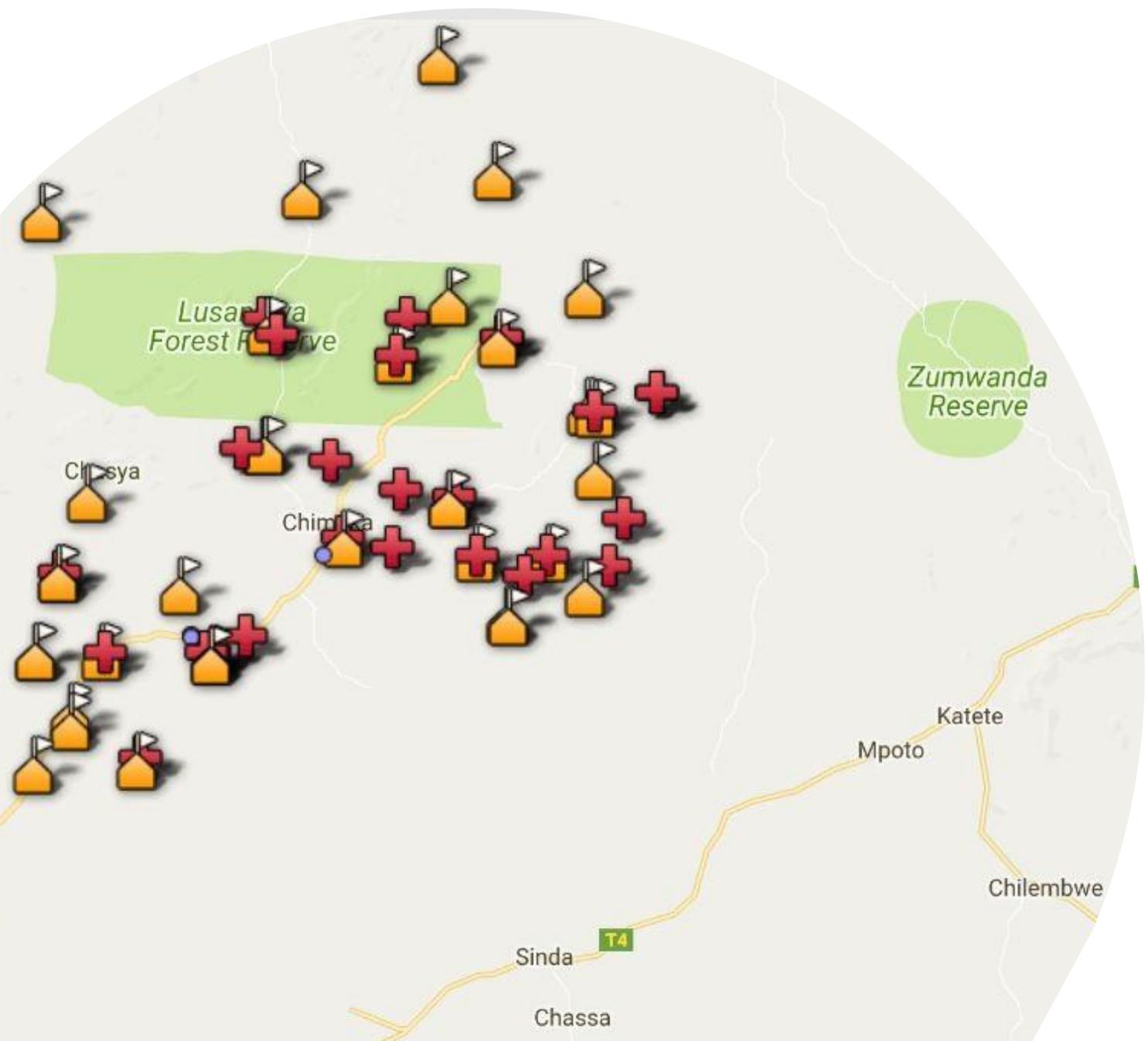




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RURAL LAND USE PLANNING METHODOLOGY

TENURE AND GLOBAL CLIMATE CHANGE PROGRAM,
ZAMBIA



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Cover Photos: Locations of schools and community clinics in Sandwe Chiefdom, Zambia

