Inclusive, Cross-Sectoral and Evidence-Based Decision-Making for Resilience Planning and Decision-Making in a Devolved Context

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Abstract

Successfully achieving the sustainable development goals requires addressing complex, interrelated, wicked problems across multiple scales and contexts and decision-making that tackles nested layers of goals and targets across the interrelated social, economic and environmental dimensions of sustainability. The Stakeholder Approach to Risk-informed and Evidence-based Decision-making (SHARED) bridges processes, tools and accessible evidence to support inter-sectoral and multi-stakeholder decision-making and implementation aimed at achieving resilience aspirations and associated investments. Adaptive collaborative management and multiple-loop learning serve as a basis for the systematic approach to institutional learning that supports shifts in underlying institutional understanding and values leading to actionable organisational change. This paper describes a contextual application of tailored technical assistance and institutional support to the Turkana County Government in Kenya, a newly devolved governance structure, under conditions of complexity. The SHARED Turkana County decision case demonstrates how the approach responded to a policy aspiration, resulting in greater and more intentional use of evidence in planning and budget allocations, cross-sectoral and multi-stakeholder partnerships, inclusive and transformative projects and a consultative and evidence-based five-year County Integrated Development Plan.

Keywords Stakeholder engagement · Decentralisation · Collaboration

Résumé

La réussite des objectifs de développement durable nécessite la résolution de problèmes complexes, interconnectés, et pernicious, sur plusieurs échelles et dans des contextes divers ; et une prise de décisions qui adresse les objectifs interdépendantes du développement durable à travers toutes ses dimensions, sociales, économiques et

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environnementales. L'Approche des Parties Prenantes pour une Prise de Décisions Eclairée sur les Risques et Fondée sur des Données (en anglais : SHARED) rapproche les processus, les outils et l'évidence disponible afin de soutenir une prise de décisions qui implique plusieurs secteurs et parties prenantes, et une implémentation qui a pour but de réussir des aspirations résilients et les investissements y associés. Une gestion adaptative et collaborative, et un processus d'apprentissage à boucles multiples, sont à la base d'une approche systématique d'apprentissage institutionnel, qui soutient les réorientations de vues et valeurs institutionnels conduisant à des changements organisationnels actionnables. Cet étude décrit l'application contextuelle d'assistance technique adapté et de support institutionnel au gouvernement de la comté du Turkana, au Kenya, s'agissant d'une structure de gouvernance nouvelle dans des conditions de complexité. Le cas SHARED près de la comté du Turkana serve à montrer comme l'approche a répondu à l'aspiration des politiques, résultant dans une utilisation plus forte et délibérée de l'évidence dans le planning et les allocations budgétaires ; dans des partenariats intersectoriels à plusieurs parties prenantes ; dans des projets inclusifs et transformatifs ; et dans un Plan quinquennal de Développement Intégrée de la Comté consultatif et fondé sur l'évidence.

Introduction

Introduction and Policy Aspiration

The arid and semi-arid lands (ASAL) counties in Kenya have historically been economically and politically marginalised due to low income, poor accessibility, nomadic communities and insecurity (GOK 2007; Schilling et al. 2012), discriminatory policies favouring productive counties, and environmental vulnerability caused by increasing frequencies of droughts (Opyio et al. 2015). The new Constitution (Government of Kenya 2010) devolved significant decision-making and resources to county governments and enhanced citizen engagement (World Bank 2011; Akech 2010; Odhiambo 2013). Devolution, combined with the passage of an ASAL policy, catalysed profound shifts in political leadership, governance arrangements, development planning and investment opportunities including a greater emphasis on resilience to address shocks and stresses for counties in northern Kenya.

Turkana County, the largest county in northern Kenya, with its principal livelihood based on pastoralism, is one of the poorest and most vulnerable having had limited investment in infrastructure, health care and education and suffering from increasingly challenging climate patterns leading to humanitarian crises. The constitutional shift to a devolved governance structure coincided with a major drought in 2011 prompting a focus by the ASAL donor group and the Kenya National Drought Management Authority (Government of Kenya 2015) on resilience to prevent and anticipate disasters that threaten agriculture, nutrition, food security and food safety (FAO n.d.). This prompted the newly established Turkana County Government to consider resilience programming as critical to its future.

The main strategy mechanism for county-level programming, starting in 2013, was the County Integrated Development Plan (CIDP) which was to include the

County's vision and mission, sectoral priorities, budgets, and means for monitoring progress. However, the development of these documents was rushed for all counties. The first CIDP (Turkana County Government 2013–2017) produced in Turkana and other counties in Kenya were developed in response to a rapid national request in the context of counties still working to understand the implications of devolution. The resulting Turkana CIDP was, in large part, developed by consultants in a truncated government consultation that yielded a several hundred-page series of sectoral plans.

The Turkana County Department of Finance and Economic Planning (DFEP) is responsible for the formulation and implementation of economic and financial policies and strategies in the County, as well as coordination of public and private sector activities and international agencies, and the administrative and monitoring functions of the County's development priorities (Turkana County Government 2013–2017). Finding limited results from the initial CIDP, in 2015 the DFEP's County Executive Committee Member (CECM) requested support to 'make decisions that will have an impact on outcomes—despite the risks Turkana faces'. According to the CECM, this request stemmed from (a) development partners providing resources for their own priorities over county priorities; and (b) government ministries and sub-county leads requesting silo-based allocations. The CECM for Finance and Economic Planning requested that our team collaborate with the County government to elaborate the Stakeholder Approach to Risk-Informed and Evidence-Based Decision-Making (SHARED) strategy for bringing sectors and evidence together for more informed, synergistic decision-making in anticipation of greater returns from intentional resilience programming from County investments.

