition. Similarly, AMCOW (2016) promotes the need for supporting planners and technical advisers in government departments to identify no-/low-regret climate-resilient development investments. The authors highlight that this can be

achieved through an assessment of different climate change scenarios, stakeholder mapping, economic and social impacts and comprehensive country reporting to assess the results of the programme. Finally, BRACED (2016a) demonstrates methods for evaluating a new funding mechanism through its use of a theory-based approach that provides an understanding of why and how the intervention (in this case the unique funding mechanism) can affect change.

Awareness is also prominent in the academic literature, with the largest share of reviewed papers addressing this characteristic. A central concern revolves around methodologies and tools to support the (co-)production of knowledge for an enhanced understanding of resilience and to inform policy-making and planning. Both Gustafson et al. (2016) and Tyler et al. (2016) introduce and evaluate methodologies for an iterative and collaborative process of adaptation planning and resilience indicator development respectively. In addition to informing decision-making, collaborative and iterative indicator development can result in positive side-effects on shared learning, creating a deeper common understanding of resilience and enhancing managerial capabilities (Tyler et al. 2016). Furthermore, innovative decision support tools have the potential to facilitate community disaster planning by allowing communities to inform long-term recovery as well as disaster mitigation, thus drawing awareness to the synergies between both perspectives (Chacko et al., 2016). With regard to the update of long-term climate information and policy-making, Jones et al. (2016) recommend targeting information needs towards processes on longer-term timescales, establishing relationships between policy-makers and scientists and supporting the co-production of knowledge, thus largely corresponding with the three previously discussed papers.

Another block of studies underscores the need for a better awareness and understanding of local contexts, culture and complex systems in relation to resilience (Bastaminia, 2016; Cho et al, 2016; Kasdan, 2016; Ostadtaghizadeh, 2016). Wilkinson et al. (2016), for instance, stress that a comprehension of multi-hazard environments and addressing their complexities through integrated approaches to DRM is crucial for SIDS in order to avoid risk accumulation and to enhance potential co-benefits between development and resilience approaches.

5.2 Diversity

Diversity implies that a person or system has a surplus of capacity such that it can operate successfully under a diverse set of circumstances, beyond what is needed for everyday functioning or relying on only one element for a given purpose.

Key messages

- Diversity within planning and implementation is needed to help respond to climatic uncertainty and a range of different shocks and stresses.
- Diversification of livelihoods, agricultural practices and supply chains will help farmers and industries build their resilience to shocks and stresses.
- Multifaceted and diverse coping mechanisms instead of singular interventions are key for enhancing risk management.

Diversity is incorporated within the grey literature as a means to respond to different situations, which is critical in view of trying to deal with climate uncertainty and a range of shocks and stresses. For instance, ICRC (2016) highlights how it provides a 'palette of activities' in protracted conflicts in order to ensure its activities stay relevant to people's changing needs as well as different sectors. Similarly, within ActionAid's Resilience Framework, diversity is explicitly mentioned as one of the five cross-cutting principles needed to enhance the options and choices for reducing risk and to take advantage of new opportunities (Singh et al., 2016). Ewbank (2016) focuses on the concept of 'buffer capacity' as a resilience-building mechanism. Buffer capacity refers to the surplus capacity (assets and capitals) a community requires to absorb and recover from shocks. Pacific Possible (2016) also promotes flexibility, diversity and surplus capacity to help communities deal with uncertainty and a multitude of climate impacts. For example, in terms of coastal protection, the paper advocates for hard engineering methods alongside soft non-structural options to help provide comprehensive protection. Finally, Junghans and Grimm (2016) consider diversity at different scales in the urban context. They advocate for diverse, innovative and traditional avenues to accessing finance for urban transformation at the city, national and international level.

Diversity is also a focus within the grey literature in terms of the inclusion and participation of a range of groups in DRR activities, and in terms of the literature on agriculture, livelihoods and food security. Oxfam (2016) stresses the need to recognise women's unique needs and capacities in times of crises, while also promoting their participation in DRR and recovery efforts in order to help build their resilience to shocks

and stresses. Similarly, BRACED (2016b) highlights the role of women's self-help groups in providing an opportunity for women to get together and exchange views on how best to manage their finances to help them prepare for and respond to the risks associated with climate change. In terms of agriculture, livelihoods and food security, Taklewold et al. (2016) demonstrate how a diversity of CSA practices can help yield the highest farm income under different climatic conditions, while Pharoah (2016) promotes the need for strengthened and diverse livelihoods. At a different scale, the High Level Panel of Experts Food Security and Nutrition of the Committee on World Food Security (HLPE) (2016) highlights the need for diversity in supply chains in order to be able to move away from a small number of firms monopolising agriculture and livestock industries.