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DISCLAIMER

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ACRONYMS AND ABBREVIATIONS

GMA	Game Management Area
MAST	Mobile Applications to Secure Tenure
TGCC	Tenure and Global Climate Change
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Since 2014, the United States Agency for International Development (USAID) has supported efforts to increase tenure security in rural customary lands in Zambia through the documentation of customary land boundaries for households and communities in Chipata and Petauke Districts of Eastern Province through the Tenure and Global Climate Change (TGCC) program. This work, led in the field by the Chipata District Land Alliance and the Petauke District Land Alliance, has resulted in customary authorities delivering land certificates across over 700 communities and 12,000 land parcels in Eastern Province. Elements of the methodology have also been applied by Frankfurt Zoological Society in Muchinga Province, and by Mwembeshi Nature Conservation Society in peri-urban chiefdoms outside of Lusaka. Spatial data on land use, development infrastructure, and conflicts have been generated for large areas of these chiefdoms and can be used as the basis of future planning efforts by traditional chiefs, with the cooperation of community members and district government. Furthermore, it is expected that there will be investments to improve land use planning in Eastern Province as part of a forthcoming World Bank grant and loan mechanism associated with the Zambia Integrated Forest Landscape Program. It is in this context that this methodology for land use and development planning has been produced.

In simple terms, land use planning is about making decisions on a sustainable form of land use in rural areas and the initiation of the appropriate options and measures for implementation and monitoring. However, in the context of Zambia's rural customary areas, it makes most sense to integrate land use planning with broader development planning, which ultimately could form the basis of a Chiefdom Development Plan. Zambia has a number of legally mandated planning processes; for example, from the Urban and Regional Planning Act of 2015 and associated with the Wildlife Act of 2015. This methodology does not attempt to replace either of these, but rather provides a framework for rural planning that may feed into government planning processes when they reach these areas. Furthermore, this effort focuses on planning within chiefdom boundaries, because the program has worked most closely with village headpersons, advisors, and chiefs, for whom chiefdom and village boundaries are most relevant for day-to-day management and decisions. If this effort is carried out by government planners, they may wish to use the ward or district levels for planning. While not precisely the same boundaries, chiefdoms are largely confined to individual districts, and ward boundaries often fall within individual chiefdoms. With the recognition that in rural customary areas chiefs are often the main source of authority, there is a need to balance engagement with customary authorities and their jurisdiction alongside the desire of the state to work in government administrative boundaries.

This methodology was developed based on past USAID land use planning efforts. It anticipates using a combination of primary and secondary methods of data collection. It is open to different levels of data collection, from basic surveys that can cover five to ten villages in a day to intensive multi-day visits to hundreds of villages. Stakeholder discussions are required with traditional leaders and advisors, as well as with community members themselves. Key informant interviews are also necessary across a range of government institutions at the district and provincial levels. Structured data collection from the field should form the basis of feeding bottom-up information into ambitious but realistic land use and development plans. The use of spatial information to facilitate dialogue and decision-making and to allocate resources is at the heart of this methodology.

OBJECTIVES OF LAND USE PLANNING IN ZAMBIA'S CUSTOMARY AREAS

Broadly, this land use planning process seeks to consolidate information on the current status of land use and land information within a project area to inform land use options that are sustainable, socially and environmentally compatible, socially desirable, and economically sound. Accordingly, the justification for this intervention is based on social, economic, and environmental challenges and opportunities facing Zambia's customary areas. Chiefs have a large amount of autonomy in terms of land management in their chiefdoms, but also rely heavily on the government for a range of services. Chiefs advocate to government for service delivery, such as schools, clinics, road, agricultural investment, and water infrastructure, often with limited information. It is only with spatially explicit information on current land use and development patterns that chiefs, government, and communities can make rational decisions on government engagement, internal community activities, and outside investment. The process is also likely to reveal many long-standing tensions in development planning, for example between communities and government over resource management, or between communities and leaders over land allocation decisions. Thus, there are fundamental connections between the economic imperatives of land use planning and its blended role as a conflict mitigation tool.