Theoretical Underpinning of Case Application

Resilience was originally conceptualised in relation to ecological systems (Holling 1973) reflecting the capacity to absorb change. The concept evolved to take into account the dependence of and interaction with societal dimensions represented by socio-ecological systems including associated institutional rules and governance (Berkes and Folke 1998; Ostrom 2009; Cote and Nightingale 2011; Adger 2000). More recently, Sterk et al. (2017) highlighted how key principles of resilience can guide the understanding and governance of social-ecological systems and result in practical adaptation and transformation outcomes. They describe principles that increase resilience, for example, broad participation by active engagement of stakeholders and learning by doing through partnerships with scientists and stakeholders to create and maintain sustainable systems. Systems thinking considers these interdependencies and interconnections, as well as dynamics of diverse system elements and is viewed as a requirement for citizens, including decision-makers, for coping with increased complexity and preparing for the future (Arnold and Wade 2015). Resilience became a basis for promoting adaptability and transformability (Holling and Gunderson 2002) and subsequently gained ground as a driving principle for research and development strategies and major investments, particularly in risk-prone environments inhabited and depended on by vulnerable populations (Barrett

and Constanas 2014; Frankenberger et al. 2014; IGAD 2017). The concept of transformational resilience thinking is considered an opportunity for creating adaptive governance arrangements and innovation pathways to tackle intractable or wicked problems associated with complex systems at multiple scales by incorporating the experience and knowledge of diverse stakeholders and shifting the crisis or emergency perspective to a development perspective through transformational learning (Folke et al. 2010; Chapin et al. 2010; Chaffin and Gunderson 2017; Kolko 2012; Head and Xiang 2016). Sellberg et al. (2018) reviewed the work of practitioners that brought resilience thinking into planning in Australia and noted an increased socio-ecological perspective and strengthened adaptive and collaborative approaches to planning. Sinclair et al. (2017) suggested that the inclusion of critical reflection on perspectives and narratives in resilience thinking to bring to light the influence of dominant power structures. Complex environments and the presence of wicked problems require non-linear (Conroy and Peterson 2013), learn-and-return approaches and the coupling of human information and knowledge systems with social–ecological systems dynamics (Tàbara and Chabay 2013).

Argyris (2002) coined the term ‘double loop’ as opposed to ‘single loop’ learning. For organisation learning, double-loop learning highlights the importance of influencing the underlying institutional values that govern a situation through enhanced self-awareness, deeper inquiries, and honest reflection to overcome defensive reasoning and reveal errors and consequently support future decisions. Argyris (1991) earlier argued that this approach allows stakeholders to ‘learn how to learn’ for deeper problem-solving and continuous improvement. The descriptive used by Gregory et al. (2012), ‘how people actually take decisions’, is largely based on a priori ideas and perceptions, existing narratives, mental models, openness to change, estimations in time and space, as well as an individual’s values, motivations and passions, comfort with types of risk, level of self-awareness and self-confidence, and emotional and physical well-being (Shiv et al. 2005; Slovic 2004; Malakooti 2012; Danziger et al. 2011). Baratan (2007) promotes a cognitive perspective on decision-making in which constructive discourse can serve to modify individual perspective and influence collective perspectives. Malakooti (2012) adds that decision-makers who are self-aware and conscious of their decision processes can make more effective, balanced decisions.

For learning in natural resource management, Guijt (2007) expanded upon Argyris’s work to define multi-level learning loops while Plummer et al. (2013) in their review of the adaptive co-management or collaborative management (ACM) literature used the term social learning, that is, the shared learning among individuals, to describe these learning loops. In single-loop learning, problem-solving brings about practical, more technical fixes (Guijt 2007) which correct routine errors (Plummer et al. 2013). Double-loop learning integrates understanding of deeper, causal relationships associated with problems bringing about strategic shifts as solutions (Guijt 2007) that lead to the adjustment of policies and values (Plummer et al. 2013). And triple-loop learning focuses on improved learning processes such that solutions incorporate process solutions (Guijt 2007) while making fundamental changes to governance norms and protocols (Plummer et al. 2013). Prabhu et al. (2007) then elaborated on the processes in of ACM in forest ecosystems to include three stages:

(1) the communication and creation of a shared vision; (2) social learning among stakeholders; and (3) joint or collective action and creating conditions in which necessary change is induced through the group's own connectivity and feedback loops. Williams and Brown (2018) revisited double-loop learning associated with resource management by highlighting the critical importance of the stakeholder involvement and the adjustment of decision-making processes based on increased understanding by stakeholders and evidence-based change. The devolution of decision-and stakeholder engagement related to natural resources management has been widely studied (Berkes (2010). Komarudin et al. (2008) described how learning within multi-stakeholder workshops in Jambi, Indonesia influenced government officials and the nature of district level planning processes and resulting documents. These participatory processes were demonstrated by the willingness to respect local communities, engage a wider range of stakeholders, take into account gender considerations and work across sectors.

A number of interrelated areas identified as requiring greater attention in decision-making include (a) the integration of science and values (Gregory 2012), (b) the importance of a cognitive perspective (Beratan 2007); (c) how people perceive problems and learn from experience (Curtin 2014); and (d) knowledge production and interpretation (Brugnach 2012). Evidence-based and negotiation approaches have emerged with an emphasis on knowledge exchange and co-production of knowledge among scientists, decision-makers and stakeholders (Cvitonovic 2016; Sutherland et al. 2004; Best and Holms 2010; Van Noordwijk et al. 2001; Fazey et al. 2012; Brugnach and Ingram 2012) and resilience design processes that incorporate perception and learning (Curtin 2014). USAID (2018) developed a framework to systematically design development programming that incorporates collaboration (e.g., internal and external stakeholders), learning (e.g., technical evidence base) and adaptation (e.g., adaptive management) within the program cycle and ensuring associated enabling conditions of culture (e.g., relationships), processes (e.g., awareness of decision making processes and stakeholder involvement) and the human and financial resources are supportive.

