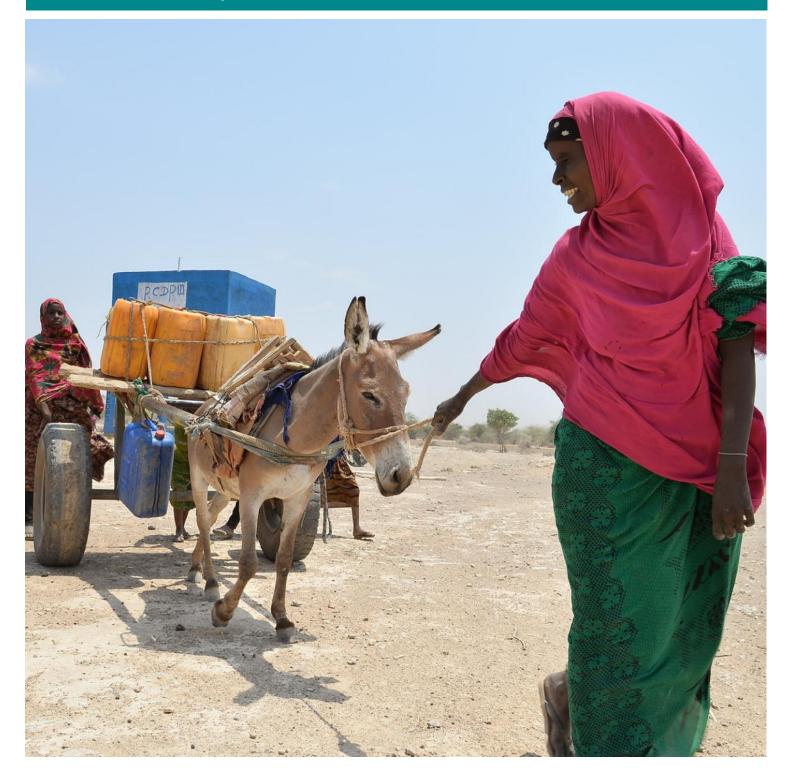


How to do

Engaging with pastoralists – a holistic development approach

Pastoral development



How To Do Notes are prepared by IFAD's Sustainable Production, Markets and Institutions Division to provide country programme managers, project design teams and implementing partners with practical suggestions and guidelines to help them design and implement programmes and projects.

They present technical and practical aspects of specific approaches, methodologies, models and project components that have been tested and can be recommended for implementation and scaling up. The notes include best practices and case studies that can be used as models in their particular thematic areas.

How To Do Notes provide tools for project design based on best practices collected at the field level. They guide teams on how to implement specific recommendations of IFAD's operational policies, standard project requirements and financing tools.

The **How To Do Notes** are "living" documents and will be updated periodically based on new experiences and feedback. If you have any comments or suggestions, please contact the originator.

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Acknowledgements

This How to Do Note has been prepared in collaboration with Saverio Krätli, Pastoral development expert, Michele Nori, Agro-pastoral livelihoods expert, Alban Bellinguez, Livestock development expert, Marco Bassi, Anthropologist, and Oliver Mundy, IFAD Environment and Climate Analyst under the supervision of Antonio Rota. Thanks are due to the peer reviewers from IFAD: Antonella Cordone, Senior Technical Specialist - Indigenous Peoples and Tribal Issues, Annabelle Lhommeau, Country Programme Manager and Harold Liversage, Lead Technical Specialist - Land Tenure.

Maria-Elena Mangiafico provided editorial, presentation and overall coordination support throughout the publication process.

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June 2018

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Acronyms and abbreviations

IUCN International Union for Conservation of Nature

FAO Food and Agriculture Organization of the United Nations

FPIC free, prior and informed consent

M&E monitoring and evaluation

Introduction

Pastoral livelihoods are mostly found in rangeland areas, where the most vulnerable rural populations are known to be concentrated and persistently characterized by high levels of poverty combined with insufficient institutional and governance capacity. The territories inhabited are marginal, often spreading across more than one state, with limited capacity to influence policy agendas. These are also regions with a history of low levels of investment in social and economic infrastructure, where development programmes have too often neglected the relevance of mobile lifestyles, resulting in negative impacts on the viability of the pastoral system. Pastoralists adapt to difficult environments, which calls for a specialized approach to development. This How To Do Note first outlines the problems developers need to be aware of in pastoral development. It also indicates which IFAD policies are relevant for the key issues of pastoral development and provides guidelines for engaging in pastoral development in IFAD-supported projects and programmes. It describes how to balance and apply IFAD's procedures, instruments and practical guidances. Building on the Lesson Learned part of the pastoral development toolkit and on the key issues, a general framework for pastoral development is set out and additional guidance is provided for designing and implementing projects in pastoral areas.

Key issues in pastoral development

Pastoral systems remain the main livelihood option for providing food, income and employment in challenging territories such as drylands and mountainous areas. Pastoralism benefits not only pastoral communities, but also those living in farming areas, urban centres and coastal regions, all of whom profit from trade and from the value chains of pastoral products. Pastoralism also provides essential ecosystem services, such as carbon sequestration and biodiversity conservation, and their healthy functioning is considered critical to securing both livelihood resilience and sustainable development in most drylands and mountain regions. Particularly in Africa, pastoral systems are also seen as uniquely positioned, potential allies in the struggle to prevent remote and desert regions from becoming a breeding ground for organized crime and international terrorist groups. The full value of pastoral systems, and therefore the real cost of losing them, remains poorly captured in public data.

Today, international interest in pastoral systems is again on the increase. The core question in pastoral development is shifting from how to anticipate variability and "upgrade" livestock production beyond "traditional" pastoralism to how to support modern, sustainable pastoral systems as they adapt to integrate variability and take advantage of it. This shift is key to strengthening risk management and resilience, as well as to the goal of increasing productivity and reducing poverty in pastoral contexts.

The process of embedding pastoral systems into a coherent vision of modern, resilient and sustainable rangeland development is under way, presenting great potential for innovative and carefully targeted investments.

The relevance of mobility

Pastoralists base their livelihoods on rearing livestock. They rely mostly on natural grazing by accessing scarce and sparse natural resources and adopting mobile lifestyles. Pastoral rangelands amount to some 25 per cent of the global land area, in territories ranging from African drylands to the Central Asian steppes, from European mountains to the Andean plateau. They are characterized by inherently poor soils and extreme climatic conditions. In contexts such as these, limited and erratic water availability represents one of the main structural constraints to crop production and other forms of agriculture (IFAD, 2010a).

Pastorialists' reliance on mobile livestock-rearing, which distinguishes them from other rural communities, lies at the heart of the pastoralist logic of "interfacing variability in the environment with variability in the production system" (Krätli, 2014): pastoralism is an adaptive specialization for sustainable food production in highly variable environments. Livestock can be considered the main "technology" for converting available grasslands into food for humans – animal proteins in the form of milk and meat – and fibres (wool, cashmere, etc.), and transferring these from one place and one season to another. Besides being a primary means of production, livestock is also a service provider, for transportation and for complementary farming activities. Animals are also important as a means of transaction as they represent the primary source of exchange, income, loan collateral, gift and often the sole means for saving, investments and insurance in certain areas; in this regard, livestock is often the main asset that ensures access to education and health services (IFAD, 2010a).

The combination of different species of large and small ruminants in pastoral herds serves to enhance complementarity of resource utilization and minimization of risks related to production failures. Different types of livestock also have different reproduction rates, allowing different options in stock reconstitution after political or environmental shocks. Stock diversification is, therefore, an important feature of resilience, especially in the current context of climate change, which is increasing the recurrence of environmental hazards in pastoral areas. The diverse animal species carry specific socio-economic and ritual implications and involve household members to different degrees in animal care and management practices. High stock diversification requires flexible arrangements in family and homestead composition, and spatially extensive social networks to accommodate the different grazing needs at different times of the year.

Tracking the best pasture through the mobility of herds is key to maximizing animal nutrition, and therefore productivity, in environments characterized by variability. Combined with livestock selective feeding, strategic mobility can also contribute to the sustainable use, and indeed improvement, of forage resources (Silvestri et al., 2012).

Apart from its productivity aspects, mobility is also a strategy to access and exchange products and services, seize market opportunities or walk away from trouble. Mobility is essential for the adaptability and resilience strategies of these communities to cope with climate variability and to mitigate crisis situations (FAFO, 2016). Constraints to mobility represent direct threats not only to pastoralists' livelihoods but also to ecosystem health.

The geographical dimensions of mobility vary from pure nomadism (opportunistic, no fixed base – such as those practised in semi-desert areas) through various forms of transhumance (set migratory routes on a seasonal basis – such as those allowing for a better exploitation of Sahel and Sudanese zone complementarities), to more sedentarized patterns of agropastoralism (combination of mobile livestock and seasonal crop production) – each demanding a different type of involvement from household and herd members (IFAD, 2010a).

In the past, mobility was regarded as a sign of lack of progress, a constraint to the adoption of a modern lifestyle and efficient production practices, and an impediment to accessing services. Programmes for pastoralists have been focused on sedentarizing them, often in combination with the promotion of agricultural practices in marginal environments. However, mobility is the basic condition that allows pastoralists to thrive in their geographical areas, by also ensuring sustainable use of natural resources and maintenance of a rich semi-natural biodiversity. Today, mobility and the governance solutions built around such features need to be acknowledged as the starting point of development projects designed for pastoralists. Intensification should not be achieved by converting pastoralists into farmers, but rather by carefully supporting current mobile practices and by focusing on improving livestock-related value chains.

Environmental sustainability and climate change

Mobile livestock-keeping is potentially more resilient to global climate change than any other land-use system. Pastoralists have thousands of years of experience to draw upon in dealing with environmental variability, and their mobility and adaptability make them uniquely placed to cope with climate variations – with an important role to play where other livelihoods are likely to fail.

Pastoral resource management capacities to cope with such vagaries have gradually eroded due to the encroachment of different external interests on rangelands, particularly in recent decades. Enhancing and securing pastoralists' access to strategic resources is, in this regard, essential if they are to respond effectively to the impacts of climate change (Nori and Davies, 2007). Policy choices and investment options are, therefore, critical in determining whether pastoralism is increasingly marginalized and jeopardized, or whether it is recognized as a rational and effective production system, well adapted to coping with environmental variability. The economic returns of mobile pastoralism would be even higher if social and environmental externalities were to be accounted for. Apart from the social relevance of keeping rangelands safe and providing inhabiting communities with income and employment, there is also increasing awareness of the biodiversity value of open rangelands (Box 1).

The ninth core principle of IFAD's Environment and Natural Resource Management Policy recognizes the need to increase access to environment and climate finance mechanisms. Increased attention has also been given to the economic value of ecosystem services and carbon trading in pastoral areas. However, there is no standard framework for assessing returns in predominantly pastoralist land use or for measuring the potential cost of degrading rangelands or increasing social volatility (King-Okumu, 2015). Consequently, the cost-benefit analysis of replacing pastoral systems with something else tends to be methodologically in favour of alternatives.

Institutional settings

Pastoralists require access to specific resources – grazing lands, wells, rivers, ponds, wild fruits, tubers, gums, wildlife, forests and trees for fodder, shade, fencing and construction – at different times of the year. The resources that, on the whole, make the pastoral system viable are distributed over

Box 1. Sustainable pastoral systems

There is a large body of evidence linking pastoral management strategies with sustainable rangeland management. Three principal elements are essential to understand the role of pastoralism in delivering sustainable outcomes:

(i) the contribution of pastoralism to

the maintenance of natural resources; (ii) pastoralism's resource efficiency and sustainable production in highly variable dryland environments; and (iii) the conditions that enable pastoralism to deliver on its green economy potential.

Source: IUCN, 2014.

large territories, often extending beyond national boundaries. Specific pastoral groups establish customary rights that are usually governed by principles of flexibility and reciprocity. Many pastoral societies also require that territorial boundaries remain flexible, with rights overlapping those of other pastoral or agricultural communities, requiring continual negotiation over access (Jonckheere, Liversage and Rota, 2017). In order to regulate these needs and to display their long-standing capacity to respond to climatic and market-related vagaries, pastoral systems require a sophisticated level of organization and an institutional basis that are closer to the model of a society than that of a farm (Box 2). These systems ensure access to important resources by all community members and thereby fulfil the important functions of social security and conflict resolution (IFAD, 2004).

Pastoral governance mechanisms entail specific spatial and time scales that are often difficult to mirror in formal institutional settings. A case in point is the Food and Agriculture Organization of the United Nations (FAO), which has more than five different departments dealing with pastoralism. National states rarely embed or tolerate the flexibility, opportunistic approach, multilevel operating system, mobility and negotiated rights that characterize pastoral systems; a number of different ministries tend to be involved in pastoral development, though most of them in marginal ways. Pastoral resource management takes people and valuable assets to remote areas, and pastoral networks and routes entail in many cases a regional level, which limits the capacity of states to guarantee basic rights, services and protection, also, in part, because of the high financial and transaction costs.