The initial challenge of documenting the current status of customary and state land and associated resources in Zambia's rural area is immense, and indeed is the focus of the government's ongoing Land Audit. This includes understanding the management regime that the land falls under and current limitations within that management regime.

The land use and development plan process recognizes that Zambia's rural landscape is vast and that the viability of different investments varies. Rural livelihoods are not likely to be fully dependent on a single revenue source, like agriculture. Instead, a rural landscape may provide multiple sources of revenue from small-scale farming and agribusiness outgrower schemes to wildlife management and game ranching to forest timber extraction to tourism to mining. Some of these land uses can overlap, while others require exclusive use. Furthermore, the legal framework places some of these management regimes at a higher priority than others; for example, mining rights override any other customary right to land. Customary rights are in general seen as subservient to rights administered by the state – while this may or may not be true legally, this is often felt in practice. Land use planning can form the basis of navigating these overlapping rights and desires to use the rural landscape. A land use plan is in essence a plan of action that clarifies and, in some cases, attempts to alter land uses and their management regimes in rural, largely customary areas.

Inevitably, environmental considerations create limitations in terms of what livelihoods a landscape can support. There are areas in chiefdoms that are not suitable for agricultural use, or at present do not have wildlife or tourism opportunities. A land use and development plan can be used to decide whether it is worth investing in efforts to improve the land to be able to provide tourism or agricultural services, or whether the option is not viable for the area.

In light of the foregoing, land use planning in the project area has four main objectives:

1. *Document existing land and resource uses and the constraints to their management.* It is essential to understand the base layer of existing land and resource uses and management regimes and whether current land uses are operating to their full potential for the benefit of rural communities.
2. *Develop a plan to guide development and investment (both from inside the area and from outside).* Such a framework is defined by the zoning provisions in the land use plan, the legal foundation for supporting implementation, and the regulations supporting the land use plan. Guided by the

outputs of both technical assessments and community consultations, the land use zones will give certainty to rural communities and developers in terms of their present and future development priorities. With the appropriate legal back-up to support enforcement, the land use plan further provides for predictability of development policies. Land use zones and the accompanying regulations are an essential component of mitigating land use based conflicts as well.

3. *Mitigate conflicts amongst competing resource users in the project area.* Conflicts in the project area have multiple dimensions. There are conflicts amongst different resource users, especially mining, wildlife, timber, and agricultural users. In places where land has been put on leasehold title, there are conflicts over boundaries. Those engaged in small-scale mining may be evicted when resources of any value are discovered. Decisions by chiefs over large-scale investments, such as game ranches or agricultural concessions, have the potential to cause conflict. Community members from neighboring chiefdoms or even neighboring countries are moving without making formal customary introductions, causing long-term conflict. At the same time, conflict between government and communities is evident over land conversions, service delivery (or lack of delivery), and inadequate consultation over resource rights concessions.
4. *Develop and seek consensus on rules guiding the sustainable utilization of resources.* The land and resources found in Zambia's rural chiefdoms range from privately owned fields and businesses to community-managed grazing areas and open access resources. Those resources that are of an open access nature have a range of customary and state roles, responsibilities, and restrictions that are not necessarily applied consistently. Land use plans can also clarify the rights and responsibilities associated with the management of these resources in a consultative process.

Stakeholders have different power relations and influence, calling for an iterative process that will culminate with negotiated agreements and arrangements of land uses in the project area. Political factors, particularly power distribution within and between communities and mechanisms of conflict resolution and forming a consensus, are expected to be major determinants of the outcomes of the process. The above-mentioned objectives will further be refined following consultations with all stakeholders.

FUNCTIONAL CHARACTERISTICS OF A LAND USE PLAN

Planning is futuristic. Decisions in land use plans guide future land management actions and subsequent site-specific implementation decisions. These land use plan decisions establish goals and objectives for resource management (desired outcomes) and the measures needed to achieve these goals and objectives (management actions and allowable uses). The land use planning process may identify constraints that limit the ability of the stakeholders to meet their objectives, as well.

Dialogue amongst stakeholders is a central element. The core element in land use planning is dialogue amongst all participants to reach decisions based on consensus. A major task of land use planning is to accompany and motivate the participants and those affected to attain a conciliation of interests concerning land resources, types and extent of land use.