Influences related to information and knowledge that must be taken into account include the power and status of those generating the knowledge (Fazey 2012), what information is available, access, and capacity for discernment. Other important aspects include how the information is presented, learning style, information absorptive capacity, willingness to query the information provided, level of information processing, the interplay between user engagement and knowledge mobilisation (Harvey et al. 2021) and degree of confirmation bias and distraction level (Gorman and Gorman 2017; Ariely 2010). Hitziger et al. (2019) developed a tool for evaluating multi-stakeholder initiatives at the science-policy interface with an emphasis on transformation and systems knowledge. Brugnach and Ingram (2012) have highlighted the need to integrate different knowledge systems, including experiences and scientific facts, recognising the varying meanings and interpretations among diverse stakeholders when generating shared knowledge.

Building on the theoretical basis and to bring the diverse decision-making elements together in a practical, intentional and coherent application, we developed the SHARED and SHARED Decision Hub at World Agroforestry (ICRAF) as a tailored

stakeholder engagement methodology to respond to the needs of decision-makers in complex environments. The approach provides a comprehensive framework which is customised to specific decision contexts, bringing together processes, evidence and tools to shift the decision paradigm towards more inclusive, inter-sectoral and inter-institutional integration to tackle complex development problems. The approach reinforces the importance of representation, empowerment and views of diverse stakeholders. The conscious process of knowledge creation and the strategic use and accessibility of knowledge in an actionable form, joint identification of objectives and a vision among stakeholders, creates spaces for facilitated deliberation and interaction between stakeholders, including governments and scientists. Increased awareness and understanding of the impact of human actions on the ecosystem are brought about through enhanced government cross-sectoral (or thematic) coordination and by bringing into being new institutional processes supported by capacity-building for knowledge integration and synthesis. The SHARED aims to ensure cohesive communication across multiple institutions, political levels and knowledge systems to build capacity and the evidence base as a continuously linked process within the development outcome pathway.

In this paper, we describe the SHARED for inclusive, evidence-based decision-making and provide a case application of the SHARED for developing a new Integrated Development Plan (2018–2022) in the devolved setting in Turkana County to achieve the policy aspiration laid out by the Turkana County Government.

Method

SHARED Framework

The SHARED process includes four interrelated phases, with structured engagement facilitation used to bind the phases together and support interaction with evidence. This is intended to enhance co-learning, build long-term relationships, level power and information asymmetries, and ensure that evidence can be critically accessed, interpreted, queried and evaluated. The approach is designed to consider a range of knowledge domains. A broad view of evidence is taken and includes data communicated in maps, graphs, numbers, words, images as well as experiential insights in a format that is relevant, interpretable and actionable.

Key phases in the SHARED framework (Fig. 1) consist of: context, integrating evidence, prioritising planning, and learning and responding. The phases are designed to support institutional learning and understanding, shift institutional values and promote organisational change. The framework encompasses key principles including: (a) advancing a holistic- or systems view to raise awareness of the integrated and interdependent nature of the environmental, social, cultural and economic dimensions and causal relationships; (b) establishing a clear understanding of the influencing factors of human and group decision-making; (c) facilitating discourse and learning among different government sectors and multi-stakeholder platforms; (d) collectively articulating mutually agreed, desired sustainable development outcomes and indicators, building upon fundamental ecosystem services and

Fig. 1 The phases of the SHARED framework

nested within national and global goals; (e) generating evidence and experience and tailoring tools in a readily accessible way for problem-solving and option identification; (f) reviewing options based on collectively defined criteria, including risks and potential synergies; and (g) designing option implementation with monitoring and evaluation and co-learning feedback into the process.

SHARED Process

The SHARED was applied during 2015–2018 following a scoping exercise with county-level decision-makers to ascertain demand and priorities. The application of the SHARED process to develop the second Turkana CIDP (2018–2022) was co-designed by the SHARED team and an inter-institutional steering committee led by the DFEP. The timeline and sequence of activities (2016–2018) included the county inception workshop and meetings of sectoral working groups, data teams, and the steering committee. Successive, inclusive, facilitated events to ensure wide stakeholder involvement were carried out by SHARED decision scientists and engagement specialists in collaboration with the TCG to review the previous CIDP review, develop the vision, explore data needs, and synthesise available data, and develop cross-sectoral prioritisation, design of public participation events, and stakeholder feedback workshops, write-shops and validation events (TCG 2018a, b, pp. 81–82).

Facilitated events included stakeholders from local and international civil society, development partner agencies, intergovernmental organisations, sectoral executives and technical staff, county assembly members, national government representatives and scientific and academic partners. Facilitation tools used during structured engagements were drawn from the SHARED facilitator's toolkit (Neely et al. 2020) and also provided in a Turkana facilitation toolkit for building local capacity (Neely et al. 2017). A range of facilitation tools were carried and included, for example, gathering perspectives, holistic visioning and mission development, robust past performance review, root cause analysis, stakeholder mapping, prioritization within and across sectors, nesting local to international development goals and targets and interacting with evidence, among others.

The community consultations took place in each of the 30 sub-County Wards to ensure the local priorities were fully reflected in county-level plans. Public participation is mandated by the Constitution and subsequently the Council of Governors, however these are rarely robust community meetings. In this case, the TCG, SHARED team and Trócaire Kenya led the design of community meetings to ensure: (a) broad participation of women, people with disabilities and vulnerable populations; (b) materials were accessible to the target audience, taking into account factors such as illiteracy and venue; (c) local partners such as religious entities or local NGOs assisted in engaging participation from village and ward level; (d) the split of speaking time for community feedback accounted for 75 per cent of the time spent; and (e) clear mechanisms were in place for recording feedback and translating results directly into relevant planning structures. The summary of community priorities is included in the CIDP (2018–2022 TCG 2018b, pp. 126–139).