Box 2. A sophisticated institutional setting

A study promoted by the World Bank in 1997 defines pastoral institutions as socio-territorial organizations that include:

- mobility and flexibility, to respond both to fast-changing conditions and to growing external pressures
- social differentiations, including decision-making and sharing of benefits
- adaptation to growing population figures and growing internal demands, as pressure on resources and the related increase in productivity of rangelands and animal herds remain a challenging undertaking
- interaction with other sectors of society, through emigration, trade and market exchanges
- drought management and related coping mechanisms
- conflict management and resolution, though modern technologies and global politics are changing the nature of such conflicts.

Source: Pratt, D.J., Le Gall, F. and De Haan, C., 1997. World Bank.

Problems of pastoral tenure

The relationship between pastoral communities and land varies from one group to another, as do land access rights, which are often quite flexible. The capacity to access resources when needed in order to make the most effective use of mobile livestock represents a critical asset in maximizing productivity in pastoral systems, while securing their ecological sustainability, and in managing risks in pastoral areas. Experience shows that patterns of access to resources in pastoral societies cannot be simply framed and labelled "public", "private" or "open" because a number of rights and claims coexist and compete over livestock, as well as over water points, grazing areas, forest, salty areas and other range resources. This is the reason why social capital and political capital are particularly relevant in pastoral systems as they determine the capacity to negotiate access to vital resources at critical times to cope with environmental variability.

Securing the rights of herders to access, control and use the resources they rely upon remains a major undertaking in pastoral regions as "modern" tenure systems have largely failed to consider the way land is used in pastoral systems to optimize production, especially with regard to the flexibility required by mobility strategies. In the constitution of many countries rangelands are classified as belonging to the state, with little appreciation or legal recognition of the community-based/customary institutional arrangements in place. The introduction of privatization and land-titling schemes, even when done with the aim of securing access for pastoralists, has proved inadequate to serve land tenure needs in pastoral systems, while often enhancing social inequality and exclusion (Rutten, 1992; van den Brink et al., 2005). Both extremes of the range – state or individual land ownership – have proved to be short-sighted and ineffective in pastoral regions. Even the most progressive policy and legislation still fail to provide adequate protection for pastoral groups, who are increasingly alienated from their lands and divested of their resource entitlement.

Lack of adequate consideration of pastoral resources tenure in land reforms has forced pastoralists to informally maintain practices based on customary governance (Box 3), in a compromise with state-driven institutional settings. Land titles have been assigned according to logics alien to pastoralism, customary institutions with the inherent norms and leaders have been delegitimized, and development assistance has been given in ways that led to natural resources being eroded from the pastoral system. Many pastoral communities thus share with the internationally recognized indigenous peoples the features of differential culture, marginality, institutional settings and differential governance of territories on which they depend for survival (Bassi, 2017).

Box 3. Customary governance of natural resources

Resource tenure – based on common rights of access to natural resources – social groupings and customary institutions are interdependent elements. Pastoralists need flexible and extensive social networks to accommodate their spatial and labour requirements for effective grazing and stock diversification. Social networks are also needed to ensure mutual support after a crisis that affects livestock, as in the increasingly frequent case of drought, pandemics and outbreaks of armed conflict. Different pastoral communities have adopted different social solutions, rooted in their specific culture, but one that is quite common is the use of fictional kinship. Fictional kinship is a metaphorical way of building social links, similar, for example, to segmentary descent – clan and lineages – capable of simultaneously qualifying the belonging of individuals to social groups at different levels of society, with larger groups at the highest level of segmentation.

Pastoral practices, collective access rights to pastoral resources and reciprocity are enshrined in the social fabric, which is in turn constructed through ritual, marriage practices, age and generational class systems. and other group-specific institutions. Collective entitlements to access specific natural resources are attributed to specific groups and subgroups. Norms exist to regulate access and, in some cases, to regulate investments that allow intensification, such as well-digging. Openness and closeness of access, and reciprocity across parallel groups, depend upon the resource type, how crucial it is in relation to the local pastoral system, the investment made in it, and seasonality. Customary institutions assure appropriate governance of the natural resources that are relevant to the pastoral system. Customary leaders are an expression of the relevant social groupings, at different societal levels. The relevant social groups are qualified by internally and externally recognized collective identities. Since the same groups enjoy collective entitlements over specific natural resources (wells, ponds, grazing areas, forests), collective identities gain associated rights over resources. Identity at the ethnic and sub-ethnic levels is thus an integral and structuring component of the governance system.

Source: Bassi, 2017.

Development practitioners have to deal with a complex mix of customary and statutory governance, formal and informal elements, often generating negative outcomes in terms of local conflict and sustainable management of natural resources. As recommended by the IFAD Policy on Improving Access to Land and Tenure Security, a context-specific analysis is always needed during project design, but this should be implemented bearing in mind the peculiarities of customary pastoral governance – based on common resource holding – and could accordingly be addressed by adopting the internationally agreed procedures for indigenous peoples: Free, Prior and Informed Consent (FPIC) (Box 4).

Box 4. Application by IFAD of Free, Prior and Informed Consent beyond recognized indigenous peoples

IFAD adheres to the principle of FPIC in its land security policy, when dealing with distinctive land tenure regimes based on collective rights:

"Before supporting any development intervention that might affect the land access and use rights of communities, IFAD will ensure that their free, prior and informed consent has been solicited through inclusive consultations based on full disclosure of the intent and scope of the activities planned and their implications. This is of particular importance for most indigenous peoples, tribal people and ethnic minorities who have culturally distinctive land tenure regimes based on collective rights to lands and territories. Recognition of these regimes and rights is often incomplete, leading to social and political marginalization and land grabbing by the powerful. Mechanisms for securing indigenous peoples' rights to their lands are important for their cultural survival and better livelihood prospects." (IFAD, 2008:13)

FPIC is extended to minorities, based on territorial rights arising from customary land tenure:

"In projects that affect land access and use rights of communities, IFAD applies the principle of FPIC to local communities in a broad sense. Hence, during project design and in application of Social, Environmental and Climate Assessment Procedures (SECAP), design teams need to identify the local communities that would potentially be affected, as a starting point for ensuring their FPIC. [...] Although some countries do not recognize the generic term "indigenous peoples", most countries have national or local terms to identify them in their particular context, such as adivasis, janajatis, mountain dwellers, hill tribes, ethnic minorities, scheduled tribes, adat communities, highland peoples, hunter-gatherers, pastoralists and aboriginals. [...] In recent years, FPIC guidance to states and corporations under international law has been provided, particularly in the business and mining sectors, recognizing indigenous territorial rights arising from customary land tenure, independent of official state recognition." (IFAD 2015a:3)

Quite often, the rules that regulate access to natural resources are very strict with reference to the key resources, those that constitute the limiting factor in the pastoral system at critical times during the year. In arid and semi-arid lands, water points are key to managing rangeland. During transhumance, herds can move along tracks and graze on rangelands only as long as they have access to water. In territories more strongly associated with pastoral groups during the dry season, livestock is biological, confined at a limited range from a permanent water point, hence strict ownership rights on land might be missing, even at the collective level. Yet, fodder availability is indirectly determined by norms on water:

Individuals and groups controlling access to water points de facto control access to the surrounding lands.[...] If water points were privately owned with exclusive rights, pastoral movements would become difficult and pastoral communities would be condemned to destitution in years of low rainfall. On the other hand, the more water is available and accessible to all, the more livestock can be brought to graze on the surrounding rangelands. And, the more livestock, the higher the risk that dry-season grazing is depleted before a new rainy season. Therefore, by indirectly restricting livestock access to grazing lands, control over water points has traditionally provided the mechanism to ensure sustainable resource use. (Cotula, 2006, quoted in Jonckheere, Liversage and Rota, 2017)

A poorly designed intervention to improve provision of water can change the whole entitlement mechanism and, in many cases, has adversely affected rangeland ecology, with very negative impacts on middle-wealth and poor pastoral families.

Alienation of natural resources

The limited recognition of the rights of rangeland users is one of the main problems associated with pastoral livelihoods and a major cause of their vulnerability (FAFO, 2016). Securing land rights that are fit to serve the characteristically flexible and intermittent use patterns needed for pastoral systems to function well represents, therefore, a priority domain for sustainable development in pastoral regions.

International land lease and other investment schemes have hit hard in pastoral areas (Abbink et al., 2014), exacerbated by the fact that mobile use of natural resources and maintenance of the territory in a seminatural state have led to the perception of pastoral lands as underutilized and, therefore, available to other users. Equally adverse effects on the ecological viability of the pastoral system have been generated by various changes in land uses, either by in-migrating smallholders, investment on land, or internal adaptive response to changing conditions. While the combination of pastoralism and farming offers many opportunities - especially for destitute pastoralists - including in food availability, farming tends to take place in the most favourable areas, the very areas that under traditional pastoralism provide grazing reserves during the harshest time of the year and fallback resources during times of drought. The alienation of such key natural resources reduces resilience by directly hitting the pastoralists' capacity to cope with environmental risk and forcing them to intensify use of the remaining pasture, often breaking customary norms or practices that would normally ensure ecological reconstitution of the pasture. This process leads to permanent land deterioration and reduces the productive capacity of the pastoral system, with a spiralling effect. Under the pressure of policies on land titling and the promotion of farming, pastoralists are persuaded to take up farming and individually register land as the only adaptive strategy to secure access on their own customary territory, but at the cost of undermining customary governance and the overall viability of the pastoral system (Tache, 2013). The modified ecological settings - including removal of underground grass seeds and modified soil ecology - trigger irreversible change, making recovery after a drought impossible. The erosion of natural resources from the traditional pastoral system therefore has the potential to undermine resilience and capacity to cope with risk more than environmental change, problems that become apparent at times of environmental crisis. Any planned intervention needs to carefully balance the innovation's benefits against its negative potential impacts, bridging the economic with the social and the ecological outcomes.

¹ Ne pas mises en valeur in the French acceptation.

IFAD's Policy on Improving Access to Land and Tenure Security and its Environment and Natural Resource Management Policy fully acknowledge the dangers of policies that promote the commercial utilization of land or individual land titling in areas characterized by common property regimes (IFAD, 2008:2/4; IFAD, 2011:iii, 5/6). IFAD has also developed guidelines to improve its performance in influencing policy at the national level (IFAD, 2017b).

The impact that various drivers of change have had on customary governance and on the ecological conditions of rangelands justifies the search for innovative solutions, in line with IFAD's Environment and Natural Resource Management Policy. But any solutions proposed need to be evaluated against the viability of the whole pastoral system. In addition, the complexity of pastoralists' entitlements suggests that natural resource management should be addressed by adopting the FPIC procedure, with special attention being paid to the matter of customary governance (Box 4, Box 5).

Pastoral conflict

FAO's technical guide on *Improving Governance of Pastoral Lands* identifies conflict as one of the main challenges associated with pastoral tenure (Davies et al., 2016). Large territories with overlapping rights also imply conflicting territorial interests and claims. Pastoral groups have their own institutional solutions to prevent internal conflict, and established mechanisms to either prevent or deal with conflict with external groups. Inter-ethnic solidarity and reciprocity are in fact crucial to the survival of pastoralist. In relation to other pastoral groups, they need joint use of certain seasonal or fallback resources to ensure reciprocal access to natural resources and mutual help at times of scarcity, or to secure refuge at the individual or collective level through various forms of adoption and bond partnerships. Equally important are relationships with agricultural groups, for trade and exchange of services such as post-harvest grazing. However, under the growing impact of tenure reforms and economic processes that deeply affect pastoral livelihoods, the customary mechanisms regulating intergroup dynamics are being jeopardized. In many pastoral regions conflict manifests itself along administrative and international boundaries that –by eliminating customary reciprocity and flexibility – accentuate both belonging and exclusion.

Knowledge is required of the ongoing processes that have led or can potentially lead to conflict, and tenure policy and interventions should build on established mechanisms for intercommunity negotiation, collaboration and cooperation (Box 5).

Box 5. Mitigating pastoral conflict throgh community-based mechanisms

"IFAD recognizes that in order to mitigate conflict, broad stakeholder participation, particularly of rural people and their organizations, is critical for all land-related policy and institutional reform processes. Given that formal conflict resolution mechanisms, such as the courts, are generally costly and less readily accessible, existing community-based conflict resolution mechanisms should be drawn upon as a first recourse for solving conflicts, with statutory mechanisms as a final recourse. In this regard, participatory land-use planning and multistakeholder user agreements (e.g. among farmers and pastoralists) have proven to be very effective approaches." (Jonckheere, Liversage and Rota, 2017)

Access to services

Pastoral regions are marginal not only in agroecological terms but also in their socio-political and economic dimensions, facing specific difficulties in having their voice heard in national forums and in policymaking. The limited institutional accountability pastoralists enjoy is reflected in decades of weak governance and the inadequacy of basic service delivery, as well as failure to adapt them to the requirements of mobile lifestyles. These are the main factors underpinning the sense of marginalization, exclusion and resentment pastoralists feel towards central governments, state structures and international institutions and, in certain areas, this is what lies behind the escalation of conflict, violence and political radicalization (IIED, 2008).

Animal health services represent a very important domain. If pastorialists are to make effective use of available grazing resources for productive and reproductive purposes, then their livestock needs to be in good condition. Veterinary services are often the main, if not the only, interface between pastoral

communities and state structures. They therefore hold both economic and political potential. In the boom and bust system of drylands, the condition of animals is first of all tied to good nutrition, and therefore to mobility. It is important that the delivery systems for animal health services do not create obstacles to mobility, but rather, where possible, facilitate it.