Planning is a public process. Planning is inherently a public process, involving members of the public, interest groups, and government entities. Public participation/involvement entails "the opportunity for participation by affected citizens in rule making, decision making, and planning with respect to the public

lands, including public meetings or hearings . . . or advisory mechanisms, or other such procedures as may be necessary to provide public comment in a particular instance.”¹

Land use planning is interdisciplinary. The ecological, economic, technical, financial, social, and cultural dimensions of land use make it necessary to work with an interdisciplinary approach. Land use planning provides many interfaces with other technical disciplines and planning fields.

GUIDING PRINCIPLES FOR LAND USE PLANNING

Efficiency. Land use must be economically viable, so one goal of development planning is to make efficient and productive use of land. For any particular land use, certain areas are better suited than others. Efficiency is achieved by matching different land uses with the areas that will yield the greatest benefits at the least cost.

Equity and acceptability. For land use planning to be socially acceptable, it must identify with the needs or goals of communities. Such goals include fighting poverty through food security, employment, and security of income in rural areas. Land improvements and redistribution of land may be undertaken to reduce inequality, though this should be pursued with caution.

Securing local participation. People’s needs drive the planning process. Local farmers, community leaders, and other land users, including private sector actors, with a stake in the land should actively participate in planning, though ultimate decisions are likely to be made by the customary authorities.

Sustainability. Sustainable land use is which meets the needs of the present populations while conserving the same resources for future generations.

Community focus. Land use must be planned for the community as a whole because the conservation of soil, water, and other land resources is often beyond the means of individual land users. At the same time, rural areas often have significant areas of community resources that may be managed by groups of villages, or are open access.

Integration. A mistake in early attempts at land use planning was to focus too narrowly on land resources without enough thought given to how they are being used or broader development planning. Good agricultural land is usually also suitable for other competing uses. Land use decisions are not made solely based on land suitability, but also the demand for products and the extent to which the use of a particular area is critical for a particular purpose. Planning must integrate information about the suitability of the land, the demands for alternative products or uses, and the opportunities for satisfying those demands on the available land, now and in the future.

The differentiation of stakeholders and a gendered approach as core principles in land use planning. A prerequisite for realistic land use planning is detailed analysis of the various interest groups. The aim is to find out participants’ interests in order to create a basis for the negotiation and decision-making process. Men and women often do not have the same access to land.

Land use planning requires transparency. Free access to information for all participants is necessary. The extent to which planning is transparent and stakeholders are informed strengthens both participants’ willingness and capacity to participate in planning and decision-making. It increases motivation for creating sustainable results. Dissemination of information in the local language(s) contributes to improved transparency.

¹ US Department of the Interior Bureau of Land Management, BLM Handbook H-1601-1. Public Participation is often provided for in the law regulating town and country planning.

I.0 LAND USE PLANNING METHODOLOGY

This methodology provides guidance on process issues of land use planning activities in the project area. The methodology is presented as a series of steps. Step 1 addresses the legal aspects of land use planning in Zambia, but can and should be amended for other locations. Step 2 focuses on defining the project area and the goals of the land use planning process. Step 3 establishes the current conditions through mapping of land uses and infrastructure and the evaluation of stakeholders and their interests. Step 4 reevaluates the challenges identified in Step 2 and presents options. Step 5 invites stakeholders to evaluate options, consult and provides decision makers with the chance to choose. Step 6 describes the preparation of the land use plan, while Step 7 focuses on implementation, monitoring and revision to the plan. Two annexes are presented to focus on conflict mitigation and the relationship between geospatial data analysis and the social data collection.

STEP I: CLARIFYING THE LEGAL FRAMEWORK FOR LAND USE PLANNING

Under normal situations, the preparation of land use plans is provided for and guided by specific legislation, and the end product is a statutory plan with enforceable provisions. The situation in Zambia is complex due to the differences between customary and state land and authorities. The recently revised set of legislation of the Urban and Regional Planning Act of 2015 creates new responsibilities for government on customary land, but these have not been widely promulgated and the capacities of planners to move into rural areas is limited. Planning regulations will also depend on the types of resources that are available in a chiefdom; for example, the Wildlife Act's planning responsibilities in the game management areas (GMAs) that cover 20 percent of the country are not applicable to areas that do not have GMAs. It is also important to differentiate between land use plans and development plans, which tend to be non-spatial, but may have overlaps in terms of mandates and information.