To initiate support for integrating evidence into decision-making, the ICRAF Geoscience Lab used a prototype platform to demonstrate a hands-on way for the County Government to interact with data (Vågen et al 2018). The platform, the Turkana Resilience Diagnostic and Decision Support Tool (RDDST), was iteratively co-designed with the TCG and the ICRAF Geoscience Lab using the SHARED process. The RDDST was developed using the Shiny R package (Chang et al. 2017), with JavaScript extensions and custom CSS theming. Combining Shiny R with modern web interactivity, cross-sectoral data were compiled and presented to users in the form of tables and interactive graphics (Vågen et al. 2018).

The SHARED Framework, Facilitation Focus and Learning Loops

In the context laid out in the introduction and based on demand by the Turkana County Government (TCG), the SHARED was applied iteratively, building upon double- (shift in understanding and social values) and triple- (influence and organisational change) loop learning and facilitating a shift from a more ad hoc planning and decision-making process toward a culture of valuing inclusivity, partnership and evidence-based decision-making across the County. Table 1 shows the key SHARED phases, facilitation focus, and related, dominant learning loop applied for transforming the integrated development plan process.

Table 1 Key SHARED phases, dominant learning loop and facilitation focus of the integrated development plan development process

Main facilitation focus and dominant adaptive learning loop	
<i>Context phase (shifting institutional understanding and values)</i>	
Participatory holistic vision setting	Through participatory workshops, development of Turkana County vision and mission and key supporting and sustaining elements
Decision cycle	Structural and behavioural factors influencing decision-making; understanding the decision cycle and entry points for influencing county level decision-making
Stakeholder mapping and cross-sectoral coordination	Understanding key partners, levels of stakeholders and building awareness and capacities related to cross-sectoral departmental interdependence and linkages
Systems mapping and causal analysis	Thinking in systems and causal analyses; strengthening integrated relationships among social, economic and ecological dimensions; clarifying sectoral priority issues, facilitating causal analyses and required stakeholder and sectoral linkages for addressing barriers; designing systems based public participation outreach plan
<i>Integrating evidence (shifting institutional understanding and values)</i>	
Role of evidence	Introducing evidence-based decision-making; Understanding the role of evidence in setting priorities to address development challenges
Bridging sectoral evidence sources and implications	Understanding interrelationships across socio-economic and ecological data and implications for development
Building evidence base	Establishing data priorities through a co-design process and interacting with initial data sources; Identifying key data and information by sector for priority and target setting and validating through facilitated participatory workshops and interaction across sectors; Carrying out participatory, ex-ante progress review at County and Sub-County levels, integrating local perspectives. These efforts resulted in the demand for a data dashboard (Sect. 3.2)
Enhancing data management and interpretation skills	Building capacity in data management—gathering, quality assurance, and use; Co-designing an evidence interface to enhance visual accessibility and interpretability of data to increase actionability
Citizen engagement	Integrating the outcome of a structured public participation process as an evidence source to inform decision-making
<i>Prioritise and plan (organisational change)</i>	
Defining priorities	Defining criteria for priority setting and testing questions for investment including mandated evidence to support requests; Carrying out and integrating systems-based priority setting with communities; Clarifying sectoral focused priorities and cross-sectoral, multi-stakeholder priorities
Linking priorities	Nesting multi-scale development goals by elaborating, linking and aligning county, national, continental and international development goals focusing on the sustainable development goals (SDGs)
Establishing baselines and targets	Harmonising resilience indicators for inclusion in the County indicator handbook to align development targets across sectors; Establishing a clear template for each sector articulate a baseline before setting a development target
Integrated planning	Operationalising integrated working relationships through co-ordinated templates for each sector to compile priorities, development targets; Designing evidence based sectoral plans and build multi-stakeholder and cross-sectoral transformative and integrated flagships ^a and budgets; Designing of a learning and evaluation approach
Redesigning plan structure	Co-designing the second CIDP structure to make it more accessible to planning, implementation, and monitoring
Drafting and launching of county integrated development plan	Creating staged facilitated interactions and write-shops for multi-stakeholder drafting and feedback on the plan
<i>Learning and responding (shifting institutional understanding and values and organisational change)</i>	
Detailing monitoring and evaluation	Carrying out a robust review of previous accomplishments and analysis of constraints and causes; Designing of Integrated Development Plan for ease of tracking and monitoring; Designing participatory reflection, learning and re-planning approach to Mid-Term Evaluation

^aFor the purpose of this work, an integrated transformative flagship describes an implementation effort based on a set of criteria and requiring joint implementation of three or more government sectors along with diverse stakeholders and partners and intended to positively impact a large part of the population and natural resources in a transformative, adaptive and realistic way

Results and Discussion

The phases of the SHARED framework are not always sequenced but rather feed-back into one another, however, for the purposes of this discussion, we use the phases discretely to frame the discussion. The results and discussion section are outlined according to the results of the phases of the SHARED framework and organised according to the learning loop result types (a) shifts in institutional understanding and values and (b) organisational change. Table 2 provides a summary of the two types of results by phase. We then discuss indicative tools, methods and approaches used by phase and result type.

Context Phase

Shifting Institutional Understanding and Values

Establishing a Multidimensional Vision to Guide Processes and Planning A principle first step of adaptive collaborative management for shifting values is the collective development of a guiding vision. Some 185 representatives of County government sectors, County Assembly members local and national NGOs, development partners, UN agencies, and national government provided input into the vision to drive the development of the CIDP. The vision was developed in three stages (after Savory 2016): (a) the desired outcome; (b) what has to be in place to support the desired outcome; and (c) what has to be in place to sustain the desired outcome and supporting elements. The vision integrates social, economic, cultural and environmental dimensions bringing in the role of leadership and governance, all of which contribute to a more robust and compelling guide for planning efforts. The elaborated vision and accompanying mission were ultimately distilled to the short vision and mission statements as required in CIDP guidelines: (a) County Mission: To facilitate social, environmental, economic and equitable transformation of the Turkana People; (b) County Vision: We the people of Turkana County aspire to be socially empowered citizens living in a peaceful, socially equitable and culturally sensitive environment. Nested priorities, goals and aspirations demonstrated county priorities and national, continental and global levels (TCG 2018b, p. 136).