Gender and targeting

Environmental change has hit hard in most pastoral regions because rangelands are particularly exposed to the dynamics of climate change, a situation that is further aggravated by years of neglect and misconceived development, in spite of their exceptional degree of adaptation precisely to environmental variability.

Decades of ill-advised development interventions, poorly inclusive policy frameworks, unregulated exposure to global markets, and environmental changes, combined with the pressure of a fast-growing pastoral population, have played an important role in reshaping pastoral societies. Using the 2.8 per cent annual natural growth rate often quoted for pastoral population growth in the Sahelian and Horn countries as a reference figure, the pastoral population doubles in 25 years and trebles in 40 years. Pastoralism is particularly sensitive to population growth because, unlike the situation in cultivated areas, the technical possibilities of increasing rangeland productivity are limited, especially when compared with yield increases obtainable through technical advances in crop production, and tend to result in more resource degradation (Nori and Davies, 2007).

Socio-economic stratification represents an important and growing phenomenon among certain pastoral groups characterized by absentee livestock owners on the one hand (wealthy people who invest in commercial extensive livestock-rearing as a lucrative activity) and destitute herders on the other hand (poorer households who have remained with few animals and/or limited access to grazing resources). The poorer households require specific assistance strategies aimed at enhancing their resilience and strengthening their livelihood base. Increasing wealth gaps among herders has the potential not only to affect local livelihoods and food security but also to foster social and political volatility (UNDP, 2003).

Women's participation in community and local governance is often limited by patriarchal discourses, biases, and norms that define gender roles, and hence the needs of women remain underrepresented. Given pastoralist women's role as resource managers, agents of change and development actors, securing their place in decision-making processes and enhancing their access to services and market opportunities represent strategic investments in pastoral societies. Investing in pastoralist women is also important to reverse certain practices that have an unfavourable impact on them, such as limited recognition of inheritance rights or poor involvement in community decision-making. The design of interventions in this direction should build on a sound understanding of the specificity of the gender dimension and the challenges brought by societal changes and generational shifts. Gender relations in pastoral communities are being affected by changes such as increased access to markets, transformed patterns of mobility, new dimensions and intensity of insecurity, and new technologies, for example mobile phones and motorized transport. None of these are automatically good or bad. A sound project strategy should also include monitoring mechanisms that allow for ex ante and ex post analysis capable of assessing a project's outcomes with regard to the specific needs and roles of women and youth as pastoralists.

Population changes in rangelands attest to the growing relevance of pastoral women in socio-economic domains, particularly in areas where outmigration and conflict dynamics have contributed to reshaping population dynamics. A number of programmes bear out the fact that women hold a critical role as agents of change and development in pastoral societies, in overall pastoral resource management, including in conflict resolution, cohesiveness, peace-building and strengthening of food sovereignty (FAFO, 2016; IFAD, 2010a). As milk managers, they are aware of the conditions and performance of the herd. Through increasing interaction with markets, pastoral women have become particularly keen on developing local value chains, especially in milk processing, petty trading and alternative income-generation opportunities.

Pastoral youth, often aggregated with women in gender-relevant interventions, are rarely considered on their own terms; even when considered, they are often not represented as pastoralists. Today, the vast majority of people in the pastoral systems are "young people", under the age of 18. Although not all young people in pastoral households can be absorbed within the pastoral economy, and many are not actually interested, opportunities to engage or disengage with pastoral livelihoods should be carefully assessed and negotiated with them. As in the case of women, assuming that young people have no role in pastoral systems effectively reduces their chances to consolidate their livelihood *as pastoralists*. The rangelands themselves have also changed dramatically. They are now attracting substantial economic interest. Their remoteness and the sparseness of their populations that historically have defined the limits of engagement for pastoral development are being radically transformed by the arrival of mobile phones and broadband, and the availability of affordable motorized transport. When women and youth want to keep and strengthen their place as producers in pastoral systems, what kind of intervention can help them to do so? When they want to leave pastoral systems or have no hope of securing a livelihood within them, what kind of intervention will lead to alternatives that are not in competition with the pastoral systems?

Young people based in rural small towns, who may have enjoyed better access to education, could provide a link to the national and international market, and engage in improved livestock-related value chains.

The new approach to pastoral development

Today, there is a growing awareness of the issues related to pastoral development and the biases of older approaches. The specialist scientific literature and a substantial body of policy-related documents speak about a paradigmatic shift in pastoral development. They acknowledge the centrality of mobility and describe pastoral systems as adaptive and sustainable livelihood/production systems, specialized to make use of rangelands variability. This understanding is, in key aspects, the opposite of the previous thinking that prevailed throughout most of the history of rural development in rangelands. In a nutshell, this means a U-turn is taking place, from seeing pastoral systems and rangeland variability as part of the problem, to seeing them as part of the solution.

In the past, pastoral systems have seldom been recognized and appreciated for the products and services they contribute to the wider society, such as animal proteins and ecosystem services. Failing to appreciate such capacities and contributions derives from the classic evolutionary vision, where pastoralists were part of an "unfinished transition" that was yet to achieve its advanced stage. For many decades, development theories have typically perceived pastoralism as economically inefficient, environmentally harmful and underdeveloped socially, in what has been defined as an *anti-nomad morality* (Horowitz and Jokwar, 1992). As a result, development policies in pastoral regions have largely been informed by inadequate theoretical underpinnings. Efforts to "modernize" pastoral areas have centred – almost everywhere – on a radical dismantling and restructuring of existing production and livelihoods systems. The emphasis has been on limiting mobility, promoting sedentarization and transforming pastoralists into farmers by enhancing the privatization of resources – thus neglecting and undermining the pillars of pastoral resource management. The low rate of success of such an approach has generated a "failure syndrome" that has in time diverted development investments from those regions (Box 6).

Box 6. The "failure syndrome"

Past interventions in pastoral regions show the highest rate of failure in development policies and investments. It is a history characterized by a dramatic sequence of misconceptions, wrongdoings and overall ineffectiveness. Already by the end of the 1980s, a World Bank survey recorded 300 failed projects in Africa, partly or wholly concerned with pastoral development. In the 1990s there were reports that the African pastoral sector had experienced the greatest concentration of failed development projects in the world. A case in point is the German Agency for International Cooperation (GIZ) which has been working on pastoral issues since the 1970s, although the impact has not been very visible; it has been difficult to formulate support for a minority like pastoralists in heterogeneous circumstances. For most herders, neither productivity nor income improved, but poverty has indeed grown, while rangeland sustainability was not enhanced, and for most donors and lending agencies anticipated returns were not achieved.

Source: DFID, 2009.

The old assumptions are now widely disregarded by scientists and professionals, but the new ways of dealing with pastoralism still face hard times in making their way through to inform policymaking and programme implementation. This shift in understanding does not require the invention of altogether new development solutions. People in pastoral areas still need basic services and infrastructures, good governance, security, access to opportunities offered by scientific research and new technologies, equitable political representation and integration within wider society. However, standard solutions and interventions to meet such needs are to be redesigned in light of the different understanding of what the problem is: shifting from investing in replacing pastoral livelihoods to investing in supporting them, strengthening pastoral systems and their logics of production. In order to accomplish the shift based on the new scientific understanding, three elements in particular should be considered: the legacy of methods and language, the legacy of policy environments and mindsets, and the need to intervene at complementary levels.

Methods and language. Updating the understanding of pastoral systems is still under way. As off-the-shelf definitions and methods of appraisal designed before the shift remain in use, they continue to do their job of filtering out what the old model considered unimportant. This legacy of "technical exclusion" affects the work in pastoral development independently from people's mindsets or theoretical position. For instance, emphasis on "livestock development" rather than pastoral development selectively places attention on livestock as a commodity, setting apart their social value, and the complex institutional settings that allow access to marginal lands and low-cost production through locally selected breeds. While today's understandings take pastoral development into the future, the old legacy of methods and language constantly allow it to slide back into the past.

Policy/legal environments and technical mindsets. Underlying assumptions in rural development about what constitutes a normal condition, a trajectory of improvement, or a disturbance, contributed to laying the foundations of policy and legal environments relevant to the development of pastoral areas, as well as to influencing the horizon of experience of technical personnel. In this landscape, efforts to "help pastoralists" can result in undermining their livelihoods: if the political ecology and the institutional settings are not carefully considered, claims about improving access to a resource can result in losing access to it; poorly planned introduction of basic services and new technologies – much needed by pastoralists – can capsize into a strategy for dismantling them. Government's perception of pastoralism and full support of its development – meaning real willingness to support this type of livelihood (rather than "supporting"people in pastoral areas so that they can leave it behind) – is key.

Relevance of a double-track approach. Working in pastoral settings requires an approach that addresses simultaneously the "hardware" as well as the "software" of development. This means that at any one time, there is a need to address the reasons underlying pastoralists' limited capacity to take part in decision-making at different levels by empowering them and contributing to a more enabling policy environment, while providing direct support and investment to the strengthening and improvement of pastoral livelihoods and resilience.

In order to result in interventions that are effective and do not harm, pastoral development projects need to be designed with these three key dimensions in mind. Respecting this simple rule, good work in pastoral development is possible. Despite the difficulties, adopting the right perspective in pastoral development could allow a number of promising and innovative opportunities to rise to the surface.

² Technical exclusion is exclusion *in practice*, often unintentional and unmonitored, simply resulting from the inadequacy of classifications, bureaucratic procedures, mechanisms of appraisal, and systems of statistical representation (FAO-IFAD, 2016:11).

Changing policy framework

The shifting paradigm in pastoral development is already finding its way in national and regional policy. Since the 1990s, several countries in West Africa have adopted pastoral codes to consider the needs of pastoralists, following land reforms that had addressed the land security of farmers (Touré, 2004). Pastoral codes allow the demarcation of land dedicated to pastoral use and the establishment of "corridors" of uncultivated land served with permanent water points to ensure long-range migration of herds. Other countries have included provisions on pastoralism in new constitutions and/or adopted solid policy on pastoralism with dedicated governmental implementing units. Also, pasture laws have recently been adopted in Asian states that were once part of the Soviet Union.

In the African context, regional bodies such as the African Union, the Common Market for Eastern and Southern Africa (COMESA), the Economic Community of East African States (ECOWAS) and the Intergovernmental Authority on Development (IGAD) are increasingly devoting attention to both the needs and the potential of extensive livestock production systems, with a view to enhancing their contribution to regional food security, economic integration and resilience. Changing perspectives on pastoralism, legal developments in several countries in Africa and advocacy by international and national organizations paved the way for the adoption of the Policy Framework for Pastoralism in Africa by the African Union in 2011. This policy is currently the most relevant intergovernmental instrument of soft international law specifically dedicated to pastoralism, with explicit mention of the rights of the pastoralists in its title. In terms of normative content, the rights of pastoralists, as defined in this instrument, are no different from the internationally defined "indigenous rights" (Box 7) (Bassi, 2017). According to the Policy Framework for Pastoralism in Africa, the development challenges of pastoral areas in Africa are multidimensional and complex. Poverty, environmental degradation, limited access to services, marked rainfall variability, human and animal diseases, conflicts and civil strife must be dealt with simultaneously to address vulnerability. This calls for a holistic approach to pastoral development.

Box 7. The African Union Policy Framework for Pastoralism

The African Union Policy Framework for Pastoralism builds on elements that are also considered in the African Union Framework and Guidelines on Land Policy in Africa, including transboundary and regional cooperation, acknowledgement of the legitimacy of indigenous land rights systems and institutions, the importance of informal land rights and the need to build an interface between customary and state institutions. The Policy Framework for Pastoralism in Africa is highly detailed on mobility, considered the prerequisite of pastoralism and the most appropriate livelihoods strategy. It acknowledges the problems created by various processes of rangeland expropriation and outlines a number of rights belonging to pastoralists, including (African Union. 2010:7,11,14):

- improving the governance of pastoral rangelands and thereby securing access to rangelands for pastoralists
- recognizing communal landholdings
- legitimizing traditional pastoral institutions and providing an interface between customary institutions and state-led systems, with special reference to conflict resolution, management of land, tenure, mobility, and interaction between pastoralists and other interest groups
- ensuring consent and compensation in relation to development projects and investment in pastoral areas.

³ On constitutional reform in Kenya and the adoption of the National Policy for the Sustainable Development of Northern Kenya and Other Arid Lands (ASAL) see Odhiambo (2013).

⁴ IFAD is financing pastoral projects in Kyrgyzstan and Tajikistan (Jonckheere et al., 2017).

⁵ Policy Framework for Pastoralism in Africa: Securing, Protecting and Improving the Lives, Livelihoods and Rights of Pastoralist Communities (African Union, 2010).

The improvements in national and international policy do not necessarily reflect a positive change on the ground. Decision-makers' adverse cultural attitudes (Schlee, 2013) and wealthier actors' influence, coupled with issues of local capacity, may detract from the primary objective of improving the lives of poor pastoralists. For instance, the Policy Framework for Pastoralism in Africa does not contain any provision for its implementation, delegating consideration of pastoralists' rights to the design of regional and national policy, programmes and projects (Schlee, 2010). The increasing influence of absentee livestock owners and the formation of large itinerant herds in a context of changing rights over permanent water points brings elements into the debate on pastoralism that are well developed in the controversy over smallholders versus large-investment agricultural schemes (Oxby, 2011; Bassi, 2017). There is, therefore, both a conducive international environment to address the issue of alignment of national and international policy frameworks and wide scope for IFAD's involvement in the process of filling capacity gaps and to address contradictions at the national level (Box 8).