Diversity in the academic articles revolves around different strategies to prepare for and cope with environmental hazards, the diversification of livelihoods and agricultural practices within a CSA. Evidence from qualitative research in Uganda, Bangladesh and Zimbabwe, for instance, shows households resort to a variety of activities in order to enhance their resilience. These include the adaptation of fishing and agricultural practices, livelihood diversification and migration (Ayeb-Karlsson et al., 2016; Makate et al., 2016; Musinguzi et al.; 2016; Osuret et al., 2016). Ayeb-Karlsson et al. (2016) highlight the importance of diversity for enhancing resilience in the face of exogenous stressors, as this reduces and distributes risks across a variety of activities and resources. At the same time, there is potential for failure of adaptation and adverse effects may emerge from resorting to certain strategies. Despite its benefits, diversity is thus accompanied by considerations about trade-offs between short- and long-term impacts, social and ecological domains and exposure to different hazards.

Contributing to an enhanced understanding of diversity, Martin and Lorenzen (2016) focus on the motivations that lead people to diversify their livelihoods. Based on a positive relationship between occupational diversity and wealth, they trace these motivations back to prospects of economic advancement rather than distress reactions. The remaining literature on diversity takes a more holistic perspective, but Ng'ang'a et al. (2016) focus specifically on short-term coping strategies. The authors pay particular attention to the importance of multifaceted and diverse rather than singular interventions for enhancing the management of different risks.

5.3 Self-regulation

This implies a system can deal with anomalous situations and interferences without significant malfunction, collapse or cascading disruption. This is sometimes called 'islanding' or 'de-networking' – a kind of 'safe failure' that ensures any failure is discrete and contained.

Key messages

- Conflict and disasters can exacerbate the vulnerability and risk of a population, and can contribute to negative trends in terms of exposure to disasters and the occurrence of conflict.
- Business continuity plans can help promote self-regulation and build resilience within systems.
- Collaboration and shared identity can support community resilience and self-regulation.

Self-regulation and interdependency are highlighted within two of the papers within the grey literature. The first paper, a Global Facility for Disaster Risk Reduction (GFDRR) discussion paper, highlights the interdependency and complex relationship between disaster risk and risk related to conflict, fragility and violence (Fan, 2016). The paper emphasises the role conflict and fragility can have in terms of increasing people's vulnerability to natural hazards, as well as the negative impact disasters can have in increasing social inequality and vulnerability in conflict situations. Despite these negative trends in terms of impact, the authors note that assistance pre-, during or post-disaster/conflict can simultaneously help build people's resilience to disasters and conflict. This point is demonstrated through an example from Myanmar, where political opportunities for building trust and cooperation were fostered through the post-disaster response efforts in the aftermath of cyclone Nargis in 2008 (Fan, 2016). The second paper that demonstrates this characteristic is ADB's Resilience Framework (2016), which covers the need for ADB's critical service providers to have business continuity plans in order to help promote resilience within their supply chains. Moreover, the paper suggests the need to establish robust insurance strategies to ensure service providers are covered following a shock or stress.

As in Quarter 2 of 2016, most academic literature in this scan does not make explicit reference to self-regulation. Two studies, however, focus attention on the local community and government level to assess the management of flood risks and recovery from cyclones and identify challenges to self-regulation. Limited

interaction and support from government, unclear responsibilities and initiative on community level, and a lack of trust in private and communal risk management mechanisms can inhibit effective self-regulation and constrain resilience despite high levels of risk awareness, according to Ahadzie et al. (2016). Similarly, Islam et al. (2016) point to insecurities around access to relief and recovery, favouritism and corruption as characteristics that reduce local government's capacity to support equitable and efficient recovery and resilience-building in cyclone-affected areas of Bangladesh.