Applying Decision Cycles At the outset of the interactions with all sectors of the County Government and in a safe space for processing ideas, the SHARED team sensitised County leaders to the factors that influence decision-making, namely well-being, world views and confirmation biases, openness to change, power relationships, and information availability and discernment capacity. Greater understanding of influencing factors was used to consider how current decision-making was taking place in Turkana County. County government officials mapped the existing decision cycle and provided an initial overlay of intervention points for improving the decision processes going forward. The results of this exercise provided input as to how expanded relationships could be sequenced for greater

Table 2 Shifts in institutional understanding and values and organisational change resulting from the use of the SHARED framework, tools and approaches

SHARED framework phase	Resulting shifts in institutional understanding and values	Organisational change results
Context	<p>Established holistic vision that addresses social, economic, ecological and cultural dimensions taking into account key supporting and sustaining elements</p> <p>An enhanced understanding of structural, behavioural and power influence in decision making and how this relates across sectors and feeds into the finance and planning structures</p> <p>Enhanced understanding of the value of systems approaches and an understanding of underlying causes of development challenges faced. This was particularly evident in linking pastoral livelihoods and land degradation, two areas that had not been linked in any policy or implementation aspects previously</p> <p>Sensitisation across sectors and stakeholders and enhanced appreciation of the value of multi-stakeholder approaches and partnerships</p>	<p>An updated decision cycle in the form of amendments to the annual planning and budget cycle, indicating where evidence and multi-stakeholder perspectives entry points exist to inform decision making and budget allocation</p> <p>Updated methodology for public participation with partners and leveraging off local level committees and faith based organisation networks to reach a wider more representative network. Public participation meetings were more participatory and inclusive of socio-culturally diverse stakeholders and limited time that government representatives spoke, allowing for greater input from community members</p>
Integrating evidence	<p>Created a culture and enhanced understanding of the value of evidence</p> <p>Increased understanding of inter-relationships between social and biophysical evidence sources</p> <p>Demand for cross-sectoral data access and platform</p> <p>Enhancing data management and interpretation skills and development of a data management plan</p>	<p>Circular from the Governors' office requiring all proposed projects to be based on thorough 'research' such that budget requests be based on evidence rationale</p> <p>Movement of statistics department into Department of finance and economic Planning, county statistical abstract</p> <p>Data management system and launching of Turkana County resilience diagnostic decision dashboard</p> <p>TCG requests that bilateral, NGO and research activities provide their data to support decision making</p> <p>Integration of insights from structured community meetings into planning</p>

Table 2 (continued)

SHARED framework phase	Resulting shifts in institutional understanding and values	Organisational change results
Prioritise and plan	Inclusive approach of cross-sectoral and multi-stakeholder planning Nesting of county goals and targets and their contribution to national, regional and international goals and targets as well as linkage to partnerships such as UN As One—a novel partnership in Turkana County linking multiple UN organisations Development of criteria to assess investments and partners with whom the government partners based on development priorities	Development of cross-sectoral and multi-stakeholder transformative flagships, whereby multiple sectors budgets were linked to guide implementation on linked development priorities Revised indicator handbook County Assembly contributed annual budget allocation to continued SHARED work Robust partnerships established for investments based on an evidence focus of CIDP e.g., USAID NAWIRI Project, GOK, (2020) Development of a resource mobilisation plan and resource mobilisation directorate Actionable CIDP and popular version
Learning and responding	Development of a detailed Monitoring and evaluation plan with sector-based baselines and targets established for tracking progress	Development of monitoring and evaluation bill (2019) and M&E policy

perspectives and participation and where in the process evidence could bolster rational decision-making.

Organisational Change

The County government refined their annual decision-making and budget allocation process to take into account updated resilience indicators and identifying entry points for evidence and multi-stakeholder perspectives to inform decision-making and budget allocation.

Integrating Evidence

Shifting Institutional Understanding and Values

Introducing Evidence for Enhanced Decision-Making In a staged approach, the County Government sectoral leaders and then a wider group of stakeholders including national government, intergovernmental organisations and non-state actors were invited to consider the value and use of evidence in decision-making. This resulted in a newfound interest in, and support for, using evidence to bolster more rational decision-making to overcome some of the identified behavioural influences on decision-making and to enhance transparency.

Decision Dashboard Departmental representatives welcomed the decision dashboard as a way to better understand their county and were quick to validate and discuss the available data based on their experience. The County government subsequently requested that a cross-sectoral data platform be created to showcase diverse data sources to support decision-making. The dashboard included data on land health (soil erosion, soil organic carbon, forage indices, water resources and rainfall and land cover information from the Land Degradation Surveillance Framework (Vågen and Winowiecki 2020); irrigation, livestock, energy, tourism, health and education (Kenya Bureau of Statistics); nutrition, water, sanitation and health (WASH); and human security data (Armed Conflict Location and Event Data project (ACLED)).

The County further asked to collaborate in the development of data management and capacity plans with the newly created Turkana County Statistics Department to include robust mechanisms for capturing and formatting data, data processing, data analytics and data visualisation. Without a formalised central point of access within the County nor the means for one sector to review the evidence from another sector, taking an evidence-based approach was a challenge. As data sets became available, challenges emerged including concerns about data quality, incomplete data and unreliable data sources, the resistance of some institutions to share data, and limited capacity to gather, analyse, synthesise or interpret data among others. Another challenge in bringing data together was the culture of individuals, rather than databases, holding data and data ‘leaving’ the county as staff left.