Box 8. IFAD's contribution in implementing pastoral policy and legislation

"Many countries have laws in place that can support progress towards responsible governance of tenure for pastoral lands, but these laws are not always implemented. Pastoral legislation alone does not solve the problem of weak pastoral tenure, but it provides the legal basis for action.[...] Where addressing land access and tenure security issues is part of its country strategy, IFAD identifies likely partners and allies within government, among development partners, farmers' organizations and other civil society organizations to build up alliances for pro-poor land policies and programmes. Building on its country programmes and the lessons learned therefrom, IFAD engages in evidence-based and socially-inclusive policy dialogue and multistakeholder policy discussions to promote, within national policy (poverty reduction strategies, sector-wide approaches) and regulatory frameworks, a focus on the land rights of poor rural people. IFAD works with local authorities and community-based and farmers' organizations to increase awareness of policies and laws and the impact that their implementation (or lack thereof) is having on the ground. Country programmes strengthen the advocacy capacity of local actors to bring these issues before higher level officials." (Jonckheere, Liversage and Rota, 2017)

Attention for the local level is equally relevant. According to the 2003 United Nations Development Programme report on tenure reform:

"Customary tenure systems are subject to change due to social and economic pressures. As such they can be controlled by powerful actors at the expense of more marginal people, and can become contested. Participatory research is necessary to understand how local systems can be enhanced by laws and policies in order to protect marginalised groups (e.g. including youth, women, and widows." (UNDP, 2003)

⁶ On the problems in implementing the promising Kenyan reform, see Odote (2013).

Designing projects in pastoral areas

Overview

This framework is to be used for the design of large-scale government programmes in pastoral areas aiming to reduce poverty and food insecurity. It consists of five sets of activities that can be broken down into 21 steps. It uses a project-cycle approach to indicate which activities should be undertaken when.

IFAD's project cycle

It is adapted to IFAD's business model. IFAD-supported programmes are typically designed by IFAD in close collaboration with the respective government and implemented by project management units set up by the government. A multidisciplinary team designs the programme. The process involves short visits to the country to meet stakeholders, several internal validation processes and negotiations with recipient governments.

Adapting the framework

Designing projects is rarely a linear process. Many steps of this framework should be done in parallel or in conjunction with each other. They should be adapted to the needs of the design team and project stakeholders. This is especially the case for cross-cutting issues such as gender and indigenous people.

Participation

Although time and resources may be limiting factors in project design, most of the framework's steps can (and should) be done in a participatory manner. This is strongly encouraged. A list of participatory methods can be found in Table 6.

Framework setup

The framework is presented in Figure 1. The process begins with **identifying the broad project outline** and main stakeholders (steps 1 to 3). The core activities related to project design fall under the **pastoral system analysis** (steps 4 to 9) and **intervention assessment** (steps 10 to 15). The pastoral system analysis helps design teams to analyse the current context that will help them to identify preferable future pathways (theory of change) and intervention options. The framework also points to which **implementation arrangements** should be made (steps 16 to 19) and how **monitoring and evaluation** should take place (steps 20 to 21).

Designing pastoral projects

5 sets of activities and 21 steps

Project identification

- 1. Conceptualize the project idea
- 2. Identify beneficiaries and other stakeholders
- 3. Identify the required expertise

Pastoral system analysis

- 4. Identify livelihood resources
- 5. Analyse the policy and institutional environment
- 6. Analyse shocks and trends
- 7. Analyse livelihood strategies
- 8. Consider gender issues
- 9. Determine the needs and opportunities

Intervention assessment

- 10. Select and apply IFAD instruments and policies
- 11. Determine the theory of change and project goals
- 12. Identify intervention options
- 13. Consult with stakeholders
- 14. Assess and prioritize options
- 15. Identify risks and plan for variability



Implementation arrangements

- 16. Establish arrangements for implementation
- 17. Set up mechanisms to engage with pastoralists
- Ensure project sustainability and determine the exit strategy
- Identify needs for technical support and capacity development

Monitoring and evaluation

- 20. Specify M&E needs
- Plan feedback into policymaking and knowledge management processes

Figure 1. Framework for designing pastoral projects

Project identification

1. Conceptualize the project idea

Determine the **broad outline** of the proposed project: What is the main problem or opportunity to be addressed? How much project funding is available? Where should it take place?

Broad goals of the project may result from prior talks with the government. They should be based on government strategies and derived from IFAD's country frameworks (see Country Strategic Opportunities Programmes (COSOP) and Country Strategy Notes (CSN). Useful information can also be drawn from strategies of other development banks, United Nations and bilateral agencies and large NGOs.

Aim for **long-term engagement**. Development in pastoralist areas takes time. Projects should take place over long periods of time; at least 10 years. Shorter projects are likely to be unfit for the pastoral context and may involve more risk.

Be aware of the **minimum standards for pastoral development** (Box 9) as guiding principles throughout the entire design process.

Box 9. Minimum standards for pastoral development

The minimum standards for sustainable pastoral development are four basic principles to help decision makers to develop policies and investments to improve pastoral livelihoods and avoid negative impacts. The standards were developed by the International Union for Conservation of Nature (IUCN).

Minimum standards for pastoral development

- Develop country strategies that recognize and support pastoral systems
- 2. Avoid investments and policies that undermine pastoral systems
- Place governance and rights, including those of minorities, at the heart of pastoral development
- 4. Promote investments and policies that support pastoral systems

Recognizing pastoralism (standard 1) means understanding how the pastoral system works. Investments need to take its logic into account so as to avoid negative impacts (standard 2) and support the system (standard 4). This cannot happen without addressing underlying governance failures at the root of pastoralists' marginalization and exclusion (standard 3). The standards are described in detail in Annex 1.

Applying the standards

The standards can help to:

- validate project designs
- evaluate national legislation and policies
- guide the engagement with recipient governments and other potential donors and partners
- monitor and evaluate project implementation
- set the focus of country investment frameworks (RB-COSOP and CSN)

2. Identify beneficiaries and other stakeholders

Targeting pastoralists

Identify the specific groups of pastoralists who are or might be beneficiaries of the project.

Key questions

- Who are the pastoralists? How many are they?
- Do they practise pastoralism exclusively? Do they practise transhumance? Do they also cultivate some crops (agropastoralists)?
- In which areas do they practise pastoralism? In which seasons and under what circumstances (e.g. drought)? Where are critical dry-season grazing areas? Do herders cross subnational or national borders?
- How diverse are the communities in terms of social groupings, poverty levels, gender issues, etc.?
- Who would be considered as poor pastoralists (usually those without livestock or with limited numbers)? Who should be the main beneficiaries of the project?
- What social structure do the communities have? What cultural identity do they have?
- Who are the community representatives? Are there any pastoralist organizations or networks?
- What resources do the pastoralists claim?
- Do any of the communities identify themselves as indigenous peoples?

Identify pastoralist representatives

Identifying individuals and institutions representing pastoralists may be difficult because they may be on the move and far from urban centres. Seek advice from local stakeholders. It is important to work with local initiatives of pastoralists, such as women who have formed their own milk-marketing groups. These initiatives may often be informal. A useful database on pastoralist organizations can be found on FAO's Pastoralist Knowledge Hub. You may also want to build on IFAD's Farmers' Forum (FAFO), a consultation initiative of farmers' organizations that advise IFAD on how best to invest in rural livelihoods. The Forum also includes pastoralist organizations.

Projects not primarily targeting pastoralists

Development projects may have an impact on pastoral systems even when not targeting them. Pastoralists may be a minority in the targeted area or may graze their animals there only at certain times of the year. In this case, assess whether the project envisioned affects pastoralists. If it supports or risks undermining pastoral activities, it is strongly recommended to follow this framework.

Identify other major stakeholders

List all other stakeholders in addition to pastoralist communities and organizations. Conduct a stakeholder analysis and identify the most important ones. Stakeholders typically include:

- crop-farming communities
- public institutions: various ministries, including agriculture, environment, health and education, and local governments
- civil society organizations: international and local NGOs
- private sector: livestock traders, abattoirs, dairy plants, animal health supplies and services
- research institutes: universities, national research centres, CGIAR centres
- United Nations and bilateral agencies, development banks

⁷ "Cultural identity is the identity or feeling of belonging to a group. It is part of a person's self-conception and self-perception and is related to nationality, ethnicity, religion, social class, generation, locality or any kind of social group that has its own distinct culture. In this way, cultural identity is both characteristic of the individual but also of the culturally identical group of members sharing the same cultural identity." Moha Ennaji, Multilingualism, Cultural Identity, and Education in Morocco, Springer Science & Business Media, 2005, pp.19-23.

Engaging stakeholders

Determine how best to engage with each group of stakeholders. Options include:

- individual meetings
- multistakeholder platforms, innovation platforms
- participatory methods (see Table 6)
- existing organizations and platforms.

If the project may affect the access to land and other resources of pastoral communities, or if pastoralists identify themselves as indigenous peoples, then the project should seek Free, Prior and Informed Consent (FPIC), an engagement process allowing communities to give or withdraw their consent with regards to a project. See step 13 for further information on FPIC.

3. Identify the required expertise

Putting together a capable design team is essential for a successful project.

- Set up a multidisciplinary team: Design teams should have the skill set to be able to understand and assess pastoral contexts. Teams should cover various disciplines, for example anthropology, ecology, geography, livestock production, veterinary science, range management and sociology, to understand the many facets of pastoralist livelihoods. Depending on the nature of the project, other specialities may be necessary, for example, agronomy, engineering and marketing.
- Include pastoral-system specialists: These experts bring knowledge of the specific context, customary governance and history of the pastoral area. Local experts are especially valuable. In the past, project teams often did not include pastoral experts. Generic livestock or rangeland experts may often not be familiar with pastoralist systems.
- Orient the team: Ensure that all team members and project staff have sufficient understanding of the pastoral system and the peculiarity of its development context.

Finding expertise

Expertise can be found in various ways. In addition to the standard way of hiring staff, you may contact national stakeholders, other implementing agencies or research institutes. Two major networks of experts in pastoralism are listed in Box 10.

Network	Description	Contact
AO's Pastoralist	Worldwide exchange group of pastoralist representatives, experts and researchers	E-mail list: pastoralist- hub@fao.org
oalition of European obbies for Eastern frican Pastoralism CELEP)	Community of pastoralist organizations and development experts working in pastoralism with a focus on Eastern Africa	E-mail list: celep- eu@googlegroups.com

Pastoral system analysis

The pastoral system analysis is based on the sustainable rural livelihoods framework used, for example, by Scoones, 1998, and the Department for International Development (DFID), 1999, modified to look into the specialities of pastoralism. The goal of the analysis is to understand the system, the livelihood strategies and main constraints. It consists of four main components as shown in Figure 2.

Livelihood resources	Policies & institutions	Shocks & trends	Livelihood strategies
NaturalFinancialSocialHumanPhysical	 Regulations Markets Land tenure Public services Public image Past and ongoing projects Representation Regional development 	 Conflict Climate impacts Disease Market changes Population growth Access to resources 	 Pastoralism Livestock-related diversification Alternative livelihoods

Figure 2. Four components of the pastoral system analysis

It is not possible to obtain all information before starting a project. Rapid methods can help to gain a general picture and to become aware of gaps in information. Then, during the initial stages of the project, these information gaps can be filled in.

Review existing information

In many cases information already exists. For certain regions, for example, East Africa, a lot of research is available. If a lot of information is lacking, a background study should be commissioned. Useful knowledge sources include:

- Knowledge repositories on pastoralism are found on the websites of FAO's Pastoralist Knowledge
 Hub, CELEP and K-Link (https://klink.asia/ specifically for Central Asia).
- Government reports and national statistics may be available, even though figures on pastoralism are often not captured systematically.
- Development agencies working in an area may have published baseline reports and programme evaluations.
- Large initiatives such as IUCN's World Initiative on Sustainable Pastoralism have produced many materials on pastoralism.
- The journal Pastoralism contains numerous articles on pastoralism.
- Research institutes such as the International Institute for Environment and Development (IIED), the
 International Livestock Research Institute (ILRI), the Centre de recherche agronomique pour le
 développement (CIRAD) and Tufts University have published many studies.
- Major books on pastoralism have appeared in recent years (e.g. Zinsstag, Schelling and Bonfoh (eds), The future of pastoralism (2016); and Catley et al. (eds), Pastoralism and development in Africa: dynamic change at the margins (2012) offer interesting insights into the dynamics of pastoralism.

4. Identify livelihood resources

This step looks at what households have. Look into the five types of livelihood resources listed in Table 1. Consider variability over space and time. Different livelihood resources are needed at different times.