In an approach that is unique for the academic literature this quarter, Vibert (2016) touches on self-regulation at community level by outlining the different response strategies and internal and exogenous challenges to which women in the Hleketani Community Garden in South Africa are exposed. Hleketani is a space for collaboration with the aim of overcoming poverty through empowerment, employment and sustainable food provision. Despite facing issues such as increasing costs of operation, theft and droughts, women manage to sustain community resilience through collaboration, shared identities and intergenerational ties.

5.4 Integration

Being integrated means individuals, groups, organisations and other entities have the ability to bring together disparate thoughts and elements into cohesive solutions and actions. Again, this requires the presence of feedback loops.

Key messages

- Partnerships and collaboration are key to building resilience and enhancing cross-sectoral work.
- Effective integration between displaced populations and host communities can provide major opportunities in terms of knowledge and skills transfer.
- Social disintegration compromises the stability and resilience of SES.
- Connecting discourses, disciplines and methodologies can enhance the understanding of vulnerabilities and resilience and contributes to informed planning and policy-making.

The grey literature this quarter highlights integration, through the building of partnerships, collaboration and planning, as a key means to build resilience at different scales. Redda and Roland (2016) stress the need for strong inter-sectoral ministerial coordination and collaboration between different ministries in order to create a solid platform on which the implementation and mainstreaming of climate-compatible development can be achieved. Similarly, one of the three goals central to the Framework for Resilient Development in the Pacific is the need for integrated adaptation and risk reduction to enhance resilience-building efforts. Priority actions include strengthened linkages between the private and public sectors, increased capacity and awareness among civil society and communities and joint planning and increased collaboration between governments, regional organisations and other development partners (Pacific Community et al., 2016). Likewise, Arup (2016a, 2016b, 2016c, 2016d) highlights that, to build resilience in African cities, governments should adopt integrated and holistic urban planning practices across a range of sectors and ministries (Arup, 2016, p.4). Within ActionAid's Resilience Framework, 'collective action and partnership' are included as one of the four key interventions of the framework; this includes the need for integration at multiple scales (Singh et al., 2016). Similarly, Pharoah (2016) advocates for greater dialogue and collaboration between NGOs, UN agencies, civil society and community groups in order to reduce disaster risk in a number of countries in Africa. At a different scale, Bahadur et al. (2016) recommend greater collaboration, integration and partnerships in order to effectively deliver SDMPs.

Integration is also highlighted within the conflict and migration grey literature. For instance, FAO (2016) promotes the need for trust-building between migrant/displaced populations and host communities during protracted conflict in order to enhance social cohesion, inclusion and knowledge-sharing. Similarly, UNDP highlights the need for trust-building and peer learning among governments at all levels, and for increased partnerships among relevant development actors to increase coordination and efficiency in responding to the problem of forced displacement. Lahn et al. (2016) recommend that humanitarian agencies support and scale up existing successful projects for improving access to water and energy for refugees and Jordanians in the face of mass migration. They highlight that such initiatives will help generate long-term sustainability in host communities (much as FAO, 2016 does), such as through supporting opportunities to grow the local market and support the uptake of new services and technologies.

Integration in terms of social cohesion also features in the academic literature this quarter. Rasch et al. (2016) provide evidence of the detrimental effects of social distress on the resilience of households and SES. In addition, the authors highlight interactions between individual and system-level resilience, as well as between human and environmental processes. This ties in with

a key concern throughout the academic literature: understanding SES as nested, complex and multi-scalar constructs (Ahadzie et al., 2016; Ahmed et al., 2016; Berkes and Ross, 2016; Ensor et al., 2016). To address this complexity, Ahmed et al. (2016), Kawarazuka et al. (2016) and Gallagher and Cruickshank (2016) argue for the integration of concepts through interdisciplinary approaches from different fields. Similarly, the integration of social justice considerations into resilience policy and action 'can call attention to the social and economic inequities that hinder strategies of climate change adaptation, and can also point the way toward a more inclusive climate change policy' (Popke et al., 2016, p.71). On a meta level, two academic articles focus on the integration and evolvement of discourses. This entails the merging of resilience storylines into the fields of climate and food security (Boas and Rothe, 2016; O'Connor et al., 2016). The discursive and material context, according to Boas and Rothe (2016), thus sheds light on the 'rise of resilience'. Finally, as the awareness section of this scan highlights, a great emphasis within the academic literature lies on the integration of different types and sources of knowledge throughout knowledge production and application in resilience planning and policy-making (Chacko et al., 2016; Gustafson et al., 2016; Jones et al., 2016; Tyler et al., 2016).