Evidence Walls for Interaction and Discussion During the CIDP review and planning process, the data available from different sectors were presented to all sectors and stakeholders on physical ‘evidence walls’ showing socio-economic and biophysical data together to enhance comfort in looking at different data sets together and to reinforce systems thinking. Strikingly, if a sector found data from their own sector presented a negative trend, it prompted either a defensiveness (e.g., the data cannot be right) or, more importantly, a broader discussion around interpretation, the validity or falseness of the data (e.g., bringing older children to primary school to give a perception of greater funding needs), protection of sectoral reputations, and the fact that evidence could unveil uncomfortable realities.

Organisational Change

Evidence Rationale for Allocations In the process of examining the value of evidence and procuring actionable evidence, the Turkana County Finance and Economic Planning Department instructed that henceforth all requests for finances for county activities by the sectors must be backed by an evidence-based rationale and analysis.

Statistics Department Moved to Economic Planning and Finance As a result of SHARED engagement and challenges associated with data, the TCG became more focused on evidence-based planning and decision-making and subsequently moved the government’s data management and information technology units to be incorporated under Economic Planning and Finance in order to enhance data management and better link county data with decision-making processes.

Requesting Evidence from Other Organisations Carrying Out Efforts Working in the County Based on the need to enhance data sharing and availability for County decision-making, the TCG put in place a process for requesting that data collected through bilateral projects, research efforts, UN and NGO activities and others in the County be registered back to the County for inclusion in their data management system.

Ownership of Decision Dashboard To both share available information and enhance access, transparency and interaction among sectors and stakeholders in the County and beyond, the TCG placed the dashboard on the Turkana County Government website as part of their Resource Centre (Fig. 2).

Data Management Plans in Place Co-developing the RDDST resource not only strengthened the capacity of Turkana’s decision-makers to understand and use different forms of information, but also set in motion the buy-in for improving data management approaches. A baseline on current data usage practices and barriers to data use across the government departments and participating partners was gathered so that protocols could be developed to enhance data collection and use. This resulted in the development of a data management plan that became a critical part of the CIDP (2018–2022). The County has also produced an Annual County Statistical Abstract

Fig. 2 Screenshot of Turkana resilience diagnostic and decision support tool on Turkana county government website under resource centre (turkana.go.ke)

with updated information categories across sectors. Data is collected, analysed and disseminated to a broader set of stakeholders.

Prioritise and Plan

Shifting Institutional Understanding and Values

Thinking in Systems Throughout the SHARED phases and with an aim to ensure resilience programming, the County government representatives and a diverse set of stakeholders were introduced to socio-ecological systems thinking through participatory mapping of social and ecological dimensions (e.g., children dropping out of a school with land degradation) and the identification of multi-dimensional resilience indicators. With this systems awareness, County sectoral leaders engaged, for the first time, in an exercise to clarify their roles in the system—what they gave and received from one another and how the sectors are interrelated.

As part of an ex-ante participatory assessment of historical government sectoral achievement, multi-stakeholder teams used causal analyses to understand constraints to achievement and identified the underlying political, social, environmental, cultural and institutional dimensions of development challenges. Key challenges identified included land degradation, scarcity of safe and adequate water, low food productivity, insecurity, uninformed decision-making, uncoordinated urban development and poor revenue collection.

As an example, regarding the challenge of land degradation, teams recognised the following underlying causes which had to be taken into account in their problem-solving:

- (a) unsustainable agriculture, overgrazing, deforestation and fuelwood collection, loss of biodiversity, vegetative cover and water holding capacity and nutrients erosion (environmental).
- (b) need for immediate or alternative income (economic).
- (c) differentiated access to land, cultural norms and gender inequality; lack of capacity and knowledge at community and county levels (socio-ecological).
- (d) lack of coordination among departments/sectors and political interference (political).

In this case, the causal analysis further identified multi-dimensional implications of not addressing the underlying causes. These included the exacerbating impact of drought and reduced productivity of agricultural and pastoral lands which, in turn, led to malnutrition and loss of cognitive capacity in children, increased school drop-outs and loss of educated youth, loss of lives and livestock, increased emergencies, migration and marriage of girl children to secure a dowry as family income for livestock purchase, among others.

Building Collaboration and Coordination Importantly the causal analyses resulted in identifying the kinds of sectors and stakeholders that are required to contribute to problem-solving. For the most prevalent barriers, the County government and partners identified which County sectors and stakeholders would have to collaborate if the underlying issues were to be overcome. What quickly became apparent to the County government and partners was that, along with the non-governmental and inter-governmental actors, each issue required the collaboration of a minimum of six and a maximum of ten (all) departments to be engaged in efforts to address the identified barriers.

This understanding brought to light the potential ineffectiveness of single sector approaches and raised tensions around sectoral roles and responsibilities and the typical competition for resource allocations. There was, however, consensus across the 185 government and partner representatives present that to attain the County's vision, cross-sectoral coordination was needed with a separate financial mechanism to enhance coordination. The valuing of cross-sectoral integration, multi-stakeholder collaboration and the systems approach to problem-solving was parlayed into an inclusive design of transformative, integrated flagships in the new CIDP (2018–2022, TCG 2018b, p. 268).

Enhanced Public Participation As part of the planning process and in accordance with the public participation dimensions of the new Kenyan Constitution, the SHARED team, government sectors and stakeholders co-designed an inclusive and interactive process for village- and ward-level problem analysis and priority setting for inclusion in sectoral and cross-sectoral flagships. This resulted in an updated methodology for

public participation with partners and leveraging off of local level committees and faith-based organisation networks to reach a wider more representative set of local actors.