Table 1. Key questions on livelihood resources

Livelihood resource	Description	Key questions
Natural	Quality and quantity of natural resources	 What is the dominant climate(s) (rainfall, temperature, seasons)? What are the main landscape elements (e.g. mountains, plains, river systems)? What land and natural resources (water, pasture, forests) are accessible?
Financial/ Economic	Assets, regular inflows of money	 How many animals do households have (estimate the numbers but do not ask directly for them)? What other assets (e.g. access to different types of land) do households have? What are the main income sources (including non-livestock related)? (See also step 7, income sources below)
Social	Networks for cooperation, mutual trust and support	 What are community and clan structures? Which customary institutions do pastoralists draw on in times of need?
Human	Amount and quality of knowledge and labour available	 How large are households? What levels of education and skills do pastoralists have? What is the human health and nutritional situation?
Physical	Infrastructure, tools, equipment	What infrastructure (housing, equipment, facilities, roads, electricity, markets, communication) is available?

5. Analyse the policy and institutional environment

The policy and institutional environment strongly determines pastoral livelihoods. Often policies and regulations do not exist or are based on wrong or biased assumptions. Table 2 presents the main issues and key questions to guide the analysis.

Table 2. Key questions on policy and institutional environment

Issue	Key questions	
Policies, legislation and regulations	 What policies, legislation and regulations exist that affect pastoralism? To what extent are they applied? How do these affect movements and land access of pastoralist communities? What is the underlying government attitude towards pastoralism? 	
Markets and value chains	 What type of markets (formal or informal) do pastoralists serve? How easy are they to reach? What are the value chains for pastoral products? Who are the actors (traders, abattoirs, dairies, transporters, consumers)? What are the prevailing gender roles pertaining to marketing livestock products? 	
Land tenure	 What are the types of land rights (use rights, control rights or transfer rights)? What are the differences between rights of men and women? How are common lands managed? What land-use changes are occurring (e.g. fencing, land investment, expansion of cropping, nature reserves, mining)? 	

Issue	Key questions
Public services	 To what type of public services (e.g. education, veterinary services and human health facilities) do pastoralist communities have access? What is the quality of these services? Do they meet the needs of the pastoralists? Are the services at fixed points or mobile?
Public image	 What is the public perception of pastoralists? How are they presented in national media?
Past and ongoing projects	 Which United Nations and bilateral agencies, international NGOs or international finance institutions have been active or are active in the project area? Have past interventions been successful? If so, why? If not, why not? What research projects have been or are being carried out? What are the main findings?
Pastoralist representation	How are pastoralist men, women and youth represented in decision-making at different levels (local, subnational, national)?
Regional development	 Do pastoralists cross state/province and/or national borders? How are they affected by policies in different jurisdictions? How are they affected by development in other sectors (mining, tourism, agribusiness, etc.)?

6. Analyse shocks and trends

Pastoral systems are adapted to the harsh environments in which they evolved. These environments are often highly variable and may experience, for example, regularly prolonged dry periods. Table 3 lists the main shocks and trends that the project team should understand.

Table 3. Key questions on shocks and trends

Issue	Description	Key questions	
Conflict	Pastoral areas are often in conflict-prone regions	 What type of conflicts occur (farmer-pastoralist, pastoralist-pastoralist, macro-level)? What is the conflict history? What are the main drivers and causes? How is conflict mitigation and resolution normally handled and by whom? 	
Climate impacts	Droughts and floods greatly impact pastures and water sources	 Which climatic hazards (e.g. floods, droughts) occur? How frequent are they? How long? What are the main expected trends of future climate change? 	
Disease outbreaks	Diseases threaten animal health and cause great losses	 Which animal diseases occur (or might occur)? How high are the losses (production losses, loss of markets)? How do the pastoralists try to reduce losses? 	
Market changes	Changes in market access and prices influence household decisions	 What price fluctuations occur for pastoral products? Is market access disrupted by, for example, conflict or political issues? 	
Population growth	Strong population growth puts stress on natural resources	What are the population trends?What are the urbanization trends?	

Issue	Description	Key questions
Access to resources	Changes in access to grazing land, water and migration routes threaten pastoralist livelihoods	 How has access to resources changed over time? How is it expected to change in future? What causes the changes? Who controls access? How do pastoralists negotiate access?

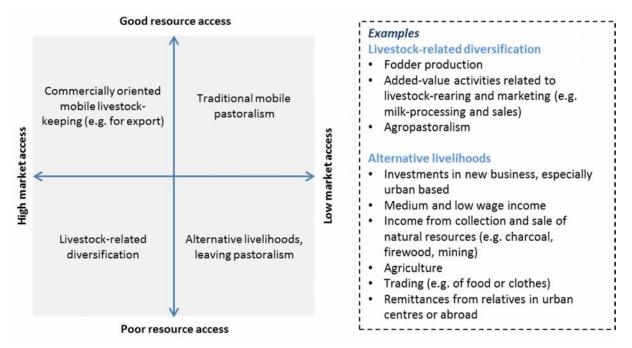
7. Analyse livelihood strategies

Pastoralists may follow different livelihood strategies, with livestock-keeping playing a significant role. Herding may be mobile, semi-mobile or sedentary; migrations may follow set patterns or may be dependent on the vagaries of rainfall. Pastoralism may be largely for subsistence or commercially oriented. Livelihood strategies can be divided into three main categories:.

- pastoralism, including traditional mobile pastoralism and commercially oriented mobile livestockkeeping
- livestock-related diversification
- alternative livelihoods, leaving pastoralism

Access to pasture and water and to markets may strongly determine livelihood strategies (see Figure 3). In some areas with good access to pasture but low market access, for example, traditional mobile pastoralism may be the most followed approach. With better market access, commercially oriented livestock-keeping may be more promising.

Table 4 lists key issues to analyse pastoral livelihood strategies.



Based on Catley et al., 2016.

Figure 3. Livelihood strategies of pastoralists

Table 4. Key questions on pastoralist livelihood strategies

Issue	Key questions
Food and income	 What products (e.g. milk, meat, live animals, hides) are produced? What percentage of food is derived from livestock? What percentage of income is derived from livestock? What percentage of food is derived from markets?
Herd management	 What livestock species and breeds do pastoralists keep? What is the herd composition? How is the herd sheltered? What herd size (distinguish between different species) is necessary for households to live exclusively from pastoralism?
Resource management	 How are pastures and water sources managed? What other sources of feed are used and when? Which resources are used during critical times?
Mobility	 What type of movement (seasonal, daily, market) is practiced? How many kilometres do livestock typically move per day or season? Are national or internal boundaries crossed? How do herders decide where to go? How do they communicate? What barriers to mobility occur?
Animal health	 What is the overall livestock health situation? Which diseases occur? What veterinary services do pastoralists have access to? What forms of ethnoveterinary medicine do they commonly practice?
Resilience	What management strategies do herders have to cope with risks such as drought, disease and conflict?

8. Consider gender issues

Livelihoods in pastoral areas can be highly gendered. Even though women and girls have very important roles, they often have fewer options and have less decision-making power than men and boys. This makes gender issues especially important in projects dealing with pastoralists. While patterns vary from one group to another, pastoralist women are often responsible for small stock and milking animals; they may control the production, processing and sale of milk and dairy products. Men are often responsible for herding and marketing the larger animals.

Roles of women and men

- Identify the roles of women and men among the target groups.
- Determine women's and men's:
 - Access to resources (e.g. who keeps and can use milking animals and small ruminants?)
 - Benefit from resources (e.g. who is allowed to go to school; who manages the household's money?)
 - Control over resources (e.g. who owns the animals; who can decide whether to sell them?)
- Identify the gender division of labour in relation to productive, reproductive and community work:
 - Daily: who does what in the household and community, and in relation to the animals?
 - Seasonal: who is responsible for what tasks?

Project design and implementation

Make sure that:

- the project design explicitly targets women in terms of participation, economic benefits, decision-making and empowerment.
- information is gathered from pastoralist women for the project design and in monitoring. Assess how the interventions affect gender roles.
- women are included on the project design and implementation teams.

More information can be found in the toolkit Gender and Poverty Targeting in Market Linkage Operations (IFAD, 2002).

9. Determine the needs and opportunities

Based on the analysis above, determine what the major needs and opportunities are. One way of doing this is presented in Table 5. Validate the outcomes of the analysis with stakeholders.

Table 5. Examples of needs and opportunities

Livelihood resources	Needs	Opportunities
Natural	Drought early warning, access to grazing and water	Link to drought early warning system; build on local innovation by pastoralists
Financial	Marketing, credit, insurance	Provide insurance for livestock; strengthen local self-help groups
Human	Nutrition, health, education	Use mobile phones for information and education; educate pastoralists on livestock health requirements
Social	Security	Broker agreements to end conflict
Physical	Infrastructure, roads, communications	Build market next to new road

Note that the potential solutions to problems may not be obvious. For example, if livestock health is a problem, the solution may not necessarily be to improve veterinary services. Rather, improving marketing may encourage pastoralists to invest more in livestock health so they have more animals to sell.

Cheap transport and mobile phone networks has dramatically redefined "mobility", "sparse distribution" and "remoteness" in recent years. Consider opportunities in these fields. Youth with low- to middle-level education can engage in a wide range of new, technology-based activities.

Intervention assessment

10. Select and apply IFAD's instruments and policies

IFAD has developed a range of instruments and policies to support marginalized and poor rural communities. Depending on the characteristics of the pastoral system, check which of IFAD's instruments and policies should apply (Figure 4).

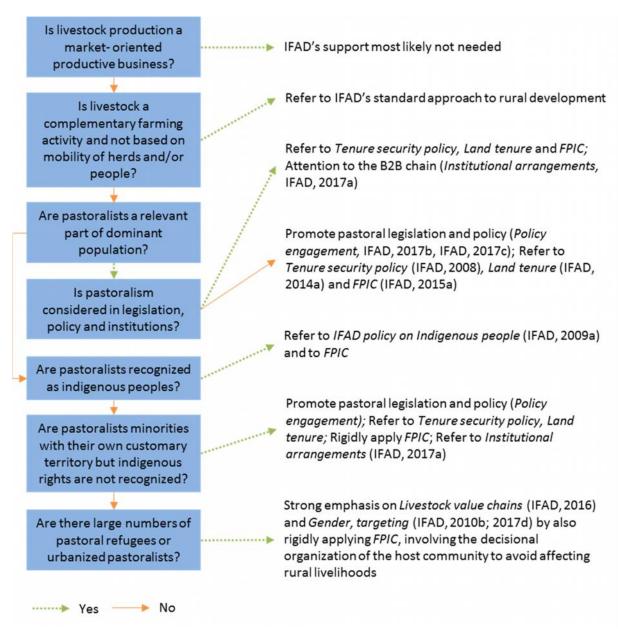


Figure 4. Selecting IFAD's instruments under different conditions

11. Determine the project goals and theory of change

Identify pathways for pastoralist development

For some people, remaining in pastoralism is the best livelihood option; for others it may be beneficial to find alternative livelihoods. Key factors that determine the theory of change are; household's wealth, proximity to urban centres, markets and services, and social and political capital. Owners of large herds may find it best to continue herding, while people with fewer animals may be forced to diversify or to seek alternative livelihoods, perhaps leaving pastoralism altogether. Dorward et al. (2009) and Catley (2017) provide useful concepts that map out three main strategies:

- **Hanging in**: Pastoralists continue traditional livestock-keeping. The project aims to remove barriers to this production system.
- Moving up: Pastoralists aim to increase productivity or pursue livestock-related diversification.
- Moving out: Pastoralists exit pastoralism to pursue alternative livelihoods.

Set the project goals

Within the pathway identified, determine what the project aims to do. Example: "Improve the livelihood of pastoralists in Region X by promoting the marketing and processing of milk and meat."

Determine the theory of change

A theory of change describes what is expected to happen if a particular intervention is made. Example: "Building market infrastructure can make it possible for pastoralists to improve their incomes by selling livestock." Map out how the project is expected to benefit the pastoralists, and provide the rationale. Research indicates that healthy pastoral systems are the most viable and sustainable production systems in harsh environments. Encouraging people to move out of pastoralism may lead to greater poverty. In such cases, justify why the project promotes the exit pathway and how this will in fact benefit the individuals concerned.

12. Identify intervention options

List all possible intervention options based on the theory of change. Table 6 lists examples for interventions by theme. It is far from being complete and excludes interventions that support alternative livelihoods and infrastructure investments, such as roads and telecommunication. The table also lists manuals and concepts that can be used for further reference. Many of the manuals cover several themes.