Relevant legislation and regulations may include the following:

- Urban and Regional Planning Act of 2015;
- Wildlife Act of 2015;
- Resettlement Policy;
- Agricultural Policy;
- Forest Act of 2015;
- Mines and Minerals Act of 2015;
- National Decentralization Policy 2013;
- Villages Act of 1972; and,
- Chiefs Act of 1964.

The key output of Step 1 is a brief note summarizing the legal framework and practices currently used to guide land use planning in the areas of interest that includes:

- The relevance of different land use planning and development planning frameworks to the area;
- The legality and terms of reference for the land use plan – for example, will it be a legal document; and,
- Establishment of consensus and strategies for legalizing and implementing the land use plan.

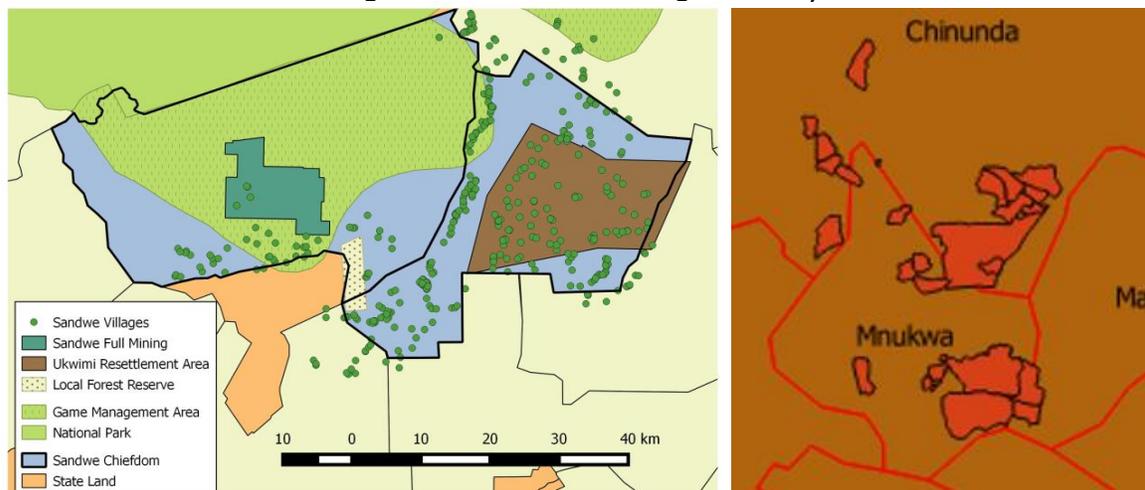
STEP 2: DEFINING THE PROJECT AREA AND GOALS OF THE LAND USE PLANNING PROCESS

DEFINE PLANNING AREA

An important planning requirement is the description of the planning area, paying attention to the following variables: ownership of land in the planning area, use and access rights, and physical description of the land (location, boundaries, size of the land etc.). Under normal situations, the “planning authority” for the planning area would need to be identified; this is most frequently the Provincial Planner or District Planner. Effectively, this would ordinarily define fundamental issues relating to the preparation, management, and implementation of the land use plan. An important question for those acting is whose land use plan it is going to be. While from a legal perspective, the District Council has responsibilities, from a practical perspective the land use plan is most likely to be useful for chiefs to use and to provide input into other policies/activities. As a result, chiefs should take ownership of the land use plans, but also be willing to share and coordinate closely with the District Council and government ministries.

The planning area is therefore the chiefdom, though the chief may be willing or interested in planning at the ward level or a smaller level around a particular development proposal. Given the absence of government approved shapefiles for defining chiefdom boundaries, it is possible to either (or both):

- Use the imperfect chiefdom digitizations from the 1958 chiefdom maps, and/or
- Collect the locations of all village centers and draw a rough boundary around this area.



Chiefdom shapefile boundaries and locations of village points demonstrating that existing shapefiles do not necessarily cover precise boundary locations (e.g., northeast and southwest).