While the SHARED approach was applied in response to a request from the Turkana County Government, it was new to some of the key collaborating institutional partners based outside of Turkana County. Building buy-in and ownership among national and intergovernmental organisations presented important time investments to sensitise these entities to the approach and the RDDST, and to map the value to their institutional priorities. However, by the time the Governor launched the use of the SHARED approach, there was an easy and concerted effort by all institutions to refer to themselves as members of the SHARED ‘team’ reflecting a wider set of investments in the process.

Nesting Local to Global Visions and Aspirations Around Development Priorities As devolved governments wrestle with their own goals and targets, they are also contending with how they can contribute to national, regional and international targets and commitments. To enable an alignment across these different targets, capacity and reporting structures need to be developed to understand how local-level efforts feed into national and international targets as well as how international targets, such as those of the SDGs, need to and can be implemented at the local level. Developing an organisational framework that linked local resilience indicators and goals with national goals and targets (e.g. the Kenyan Constitution, Kenya’s 2030 Vision, the Ending Drought Emergencies Common Programming Framework, and the national contributions to multilateral environmental agreements such as the Bonn Challenge) as well as continental goals (the Africa Agenda for 2063 Aspirations) and the global SDGs, prompted a better understanding of the inter-linkage of different sectors and placed county development planning and contributions in the context of addressing local to global development challenges.

Organisational Change

Putting the Integrated Dimension Back into Integrated Planning Partnering with the SHARED Team, the DFEP and the Governor, the County embarked on a coherent year-long process to deepen and broaden County and local engagement, reflect on accomplishments, build a multi-sectoral vision, enhance cross-sectoral participation and develop evidence-based sectoral and multi-sectoral and multi-stakeholder transformative flagships, resulting in an actionable CIDP and a popular version that guides the implementation plan, provides for ready monitoring and evaluation of achievements, and organises information to employ for resource mobilisation.

Victor Lekaram, Director of Planning, stated (2020),

In the original CIDP (2013–2017) we only had sectoral plans and we have a number of examples of projects for which we have not seen the results. In the second generation CIDP (2018–2022), we have seen much greater return on the investments in actions toward the vision.

Table 3 Differences between the CIDP (2013–2017) and the CIDP (2018–2022) as a result of application of SHARED framework

	CIDP 2013–2017	CIDP 2018–2022
Process	<p>Produced in a rapid timeframe without wide consultation</p> <p>Drafted by a consultant</p> <p>Limited engagement with non-government stakeholders or local communities</p> <p>Limited cross-sectoral interaction</p> <p>No clear baselines or rationale for development or sector based targets or expenditure proposals</p>	<p>Wide scale public participation across sub-counties and wards</p> <p>Coordinated sector based planning meetings convened by the Ministry of Finance and planning to discuss and negotiate budget priorities</p> <p>Guided Template and technical support to each sector including setting of baselines and clear annual targets and expenditure rationale</p> <p>Sectors had to justify expenditure based on scoping of needs and analysis—remember they had those community consultations to gather development needs per sub-county</p> <p>Development of Transformational Flagships with combined budgets between two or three sectors</p> <p>Emphasis on building long term resilience</p> <p>Structured review of CIDP I as a basis for building a more inclusive engagement and drafting plan</p>
Documentation	<p>Final document not in accessible user-friendly format and budget and sectoral plans unclear</p> <p>Limited analysis of constraints and challenges or root causes of development challenges</p> <p>Sectoral plans with limited means of tracking progress or verification and no baselines</p> <p>Sector based flagship projects produced as a long list with unrealistic scale and scope beyond the County budget allocation</p> <p>No analysis of public participation or clarity on engagement into CIDP drafting process</p>	<p>Holistic Vision drafted and refined through consultative workshops</p> <p>Expanded evidence-based overview of County</p> <p>Inclusion of structured County wide and sub-County accomplishments, lessons learned and priorities</p> <p>Emphasis on Turkana County Contributions to National goals, SDGs, Africa Agenda 2063</p> <p>Causal analysis driven and systems approach to problems identification which supported cross-sectoral and multi-stakeholder transformative flagships</p> <p>Format for sectors programs with specific planned activities, targets and budgets across 5 years and a clear baseline to work from</p> <p>Development of monitoring and evaluation framework</p> <p>Data and knowledge management framework</p> <p>Popular CIDP accessible to literate and non-literate audiences</p>
Outputs/results of planning	Limited results based on identified actions	Early progress on identified activities Bills and laws as outcome of planning process

Table 3 shows an indicative summary of differences in the process, documentation and outputs between CIDP I (2013–2017; TCG, 2013) before the SHARED engagement and CIDP II (2018–2022; TCG 2018b) with SHARED process engagement. The comparison was developed by the TCG planning department and the SHARED team.

Ownership and Partnerships Across Sectors and Stakeholders A key result of the SHARED process was consistent TCG leadership in creating transformative, inclusive flagship programmes that were based on evidence, addressed root causes, and contributed to both local goals and those at national and international levels. Flagships were carried out by teams involving multiple sectors and a diverse set of stakeholders with clear linkages to local, national, continental and global goals. The Governor of Turkana County suggested that there be a cross-sectoral coordination unit with joint budgetary allocations to implement the integrated flagship programmes, further incentivise collaboration and reduce the competition for resources among sectors.

Operationalising Partnerships The SHARED consultative process allowed the TCG to overcome hurdles such as legal processes and blocks, and now stakeholders are involved at every stage and everyone has an opportunity to contribute. The partnerships built and new partnerships developed are now considered the basis for the TCG way of working.

Expanding Local Participation The TCG has also increased the participation of local citizens through more participatory methods to understand priorities at local level and make planning an authentic, inclusive process. This has been enhanced through a partnership with the local Catholic Diocese in the County.