Table 6. Examples of interventions to strengthen pastoral systems

Theme	Examples	Selection of manuals, guides, concepts
Participation	Planning and engagement	Planning with pastoralists: PRA and more (Waters-Bayer and Bayer, 1994) Planning with uncertainty (IIED and SOS Sahel, 2009)
Production	Fodder, breed improvement, water points; corridor marking; land and water resource planning	Drought cycle management (IIRR, Cordaid and Acacia Consultants, 2004) Managing dryland resources (IIRR, 2002)
Value chains	Value chain development; adding value to pastoral products	Moving herds, moving markets (IIRR and CTA, 2013) Adding value to livestock diversity (LPP et al., 2010) Livestock value chain analysis (IFAD, 2016)
Land	Land rights and tenure; participatory land-use planning	Pastoralism land rights and tenure (IFAD, 2014b) Voluntary guidelines on governance of pastoral lands (Davies et al., 2016)
Gender	Policy development and training programmes focused on leadership and communication to enable and empower pastoralist women	Invisible guardians: Women manage livestock diversity (FAO, 2012) Women's land rights toolkit (ILC, 2016)
Health	Community human and animal health workers, One Health	Manual for community-based animal health workers (Lebrun, 2006)
Education	Mobile-education approaches	Mobile pastoralists and education: Strategic options (Krätli and Dyer, 2009)
Insurance	Index-based insurance	
Policy	Policy training	Pastoralism and policy training (IIED ⁸)

⁸ https://www.iied.org/pastoralism-policy-training-addressing-misconceptions-improving-knowledge

Theme	Examples	Selection of manuals, guides, concepts
Capacity-building	Pastoralist field schools; pastoral cooperatives	Farmer field schools for small-scale livestock producers (FAO, 2018) Pastoralist field schools (FAO et al., 2013)
Conflict resolution	Conflict mediation	
Emergencies	Destocking; veterinary support; feed and water supplies; shelter; restocking	Livestock emergency guidelines and standards (LEGS, 2014)

13. Consult with stakeholders

Consultations are a key activity in project design. It is essential to build trust between the institutions that design and implement the programme, on the one hand, and its intended beneficiaries, on the other. Building trust takes time. Optimally, consultations should take place throughout the project design in a participatory manner.

Meet with stakeholder representatives

Use mechanisms identified in step 2 to engage with stakeholders. Try to ensure the representation of women, youth and poor pastoralists. Be aware of the potential conflicts between different groups or stakeholders. Customary leaders and customary institutions are a valuable source of information in terms of indigenous knowledge and governance of natural resources. However, the design team should be aware of their accountability: do they represent the whole community or just part of it (usually older, better-off men)?

Capture and integrate stakeholder views

Discuss project objectives and intervention options and get stakeholder feedback. Pastoralist communities have experienced the successes and failures of past attempts. Their perceptions on what is needed and what works (or doesn't work) might be very different. These views should be incorporated into the project design.

Seeking Free, Prior and Informed Consent (FPIC)

FPIC ensures that communities participate in decision-making concerning an intended development project that may affect their rights, access to lands, territories and resources, and livelihoods. The engagement process empowers them to give or withhold their consent to proposed programmes. Box 11 indicates when FPIC should be applied.

Box 11. Application of FPIC in IFAD-supported projects (IFAD, 2015a:3)

	Project likely to affect land access and/or use rights of communities	Agricultural and rural development projects unlikely to affect land rights	Project supporting demand-driven services to individuals
Rural areas without indigenous peoples or minorities	YES	NO	NO
Rural areas with some indigenous peoples and minority communities	YES	On a case-by-case basis*	NO
Indigenous peoples' territories or tribal areas	YES	YES	YES

^{*}Depending on the potential impact of the project on local indigenous peoples' communities. The project target group may include some indigenous peoples' communities or it may not include indigenous peoples, but project activities may have an impact on land, territories and resources of indigenous peoples' communities living near the project area.

The FPIC process should be used to set the scale of an intended project. It can also help to improve the targeting of beneficiaries and the mobilizing of community support.

The How to Do Note on FPIC (IFAD, 2015a) gives more details on the principles of FPIC and gives guidelines on how to set up an FPIC implementation plan.

14. Assess and prioritize options

Identify trade-offs and anticipate potential impact

Use, for example, the strengths, weaknesses, opportunities and threats (SWOT) analysis to assess intervention options. Catley (2017) lists pros and cons for frequent interventions in the Horn of Africa. Identify criteria to evaluate options. Analyse the effects on:

- Access to key resources. How does the intervention affect the access of poor livestock-keeping households to pastures and water sources?
- Governance and rights. Does the project empower vulnerable groups, or undermine their rights?
- Long-term perspective on productivity. What are long-term impacts on productivity and resilience? Does higher productivity outweigh reduced resilience that minimizes the overall loss in the face of seasonality and periodic disaster?
- Alternatives to pastoral systems. Research indicates that pastoral systems are the most reliable production systems in harsh environments. Do alternative systems or land uses compete with pastoral systems? Could they cause greater poverty?

Interventions may result in unintended consequences. For example, an abattoir or road that aims to improve the marketing of animals may attract people from outside the area, leading to land-grabbing and ethnic tensions, harming rather than helping the intended pastoralist beneficiaries. Try to anticipate and avoid or mitigate such consequences.

Conduct economic and financial analysis

Various guidelines on economic and financial analysis exist (IFAD, 2015b). Assessing the economic viability of a project in pastoral areas may be difficult: data are often lacking and there is no standard framework to assess the returns on pastoralism or to measure the potential cost of increasing social volatility (King-Okumu, 2015). Cost-benefit analyses of replacing pastoral systems with something else tend to be methodologically unbalanced in favour of alternatives.

One way of avoiding this is to calculate the **total economic valuation**, an approach developed to help costbenefit analysis in contexts where standard methods fall short (Hesse and MacGregor, 2006; Davies and Hatfield, 2007; Behnke, 2012; Pica-Ciamarra et al., 2010; Randall, 2015). The total economic valuation includes the:

- use value, including the:
 - o direct use value, obtained by removing a product, such as meat or milk
 - indirect use value, obtained by not removing a product, for example, a culture that generates tourism
 - o option value, for the potential future use
- non-use value, for the existence of a natural resource, for example, by preventing desertification or maintaining water supplies

Prioritize and select options

Based on the assessments, set up criteria to prioritize and select intervention options. Involve stakeholders in the decision-making. If none of the options seems to promise success, there is always the option to take no action.

15. Identify risks and plan for variability

Many pastoral systems are inherently riskier that other types of livelihood. Depending on the area, drought, bad weather, conflict, disease, price fluctuations and outside human interventions may affect the production system and hence livelihoods. Pastoralists have developed various ways to deal with these risks: mobility, keeping different species and breeds, splitting herds, maintaining large herds, seeking alternative sources of income, arming themselves to deter thieves, etc. These all contribute to their resilience. Interventions must take the risks into account, build on resilience that is already there and seek other sources of resilience. See step 6.

Develop a risk management plan

- Identify the types of risk (e.g. drought, conflict, disease, price fluctuations, outside interventions)
 and the probability that they may affect the project and its beneficiaries.
- Recognize and support (rather than hinder) pastoralists' risk management strategies. View variability as an asset, rather than a problem.
- Incorporate systems to predict and cope with critical situations, such as early warning systems and related contingency plans. Manage rather than avoid risk.
- Build flexibility into the project framework, workplans and funding to be able to react to risks and variability.

Implementation arrangements

Implementation arrangements aim to ensure that the identified interventions are carried out effectively.

16. Establish arrangements for implementation

Select a lead organization to set up the project management unit, prepare implementation and determine facilities and staffing requirements. Implementation arrangements should consider the following:

- Match the timing of project activities and potential delays to seasonal changes within pastoral systems, especially mobility of people and livestock, remoteness and lack of infrastructure, road conditions and people's workload.
- Build in sufficient flexibility, contingency and buffering options in implementation plans, assuming that the process will have unforeseen complications and delays.
- Avoid complicated procurement procedures that cause delays in implementation and limit variability.
- Set up mechanisms to monitor risks and adapt to changes (see step 15).

17. Ensure project sustainability and determine the exit strategy

Questions of sustainability and how to exit at the end of the project should be determined in the design stage, not towards the project end. Work out the long-term impacts of the initiative and how these can be sustained into the future. Sustainability may be:

- environmental: maintaining or restoring ecological balance (e.g. restoring degraded rangelands)
- **social and cultural:** maintaining and strengthening social structures and equity (e.g. school curricula that include pastoralism as a subject)
- **economic and financial:** ensuring a steady flow of revenue so the functions can continue to be performed (e.g. ensuring that a dairy remains profitable)
- **institutional and programmatic:** ensuring the proper working of the institutions developed as part of the project and their ability to continue activities in the absence of donor support (e.g. peace committees to manage herd movements and maintain grazing reserves).

The importance of sustainability will depend on the type of project. A road-building project should ensure that the road will continue to be maintained into perpetuity. An education project will have to pay teachers' salaries in the coming years, etc.

Determine the exit strategy

The exit strategy relates to the question of sustainability. Three types of exit are possible:

- phase over: transferring full responsibility for the activities to other organizations, governmental
 entities, community groups or individuals. This will be necessary if further inputs are needed after
 the end of the project.
- phase out: withdrawing project resources without transferring responsibility. This may be appropriate if the project is expected to have achieved its goals and no further inputs are necessary.
- **phase down:** reducing the inputs of funding, staff and activities. This often precedes a phase-over or phase-out strategy.

The timing of the exit will depend on the needs as well as the availability of funding. The needs at the end of the project are hard to predict before the project begins, so build in sufficient flexibility from the start and ensure the monitoring system generates sufficient information to enable a smooth exit. See IFAD 2009a for further information.

18. Identify needs for technical support and capacity development

Capacity and awareness required to manage projects in pastoral areas may be limited. Project staff may have wrong assumptions on how pastoral systems function and what the needs of pastoralists are. Consider training and capacity development needs for executing agencies, project management units and partner institutions. IIED offers a useful course on pastoralism and policy training and FAO's manuals on capacity development can be useful to assess existing capacity and gaps.

19. Set up mechanisms to engage with pastoralists

Outline how the project will ensure dialogue with pastoralists, government agencies and implementing institutions.

- Identify dialogue mechanisms (e.g. regular meetings, forums, multistakeholder platforms, FPIC)
 ensuring that pastoralists (including women and youth) and others are involved in decision-making.
- Set up communication channels to discuss programme implementation with the pastoralist communities. Make sure to be culturally sensitive and to communicate in language that pastoralists understand.
- **Promote representation** of pastoralists and their representative organizations in formal institutions. This could involve changes to legislation and policy.
- **Build the capacity** of existing pastoralist associations (including women's groups) or support the establishment of new ones to strengthen their representation.

Monitoring and evaluation

20. Specify M&E needs

Monitoring and evaluation is a key component and has to be embedded in the project's objectives and management tools from the start.

- Carry out a baseline study at the beginning of the project. This is also necessary to address lack of data, which is often the case in pastoral areas.
- Adopt continuous and systematic M&E rather than a series of separate events based on different principles and methodologies.
- Identify suitable indicators that measure project performance in pastoral contexts. Many standard indicators do not do this and have to be adapted.
- Adapt indicators to capture variability of the environments in which pastoralism is practised.
- Design monitoring as a participatory activity. Communities can help identify and monitor indicators based on their priorities and values. This increases their ownership of the project, can make M&E more efficient and can reduce costs.
- Conduct a project evaluation at the end of the project.

Find more information about M&E in Annex 2.

21. Capture and communicate lessons and achievements

Develop plans to communicate project outcomes to stakeholders and donors. Successful interventions could have the potential to be scaled up or replicated in other regions. Future projects should learn from the constraints that the project faced and not repeat mistakes. Policy makers may want to adjust laws and regulations according to project findings.

- Capture lessons learned on what has gone well and what should have been done better.
- Develop knowledge products to communicate key messages. For example, short policy briefs are more likely to be read by policy makers than an extensive evaluation report. Visual reports, such as through participatory video or photos, can be particularly effective in sharing pastoralists' perceptions of the collaboration.
- Disseminate information through, for example, networks, knowledge portals, stakeholder meetings, workshops, etc.

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Annex 1. Minimum standards for sustainable pastoral development

The minimum standards for sustainable pastoral development (IUCN, 2011)⁹ make it possible to ascertain whether projects may negatively impact the land access, tenure security and vulnerability of pastoralists. They are defined by a balanced combination of the following four principles:

- Develop country strategies that recognize and support pastoral systems.
- Avoid investments and policies that undermine pastoral systems.
- Place governance and rights, including those of minorities, at the centre of pastoral development.
- Promote investments and policies that support pastoral systems.

Develop country strategies that recognize and support pastoral systems

- Understand what pastoralism is and how varied it can be. Pastoralism is practised in about 75 per cent of
 the world's countries. Even in industrialized countries, pastoral groups are often disadvantaged because
 of their remoteness. Country strategies being developed need to recognize the diverse pastoral groups
 found within and across national borders.
- 2. Understand the value of pastoralism, which is measured not only in terms of the obvious products, such as meat or milk, but also in terms of other livestock goods (e.g. hides and fibre) and services (e.g. transport and manure), non-livestock goods (e.g. timber and non-timber forest products), and important environmental services (e.g. water cycling and wildlife conservation), as well as social and cultural services.
- 3. Recognize that many of the most significant values of pastoralism (including products such as milk and even meat) are poorly captured by market data since many transactions occur outside the market. Economic development should not be guided solely by market data in a context of widespread market failure. More appropriate methodologies should be used to gather data beyond those found in national accounts and surveys.
- 4. When considering options for drylands, take resilience into consideration as a key feature of livelihoods and a primary development objective. In highly uncertain environments, producers maximize yield in good times and limit loss in bad times. Conservative attitudes of pastoralists to development often reflect the observed poor understanding by outsiders of a complex production objective. The same logic applies both to new technologies that seem compatible with pastoralism and to livelihood strategies that are still advocated as an alternative to pastoralism.
- 5. Based on a more complete economic evaluation of pastoralism, recognize the opportunity costs of alternative land uses and the impact of promoting alternatives for non-pastoralists (including destitute former pastoralists) on pastoral production, and recognize that these costs are evident at the landscape level. Each hectare of riparian pasture excluded from the pastoral system may mean many more hectares of non-riparian land that are rendered less productive in the overall system; a simple hectare per hectare comparison is inappropriate.