USAID Asia Field visit to USAID Mekong Adaptation and Resilience to Climate Change project in Thailand. Photo credit: Montakan Tanchaisawat, USAID, 2015.

5.5 Adaptiveness

Adaptiveness is the capacity to adjust to changing circumstances during a disruption by developing new plans, taking new actions or modifying behaviours so you are better able to withstand and recover from it, particularly when it is not possible or wise to go back to the way things were before. It also suggests flexibility and the ability to apply existing resources to new purposes or for one thing to take on multiple roles.

Key messages

- Ecosystem-based adaptation, planned relocation and social protection are key adaptive approaches highlighted in the literature.
- Adaptive capacity promotes longer-term change, for instance through livelihood diversification and resolving conflict over scarce resources such as land and water.
- A rethinking of the positive notion of adaptation towards attention to complex systems is crucial to uncover trade-offs and power relations in adaptation management.

Adaptive capacity and adaptive approaches to development and risk reduction feature explicitly in a number of papers within the grey literature; some papers are on specific themes whereas for others the approach is more holistic. For instance, IIED and IUCN (2016) highlight the multiple co-benefits of an EbA approach and its multiple contributions to developing adaptive capacity; Roca and Ferrer (2016) consider social protection as an adaptive policy approach; and Koskinen-Lewis et al. (2016) present planned relocation or managed retreat from at-risk areas as a viable adaptation strategy. Conversely, World Vision takes a more holistic approach, highlighting the need for adaptive development programming in order to provide DRR, resilience and/or recovery assistance within its work (Markham, 2016).

While grey literature in previous scans has strongly highlighted the need to promote absorptive, adaptive and transformative capacities, only one paper in the grey literature discusses this in detail (Singh et al., 2016); others touch on the topic in relation to a variety of different contexts (Ewbank, 2016; IIED and IUCN, 2016; HLPE, 2016; Redda and Roland, 2016). Singh et al. (2016) describe transformative capacity as 'the ability of people to recognise, challenge and transform the unjust and unequal power relations that dictate their vulnerability, to adapt positively to changing circumstances, and to mitigate, prepare for and rapidly recover from shocks and stresses such that their wellbeing and enjoyment of human rights is

safeguarded' (p.8). The paper goes on to demonstrate how adaptive capacity promotes longer-term change, for instance through livelihood diversification and resolving conflict over scarce resources such as land and water. Redda and Roland (2016) highlight the importance of finance from international climate funds in helping communities enhance their adaptive capacity. Meanwhile, HLPE (2016) notes that the adaptive capacity of livestock systems depends on multiple parameters, such as choice of species and breeds, availability of alternative feed resources, the type of response to disease outbreak and household wealth status; this paper therefore also demonstrates characteristics of diversity. Finally, Ewbank (2016) cites adaptive capacity as one of the five key factors that makes an individual, community or livelihood resilient, alongside buffer capacity, robustness, recovery and thriving.

As described in the diversity section, adaptiveness is largely discussed within the context of a variety of strategies to enhance resilience at household level in the academic literature this quarter (Ayeb-Karlsson et al., 2016; Juarez-Lucas et al., 2016; Musinguzi et al., 2016; Osuret et al., 2016). At the community level, Chelleri et al. (2016) address the relationship between adaptive capacities and resilience by assessing the social-ecological trade-offs in vulnerability that emerge from adaptation and local responses to external drivers of change. They call for a critical rethinking of the positive notion of adaptation towards attention to complex systems, thus reflecting the arguments of the literature presented under the integration characteristic. One academic study found a transformative outcome of 'adaptiveness'. Abdullah et al. (2014) tap into recent theoretical approaches to resilience that suggest the relative stability of wealth and poverty states, which require distress to change. 'Thus management of the recovery period following a natural disaster can potentially provide opportunities for people to escape from poverty traps when the existing social and economic order is disrupted' (p. 1104). The authors find empirical support for this claim, suggesting people's adaptive capacity is not necessarily determined by wealth but depends on a complex interaction of livelihood structures, capabilities, social customs and flexible local governance of natural resources.

'people's adaptive capacity is not necessarily determined by wealth but depends on a complex interaction of livelihood structures, capabilities, social customs and flexible local governance of natural resources.'

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