Building Ownership As the SHARED process was embraced by the TCG, it was also embraced by champions from other organisations including UN Agencies through the ‘Delivering as One’ mechanism that promoted the SHARED approach in a proactive way to operationalise evidence-based and inclusive governance, reflecting the priorities of the new constitution. Another aspect of the two-year process was that financial support at different stages, by various institutions and the County came and went. However, there was a voluntary spirit among the institutional actors that contributed to continuing the process, which we attribute to the passion and excitement of this alternative approach to county-level decision-making. The leadership of the Finance and Economic Planning department changed three times during the process, along with other changes in other sectoral leadership, and, because of overall ownership by the government, the SHARED approach was viewed as critical to continuing in the development of the CIDP (2018–2022).

Negotiating New Resources Through a Resource Mobilisation Directorate Based on the SHARED process for developing the CIDP and as outlined in the document, the TCG has established a Resource Mobilisation Directorate with 26 partner organisations that allow the County to co-leverage and attract resources that

work on these processes. A recent award of USD100 million, emerged from the inclusive, evidence-based approach that the County is taking.

Learning and Responding

Shifting Institutional Understanding and Values

Monitoring and Evaluation (M&E) Data Through the SHARED process, both in terms of integrating evidence and planning prioritisation, the County recognised the dearth of quality data, and particularly the lack of baseline information upon which to effectively track and evaluate the progress of County sectoral and cross-sectoral efforts and flagships. Within each of the sectors, working groups identified the barriers to gathering and managing data and information that could support M&E efforts. Examples included conflicting mandates across sectors and unclear lines of responsibility for collecting data and no clear modalities or protocols for data collection.

This contributed to the County's determination that developing a functioning data management system would be critical to support monitoring and evaluation, including the establishment of sector baselines to track progress within the CIDP. With quality data and effective data management, the County Integrated M&E System (CIMES) established in 2016, could be operationalised to support budget decision-making and county planning; enhance County departments and partners' capacities to manage activities at multiple levels; and enhance transparency and support accountability relationships by revealing the extent to which the County had or had not attained its desired outcomes with the necessary evidence to underpin accountability (TCG, 2018b). The CIDP (2018–2022) provided tables for each sector describing the key monitoring and evaluation indicators for key outcomes within the sector.

Organisational Change

Monitoring and Evaluation Policy and Unit In 2019, following the M&E plans developed in CIDP (2019–2022), the County Assembly passed a formalised Monitoring and Evaluation Bill to 'provide a framework for coordination, collaboration and alignment of monitoring and evaluation in the implementation of Turkana County policies, programmes and projects; to establish an institutional and funding framework for monitoring and evaluation; and for connected purposes. As part of this change, the County established a Turkana County M&E Advisory Committee and a Monitoring and Evaluation Directorate within the DFEC.

Conclusion

In this paper, we have described a systematic, interactive approach to creating a more inclusive and evidence-based decision-making process in a recently devolved governance structure under conditions of complexity. Based in adaptive collaborative management, the SHARED application in Turkana County in Kenya intentionally integrated multiple-loop learning corresponding to, in this case, institutional learning that contributes to a shift in understanding and values (corresponding to double-loop learning) and organisational change in the form of changes in norms and policies (corresponding to triple-loop learning). The initial resilience-related policy aspiration provided by the Turkana County Government centred upon a need to ‘make decisions that will have an impact on outcomes—despite the risks Turkana faces. This effort catalysed the integration of institutional learning, a shift in the decision-making approach and ultimately guided the five-year, integrated development plan and subsequent policy changes.

With the aim of shifting understanding and values from the outset, the SHARED approach focused on:

- (a) creating an understanding of how decisions are taken, based on behavioural and structural influences and self-awareness of the existing decision-making process used by the Turkana County Government.
- (b) co-developing a compelling and commonly held vision, framed in resilience, among a broad set of government sectors, partners and stakeholders.
- (c) introducing systems thinking and causal analyses for addressing development challenges.
- (d) creating an evidence culture to motivate securing, managing and using socio-ecological evidence; and
- (e) facilitating an appreciation for the insights of diverse actors and the advantage of functioning partnerships and collaboration from the community to county level with responsibility for adaptively managing resources.

Integrating accessible and actionable high-quality evidence into decision-making was a critical dimension of creating organisational change and required an iterative approach to create honest interrogation and subsequent use of evidence and investments in data collection and management. Barriers included limited skills and a limited culture of gathering, organising and storing data, low capacity to interpret data, particularly data that spanned socio-ecological dimensions, and overcoming defensiveness associated with displaying data that might reflect negatively on a sector’s performance. The appreciation for evidence led to the creation of a data management strategy, a central web-based and transparent platform for sharing data, the requirement of evidence to support resource allocation proposals, the integration of statistics into the planning department, and an M&E framework, department and policy.

Purposeful, structured and continuous stakeholder engagement processes resulted in more meaningful community participation and deepened cross-sectoral and

multi-stakeholder linkages and relationships. Working hand-in-hand with the pivotal Department of Finance and Economic Planning led to the promotion of coordination and finance mechanisms that foster synergies, cross-sectoral and multi-stakeholder partnerships and transformative pathways.

The interrelated phased and systematic SHARED approach generated opportunities for iterative collaborative learning across a range of stakeholders and led to fundamental organisational change that will support local and County aspirations which will, in turn, guide future resilience programming and implementation. The results in Turkana County reported in this paper bear this out.

The SHARED approach continues to be developed and adapted. This was achieved most recently through research on how evidence must be visualised to maximise both interpretability, uptake and use by different audiences, and also how expanded social network analysis and survey tools can be used to better quantify changes in stakeholder knowledge, values and behaviours.

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Declarations

Conflict of interest On behalf of all of the authors, the corresponding author states there is no conflict of interest.

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