Avoid investments and policies that undermine pastoralism

- Recognize that non-pastoral projects, such as irrigation projects that reduce water flow to dry lowlands, can have a heavy impact on pastoralism. Investment in crop cultivation at a national level often leads to distorting incentives in drylands to adopt less resilient livelihoods at the expense of pastoralism, leaving people in the drylands more vulnerable to drought while simultaneously undermining the resilience of pastoralism.
- 2. Do not abdicate responsibility for equitable rights in pastoral lands. In many developing countries, land tenure is weaker in pastoral systems and policy favours settled farmers. In this case, investments and

⁹ Full title: Supporting Sustainable Pastoral Livelihoods. A Global Perspective on Minimum Standards and Good Practices.

- policies supporting non-pastoral land use in either pastoral or adjacent lands can lead to alienation of resources from pastoralists, and are likely to result in increased pastoral poverty and conflict.
- Ensure balance in national consultations and planning, recognizing that pastoralists may be disadvantaged minorities and that other land users compete with pastoralists over land, water and other resources.
- 4. Understand that pastoralism is a multiple land-use system and not simply a form of livestock production. The system can therefore be undermined by investments that compromise non-livestock incomes and natural resource use.
- 5. Integrate pastoralism into biodiversity conservation policies.

Place governance and rights, including those of minorities, at the centre of pastoralist development

- Create and support multistakeholder forums to ensure pastoralists and non-pastoral actors are included
 in local and national planning processes and to promote dialogue between these groups, particularly
 between government and pastoralists. Multistakeholder forums should be constructed taking into
 account the fact that pastoral territories can be large and stakeholders may live far beyond district and
 even national boundaries.
- 2. Promote empowering approaches for development planning and develop capacity, particularly within local government, to understand the role of participatory approaches as an empowering process rather than an implementing convenience.
- 3. Ensure that empowerment includes all sectors within a society, going as far as ensuring that empowerment of marginal groups (especially women) forms the foundation of pastoralist development.
- 4. Ensure appropriate support for civil society, recognizing the distinction between civil society organizations and non-governmental organizations.
- 5. Combine community empowerment with institutional accountability by building the capacity and willingness of government to endorse and support community empowerment.

Promote investments and policies that support pastoral systems

- 1. Invest in pastoralism as a strategy for diverse land use rather than as a livestock production system only, and ensure recognition of both complementary and alternative livelihood options.
- 2. Invest in pastoral livestock production based on the assumption that mobile pastoralism is rational and can be reinforced with appropriate technological and management adjustments, but that there is no sustainable substitute for it.
- 3. Address the fundamentally important question of land rights, ensuring that pastoral development is built upon greater security of access to and use of natural resources. In many cases, development must address more than just land rights and has to take into consideration the bundle of rights that pastoralists are denied, if significant steps are to be made in sustainable development of pastoralism.
- 4. Invest in infrastructure and basic services, such as education and health. These investments may yield slow returns, but they are the surest way to guarantee sustainable development and poverty reduction in the long term. Basic services include markets, and the use of markets will be greatly improved through greater access to and uptake of financial services, including credit, savings and insurance.
- 5. Invest in local governance, in linking customary and statutory institutions, and in building local government capacity to govern more effectively in partnership with pastoralist communities.

Annex 2. Guidance on designing monitoring and evaluation

Monitoring pastoral development

Monitoring and evaluation (M&E) helps to ensure that what takes place in the context of a project is consistent with its objectives. M&E should take into consideration the specificity of operating in rangeland areas; in such contexts, it should allow a critical analysis of the outcomes, not just the accounting of outputs, and should include a systematic follow-up several years after the end of the project.

Avoid standard appraisal procedures. The M&E framework should be designed to overcome appraisal procedures, practices and mechanisms rooted in outdated theory. Specific indicators (e.g. livestock productivity, and consequently people's food security and incomes) can be greatly affected by seasonal and inter-annual variability in the rangelands. These short-term fluctuations might be missed or misinterpreted by individual monitoring events. Continuous monitoring following the baseline and throughout the life of the project is preferable. Most of the project's operations are likely to need a managing approach that allows for substantial "real-time" adjustment, a scenario where detailed plans can be an obstacle to both effectiveness and efficiency (Roe and Schulman, 2008). Monitoring needs to allow for the continuous learning necessary to this style of management.

Pay attention to scale. Design should avoid making excessive assumptions about pastoral uniformity and stability, for example those that rely on short-term observation or that presume to capture large-scale dynamics by aggregating a number of small-scale observations. Monitoring processes for pastoral development need to be capable of capturing the geographic scale and the seasonal dimension that are directly relevant to the livelihoods of the people in pastoral systems.

Always include a baseline study. Poor visibility of pastoral systems in public data and high levels of inter-annual variability mean that M&E should include a baseline at the start of the project. This needs to: (i) be of an appropriately large geographical scale to capture the entire area relevant to the livelihood of targeted groups; (ii) include a sample of the target group and a control group (so that changes induced by the project can be distinguished from those associated with structural variability); (iii) map infrastructures, basic services and key livelihood resources in the project area – mapping of resources (e.g. functioning water points) needs to include information on who uses the resource, to do what and under what rules of access; (iv) assess opportunities and challenges for institutional development. In view of the great seasonal variations, the impact survey at the end of the project should be carried out during the same period; (v) focus on the constraining factors (e.g. pasture conditions during the dry season, prices of alternative fodder during environmental crises, price of key veterinary drugs and services).

Poor background knowledge

"Existing data are insufficient to allow the detection of change in socio-economic conditions, animal production, and ecological parameters, so that it is not possible to ascertain the effects of a project when its components do proceed according to plan" (Sihm, 1980b).

"...all sources of livestock data and statistics – such as agricultural censuses, livestock censuses, periodical and *ad hoc* agricultural sample surveys, household income or expenditure surveys – rarely, if ever, generate comprehensive information on pastoral production systems." (Pica-Ciamarra et al., 2010)

Design monitoring as a participatory activity. People in pastoral systems tend to be scattered over large remote areas; continuous monitoring in these conditions can be exceptionally labour-intensive and costly. Defining what the project is trying to achieve and how its impact could be measured should result from a thorough discussion with the team and, most importantly, with the target population. As is usually the case with indigenous peoples, monitoring should be designed through participatory processes in ways that can be carried out by the target community; using the community's own indicators of impact will make this easier. Monitoring should be embedded in project goals and included in the logframe as a specific output throughout the project to secure resources (including time). Accordingly, some monitoring activities can be more appropriately pursued if undertaken by outside agencies, or by creating separate bodies for specific monitoring purposes. These options should be considered in the design and their intended use explained.

¹⁰ Tache and Sjaastad (2010) compared standard and traditional indicators of wealth, based on pastoralists' perception of poverty.

Appropriate monitoring and evaluation in dealing with indigenous peoples

"M&E mechanisms should be participatory and adapted to capture indigenous peoples' perceptions and perspectives. This can be achieved through independent M&E studies among indigenous peoples on their opinions and perceptions on the progress of plans and programmes. Participatory M&E should be part of normal project operations and should serve as a steering mechanism to identify problems and appropriate adaptive measures. Special care must be taken to facilitate easy and timely access to M&E results by communities themselves." Whenever possible, supervision and evaluation missions should include indigenous peoples' experts. The process, referred to earlier, of consultation and participation throughout the life of the project should also be considered as a capacity-building instrument for indigenous peoples' communities and their institutions and representatives. It is designed to strengthen their capacity to discuss development issues and enable them to effectively interact and negotiate with local and national governments, private companies and other interested parties and, ultimately, to lead their own development processes. The process is also aimed at increasing local and national consultative processes involving the diverse stakeholders and relevant national institutions working with and for indigenous peoples. (IFAD 2015a:21)

Which indicators?

Which indicators are used depends on the nature of the project, but some have general relevance. Whatever the focus of the intervention, pastoral development should contribute to strengthening the overall functioning and resilience of pastoral systems – at the very least, it should support mobile pastoralists in remaining mobile (principles 2 and 4 of the minimum standards). It should also promote the visibility of pastoral systems in national strategies and the participation of pastoral people in governance processes (principles 1 and 3 of the minimum standards). The minimum standards for pastoral development (Annex 1) translate into core indicators that are expected always to be included. Even when projects do not engage with them directly, they provide a context against which to assess and qualify the more specific ones.

Develop country strategies that recognize and support pastoral systems

Indicators: (i) increased institutional capacity for "reading" people and production in pastoral systems, and better capturing by public data of their total economic value and their contribution to the national economy (e.g. rating visibility and relevance in public data); (ii) substantial progress in the development of a country strategy that recognizes and supports the functioning logic of pastoral systems (e.g. measuring financial and technical support towards a sound pastoral code); and (iii) representation, consideration and inclusion of pastoralists' concerns in decision-making at different levels.

Avoid investments and policies that undermine pastoral systems

Indicator: the degree of success in avoiding investments or supporting policies that undermine pastoral systems and their functioning logic (especially strategic mobility and livelihood resource access) – this indicator needs to be monitored at the level of country programmes and not only for the interventions tagged as pastoral development.

Place governance and rights, including those of minorities, at the centre of pastoral development

Indicators: (i) increased inclusion of pastoralists and minorities (especially women) in governance and planning processes that affect pastoral systems; (ii) increased dialogue between pastoralists and non-pastoralists, including government; and (iii) increased land access and use.

Promote investments and policies that support pastoral systems

Indicator: substantial increase, through investments and policymaking, in the scale of support to pastoral systems and their functioning logic (especially strategic mobility and key livelihood resource access).

The limits of some indicators commonly used in pastoral development

- Percentage of target farmers/herders (disaggregated by gender) aware of the availability of extra feed, veterinary services, alternative breeds, range management techniques – and their known limitations in the pastoral context.
- Percentage of animals and animal products marketed without affecting food availability within the household, or herd growth rate.
- Market-price trade-offs between livestock and cereals not simply livestock prices in isolation; requires control group.
- Annual growth rate in the herds of beneficiaries compared with "without the project" conditions in the same community and in a control group.
- Percentage of adults and/or children in the pastoral system (i.e. engaged in pastoral production) who are
 able to access adult or formal education without having to disrupt their activity or exit the pastoral system.

Evaluation questions based on minimum standards and lessons learned

While monitoring focuses on assessing consistency with project objectives and measuring the indicators set up by the project, impact is primarily the concern of evaluation. More specific goals of evaluation include assessing the appropriateness of interventions for the present and the future; assessing the continuous appropriateness of objectives, indicators and monitoring targets; explaining the factors behind positive impacts; identifying unintended or unexpected consequences (Perrin, 2006). Like indicators, evaluation questions need to be project-specific, but some general questions can be identified on the basis of the minimum standards and the lessons learned.

Is the knowledge framework on pastoralism and drylands up-to-date and consistently applied?

- Are pastoral systems understood by the project as potentially functional and sustainable systems specialized to take advantage of environmental variability?
- Is there a clear effort to improve the understanding of the economic value of pastoral systems, monetary and not, beyond the representation in public data?
- Are pastoral systems considered in the context of their relationships with other livelihood systems?
- When promoting alternative livelihoods or alternative forms of land use in pastoral areas, has the potential competition with pastoral systems been carefully assessed?
- Is there a clear distinction between risk management and risk aversion, acknowledging the functional role of risk-taking in pastoral contexts?
- Has specialist knowledge of pastoral systems been systematically embedded at all stages of the project cycle?

Is the context of pastoral development being given careful consideration?

- Have intended and unintended outcomes from "sister interventions" and from the wider development landscape been carefully assessed against the risk of undermining pastoral systems?
- Is productivity understood within a long-term perspective, assessing the potential benefits of maximizing yield of individual products against the context-specific need to minimize systemic loss in the face of seasonal contractions and periodic disaster?
- Are interventions supporting pastoral civil society organizations and NGOs and fostering the institutional capacity and willingness of governments to support the empowerment of pastoral communities?
- Are interventions to secure pastoralists' access to key resources aimed at serving the ways adaptive pastoral systems need to use the land, and protecting them against being alienated or concentrated in a few hands?

Measuring poverty reduction

Project design should include research to define, measure and reach pastoral poverty more accurately, especially in relation to people's access to mobility strategies and active participation in the pastoral system. Poverty in pastoral systems remains inadequately represented by standard indicators. The "poverty rate", or "headcount ratio", based on a poverty line is easy to apply but fails to capture differences and dynamics within the category "poverty", such as types of poverty that are much harder to reduce than others, or transfers of wealth within resource-poor pastoralists' communities or groups. The methods used to measure the impact of pastoral development projects vis-à-vis the goal of poverty reduction need to reflect the challenge, and therefore the importance, of working in these exceptionally neglected contexts. Alternatives to be considered are the multidimensional poverty measures developed from Amartya Sen's axiomatic framework, such as the Sen-Shorrocks-Thon index (SST) or the Foster-Greer-Thorbecke (FGT) index. While neither of these indexes may be a perfect fit for the pastoral context, they do a better job at capturing complexity within poverty while still preserving commensurability.