It is important that neighboring communities/wards and institutions are informed of the process, as conflicts can emerge at the peripheries of planning areas. During this phase, it is also important to clarify whether all land is going to be included in planning or just certain types of land uses, such as agriculture, or only customary land and not state land. While there may be restrictions on legal recognition of planning activities on state land or in GMAs, it is still useful to include these areas in the discussion so that the results of the customary planning may be considered as other plans are developed. The outcome will further inform conflict mitigation approaches.

During this phase, as basemaps are collected and generated by the technical team leading the process, communities may describe their boundaries and participate in participatory sketch mapping exercises, though this also may take place during Step 4. At this stage, as well of initial community engagement, there is an opportunity to develop community profiles by village or area that describe the history of the community and its governance. In the context of the Tenure and Global Climate Change (TGCC) program work, this information was collected during the systematic land documentation process.

The key outputs of this definition of the planning area include:

- Aerial imagery of the planning area;
- A base map of jurisdictions considered in the planning area;
- A community-generated map defining community locations and potentially internal boundaries within the planning area (may be generated during subsequent steps); and,
- Guidelines for developing community profiles and profiles developed.

ESTABLISH GOALS

Identify problems and opportunities. There is a need to first illustrate the present land use situation and identify the problems that the plan is intended to tackle, alongside the opportunities for improvement. A reconnaissance field tour, during which representatives of the people concerned are met, is important at this stage.

Agree on initial goals. Goals may arise from local problems (e.g., conflict between pastoralists and cultivators) or from national policy and development priorities (e.g., growing crops for export market). List the problems of the area and the benefits sought; distinguish between long-term goals and those that can be achieved in the planning period; isolate those goals of higher-level plans that apply to the area and those that do not.

Identify constraints to implementation. Constraints to the implementation of the proposed plan may be legal, economic, institutional, social, or environmental. The design of any interventions must explicitly recognize the capacity of government, other organizations, and land users to implement them. The resources available must be specified.

BUILD COMMON AGREEMENT WITH STAKEHOLDERS AND DECISION MAKERS

To develop a useful land use plan, the decision-makers and representatives of the people of the planning area should brief the planner about the problems of the area and what they want to achieve. In turn, it is essential that the planner makes clear how a land use plan might address those issues.

DECIDE OPERATIONAL QUESTIONS

If a plan is to come into effect, the roles and responsibilities of different stakeholders should be considered. The viability of the plan will be based in part on whether the leaders of different institutions can mobilize their respective human and financial resources. Ideas that require outside or additional

funding beyond what is currently available should not be discarded, but the assumption of assistance should be made clear. The roles and responsibilities of the different government institutions and civil society organizations can be outlined here and form the basis of the next step. Key people who can help or who need to be informed and the plan's schedule and implementation may be involved.

Establish the criteria for land use decision-making. For example, the option chosen may be the one which promises the highest return on investment, or the one which will sustain the greatest rural population. Where there are several criteria, decide on their relative importance. The process for decision-making should be clear for all stakeholders. Which stakeholders will have the greatest role in making a decision? The costs and the benefits faced by the different stakeholders may be considered.

Set the planning period. This is the length of time for which the plan will operate. It could be three or five years or longer, and may be broken down into phases for review and revision.

Set the terms of reference and budget. This step is the foundation of the land use plan. Misconceptions arising at this stage may be difficult to clear up later. In particular, it is essential to develop close working relationships between the land users, the decision-makers, the planning team, and other participants.

A major requirement of this step is to identify the main stakeholders of the planning project and reach a common vision of what can be achieved through the activity. From these, the terms of reference should be defined broadly enough to allow flexibility in finding solutions to the land use problems. There is a balance in this phase of realistic goals for the short-term and longer-term objectives. The output from this step will be a project document (or similar statement) giving the terms of reference of the planning exercise, including its goals, specific objectives, time required, and the necessary budget.