Multidimensional measures of poverty

The Sen-Shorrocks-Thon (SST) index combines measures of the proportion of poor people, the depth of their poverty and the distribution of welfare among the poor. A weighted sum of the poverty gap ratios of the poor, the index can be calculated as the product of three poverty measures during a certain period of time: (i) the poverty rate; (ii) the poverty gap index applied to the poor; and (iii) a term with the Gini coefficient of the poverty gap ratios for the whole population (Haughton and Khander, 2009).

Foster-Greer-Thorbecke (FGT) indexes allow one to vary the weight attributed to the income (or expenditure) level of the poorest members of society. For example, the *poverty severity index* (P2) averages the squares of the poverty gaps relative to the poverty line. FGT poverty measures are reported regularly by the World Bank and several United Nations agencies (Haughton and Khander, 2009; Foster, Greer and Thorbecke, 2010).

Checklist for designing M&E in pastoral development

- Open up the process from the start.
- Anticipate the need to inform real-time management.
- Monitor and question underlying assumptions.
- Beware of tools that assume uniformity and stability.
- Do not take commensurability for granted.
- Pay attention to scale.
- Always include a baseline study.
- Prefer a "continuous-monitoring" approach.
- Design monitoring as a participatory project activity.
- Measure outcomes.
- Consider access to key and fallback resources.

¹¹ In 1976, Sen argued that poverty indices should satisfy certain ethically defensible criteria or axioms by which the desirability of a poverty measure (and the anti-poverty policies based on it) should be evaluated. Crucially, two "dominance" axioms require poverty to rise when (i) a poor income falls; and when (ii) a poor person transfers income to a richer poor person, even if the transfer causes the latter to cross the poverty line. On the other hand, the headcount index does not indicate how poor the poor are, and therefore does not change if people below the poverty line become poorer.

Annex 3. Glossary of problematic concepts in pastoral development

This glossary presents a range of terms that, when left unchecked in project documents, can trigger a logical cascade effect, railroading the project cycle in unwanted or problematic directions. The use of these terms can be an indicator of the quality of pastoral development knowledge at work in project documents and third-party reports.

Agropastoralism. The use of "agropastoralism" with the meaning "separate livestock system distinct from pastoralism" was introduced into pastoral development in the 1970s. Groups that from then onwards have been classified as agropastoralists (e.g. the Karamojong in Uganda) had previously been described as pastoralists, with the specification, when relevant, that they also practised some crop-farming. In reality, all pastoral systems always made use of crops for at least part of the year, either directly or through market mediation. Groups classified as nomadic pastoralists, such as the Wodaabe in West Africa, spent almost a whole generation as sedentary farmers following the rinderpest epidemics at the end of the nineteenth century. Groups classified as sedentary agropastoralists (e.g. the Fulbe in the south of Niger) manage their livestock in the way that pastoralists do. The notion of "agropastoralism" is often used in a teleological framework in which pastoralists are said to eventually "evolve" to the stage of agropastoralism by settling and taking up cultivation. In the rangelands, this often hides a reality in which crop-farming among pastoralists is actually associated with impoverishment.

Crop-livestock integration. In environments characterized by high levels of variability (e.g. drylands and mountain areas) crop-livestock integration has historically happened between specialist grazers (usually mobile) and crop-farmers, on a variety of scales and in a multitude of forms, often discontinuously in time and space (e.g. with livestock and crop-farming being present in the same areas only at certain times of the year). The common understanding of crop-livestock integration exclusively on the scale of the farm (mixed farming), as in the most familiar experience from temperate regions, is inadequate to represent the reality of pastoral systems and the opportunities they offer.

Customary institutions. These are the institutional settings that regulate the social life of pastoralists, based on their own norms, leadership and juridical procedures. Customary institutions are normally associated with a specific identity group and play a major role in allocating rights of access to natural resources to the sub-units of the group (clan, lineages, local communities, extended and nuclear families). In the past, customary institutions were considered informal, thus excluded from state institutions in which the various pastoral groups were encapsulated as a result of the processes of colonization and decolonization. The rise of indigenous rights has given indigenous peoples explicit recognition in terms of international law, with the development of pluralistic juridical models in various states. Customary institutions are a key reference in terms of procedural rights in development, up to the concept of self-determination assured by the Free, Prior and Informed Consent procedure.

Drought. Definitions are commonly grouped under four families: meteorological, hydrological, agricultural and socio-economic. Drylands themselves are defined on a scale of aridity, calculated from the ratio of rainfall to potential evaporation, or from the length of the period in the year when rainfall is sufficient for crops or vegetation to grow – "length of the growing period". All these definitions refer to water scarcity under given geographical conditions. Pastoralists, on the other hand, define drought in relation not to water but to *pasture*, especially its accessibility. The experience of pasture accessibility can be affected by the strategies of production, and chiefly by mobility. For example, the incidence of drought in the experience of a given herd can be reduced or altogether avoided by a well-timed move to wetter areas. Similarly, the wet season can be stretched well beyond the "length of the growing period" in any given location a herd moves through. An observation-based definition of "pastoral drought" would focus on the accessibility of pasture and include capacity for mobility as the key variable.

Ecological fragility. Often referred to as a biophysical characteristic of rangeland ecosystems (e.g. as in phrases such as "dry areas of the world have highly fragile environments"). Here, fragility follows logically from the variability of rangeland, referring to a precarious stability, a presumed ecological balance prone to disruption. The supposed fragility of the rangelands reflects negatively on the pastoral systems, either framing them as a danger to the environment or silently implying a structural weakness in the production system, given the fragility of its basis. This perspective is a legacy of the classical equilibrium model (see "equilibrium model" below). At least since the 1990s, "fragility" in ecology has no longer referred to a biophysical characteristic but to a *relationship*: a mismatch between human use and biophysical conditions. Clearly, centuries of co-evolution of grasslands and pastoral systems resulting in most of today's sanctuaries of biological diversity do not point to an inherent mismatch (see "natural resources"). Evidence of a current mismatch should prompt questions about new forms of human use and the forces at work in changing pastoral systems or preventing them from operating according to the logic that secured their sustainability in the past.

Equilibrium model. Classical ecology, developed from the eighteenth century "economy of nature", represented nature in terms of relatively closed systems self-regulated to a point of stability. This equilibrium model reflected the world view predominant at the time, from Newtonian determinism to classical economic liberalism. The universal relevance of the "equilibrium" model was fundamentally reconsidered in scientific circles starting from the early twentieth century (e.g. with relativity and quantum physics) and in ecology from the 1970s (e.g. with the blending of systems theory into resilience thinking). The principle of self-regulation as a universal law remains attractive for its reassuring simplicity and impersonal character, and has been revived by the spreading of neoliberal ideology. With climate change, the relevance of the equilibrium model is more than ever a small province in a world of variability.

Land rights. A land tenure system defines the realm of possibilities under which land can be used. Its core purpose is to facilitate and support the use of the land under certain conditions. Therefore, the utility of a land tenure system in "securing land rights" depends on whether it matches the ways the land is effectively used by the people who are supposed to adopt the system. The adaptive way in which pastoral systems use rangeland, based on mobility, requires discontinuous and flexible access over large expanses – hence the development of communal management systems in most pastoral societies. An effective land tenure system for pastoral development needs first of all to match this requirement.

Mobility. Pastoral development has represented mobility initially as a random and backward practice, then as an ecological necessity (a coping strategy in the face of variability), and currently as an adaptive strategy to manage and take advantage of environmental variability. Pastoral mobility is usually described as one practice, with different degrees of intensity (distance and frequency). Pastoralists, on the other hand, have different words for several *types* of mobility according to function (e.g. the first movement at the beginning of the rainy season; movement between sandy dunes and clay terrains; orbital movements around a water point during the dry season, etc.). In each of its functions, pastoral mobility is strategic, planned and based on intelligence-gathering, never random (i.e. pastoralists *do not* "wander in search of water and pasture").

Modernization. In many countries, the theory of change in pastoral development continues to frame modernization as the final stage of a process that necessarily passes through intensification and sedentarization, and leads out of pastoralism. Historically, this has translated into expecting pastoralists to accommodate ready-made modernization packages designed to maximize the exploitation of the uniform and stable conditions of temperate environments (from irrigated fodder cultivation to exotic breeds). What still needs to be tried on any significant scale is modernization of pastoral systems that invests in pastoralism rather than in moving out of it, using scientific research and technological innovation to strengthen and improve adaptation to take advantage of variability (e.g. strategies for exploiting the short-lived concentrations of resources characteristic of unstable environments).

Natural resources. Pastoral rangelands are often described as natural resources. This definition is even applied to pastoral breeds, routinely represented as "animal genetic resources", for example in the international debate on the conservation of biological diversity. In reality, it is the way pastoral systems use the environment that defines what is a resource to them. Representing such pastoral resources as *natural* resources (i.e. existing as such in the absence of human intervention) separates conceptually the users from their environment, paving the way for their separation in practice. It also fails to acknowledge the role pastoral systems have had in shaping their environments through centuries of co-evolution.

Pastoral development. This is the process of strengthening pastoral systems while improving the social and economic conditions of poor and vulnerable rural people in pastoral systems. As an approach distinct from livestock development, pastoral development emphasizes the importance of building on local production and livelihood systems, starting from a sound understanding of their basis of socio-cultural practices and institutions, and the way these relate to drivers of change.

Pastoralism. The term refers both to an economic activity and to cultural features developed out of adaptation to the environment. As an economic activity, pastoralism is an animal production system that takes advantage of the characteristic instability of rangeland environments, where key resources such as nutrients and water for livestock become available in short-lived and largely unpredictable concentrations. Crucial aspects of pastoralist specialization are: (i) the interaction of people, animals and the environment, through strategic mobility of livestock and selective feeding; and (ii) the development of flexible resource management systems, particularly communal land management institutions and entitlements to water resources.

Pastoralists. The term refers mainly to a lifestyle based on livestock husbandry and mobility. In development, it is used especially to refer to the centrality of people with their own culture, values, social organizations and institutions.

Resilience. A concept that existed before the shift in the understanding of equilibrium in ecology. The concept of resilience inherited from equilibrium thinking emphasizes a capacity to "bounce back" to the original state of stability following a disturbance. This is a concept initially developed in engineering, good for mechanical systems. For living systems and any other kind of learning system (including societies), experience and time permanently

change the system, and therefore "bouncing back" is never entirely possible. Current resilience thinking developed from the shift in the understanding of equilibrium in ecology. In this case, resilience means also and above all the capacity to maintain and indeed improve key functions, not by successfully resisting change (bouncing back), but through change, making use of it and the opportunities it offers.

Risk. The classical "equilibrium" approach (see "equilibrium model") to the analysis of risk in dryland agriculture has equated risk with variability; a disturbance to a system in equilibrium. In this perspective, risk is managed by minimizing or, if possible, avoiding variability. Analysts looking at pastoral risk through these lenses understood virtually all aspects of pastoral production (e.g. mobility or diversification) as strategies to avoid or cope with variability (= risk). Unfailingly, however, such strategies involved the introduction of additional variability into the system: mechanisms supposed to manage risk by minimizing it, in practice involve "taking risk". A relative risk reduction can still take place within a risk-taking system, as evident, for example, in professions such as the military, among firefighters and rescue teams, and in most forms of business. Blanket risk aversion driven by a notion of risk as synonymous with variability, therefore aimed at the elimination of variability by control and stabilization, can get in the way of pastoral risk management rather than helping it.

Technical exclusion. Exclusion on technical, rather than political grounds, bears a legacy of inadequacy embedded in the toolbox of development and administration, from basic definitions and classifications to conventional indicators and scales of observation, standard procedures of data collection or methods of appraisal and statistical representation. Technical exclusion does not need to be intentional to be damaging, and often is not.

Traditional systems. Pastoral systems are often referred to as traditional livestock systems. Strictly speaking, traditional means "handed down" from one generation to the next – this meaning would apply to ranching, irrigation schemes or the market economy just as well as to pastoralism. However, when the term is used in opposition to "modern", it takes the derogative meaning, not of something coming from the past, but of something that has remained as a disturbance factor from the past, something outdated. In the old conception of pastoral development, "traditional" could be used, for example, to refer to the persistence of mobility. Under the new paradigm, "traditional" may be taken to refer to useful practices that have survived despite policy aimed at their suppression. Under the influence of international law on indigenous peoples, the term "traditional" tends anyhow to be replaced by "customary", a more flexible concept regarding accommodation of innovation.

Variability. In rangeland/pastoral environments, variability is the rule rather than the exception. Rains fall in bursts and unpredictable patterns. Highly variable distribution of moisture over time and space combines with diversity in soil types, topography and vegetation. Nutrients peak only for a few days in the life cycle of a plant before it starts using the nutrients to reproduce. Mobile herders can take advantage of these ephemeral concentrations, keeping their livestock on sparsely occurring, nutrient-peaking fodder for a length of time every year that exceeds the growing period in each of the locations they visit. Pastoral development should understand variability as a structural difference, not as a structural limitation.



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