STEP 3: CURRENT CONDITIONS: STAKEHOLDERS, LAND USES AND INFRASTRUCTURE

The basis of land use planning in the project area is premised on existing land use patterns. The settlement hierarchy may vary between peri-urban areas and rural areas. At this stage, it is important to return to Step 2 to revisit the planning objectives, particularly related to the scale of planning. Typically, a rural land use plan will consider a full landscape, while peri-urban or more densely populated urban areas will have a higher resolution plan. Each of these can be considered as subsections within a chiefdom land use plan, though the processes for analyzing data may have to occur through separate steps. Thus, through a clarification of the goals of the land use plan in Step 2, stakeholders will identify the types of information and the scale of information collected.

Information may be collected as points, lines or shapes (polygons), and placed on either a paper or digital map. The use of mobile applications to secure tenure (MAST) may allow for a rapid collection of data that is easily integrated into a digital database. Systematic data collection is crucial at this stage; as accessing the communities is often the most expensive element of the land use planning process, any opportunity to collect data efficiently should be open to the collection of multi-sectoral information. Advance planning and broad communication with stakeholders to identify which resources are worth including as options in this base mapping exercise are necessary.

In rural areas, development infrastructure and typical point data (e.g. the location of schools, churches, clinics, agricultural purchasing sites) that is centered within a settlement can either be collected with specific points and travelling to the precise location, or can be answered with a series of simple yes/no questions (e.g. does the village have a school within its boundaries?). In an urban or peri-urban environment, it is likely to be important to collect precise points using a handheld GPS or GPS-enabled tablet.

Typical line data (roads and streams) are often easily identified on topographic or aerial imagery and can be drawn directly on the map or into a mobile device for future digitization. Shapes (polygons) can be the most challenging to map and transfer onto database platforms.

Communities are also involved in a range of economic and livelihood activities, including charcoal burning, and the supply of wooden poles and bamboo (*gaana*) for use as construction materials in towns. At the same time, the community may be engaging in this range of activities across different land classifications. As a result, this base map development may be challenged to collect land classifications, as well as tenure boundaries and specific land uses. There is a danger of mixing these different (but related) categories. Categories of land use or land classifications should be agreed upon early in the process. Categories should be mutually exclusive and not ambiguous.

Land classifications may be best addressed using satellite imagery. Remote classifications can be done, for example using Landsat imagery.

Land use differs from land classification because land use considers how land is used by different stakeholders, beyond just the status of what is situated on the land. This may be best identified both through satellite imagery and through dialogue at the community level.

Gathering additional data about land use will lead the team to land tenure information and management information. This type of information may take additional time to collect, but it offers more management relevant information. It requires on the ground knowledge of boundaries as well as dialogue with the community.

MAP CURRENT LAND USES AND INFRASTRUCTURE

The immediate task is to identify and locate, with the participation of communities, all such development activities, followed by the taking of GPS readings or drawing on georeferenced maps. Where appropriate, for example where there are conflicts or where there are communal or open access resources, case study profiles can be developed with basic information to build a good knowledge base of existing land uses and how this relates to the natural resources of the area.

Key issues may include:

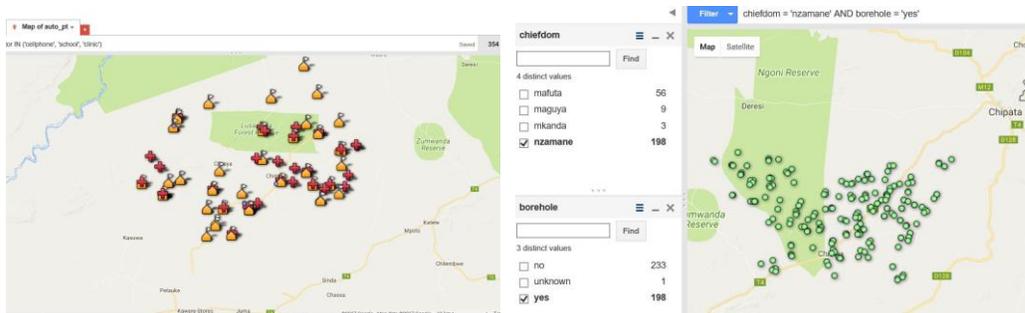
- **Location of important development infrastructure**, for example water, phone network, schools, clinics, and agricultural purchasing areas, to inform placement of future infrastructure by government or local actors.
- **Status of development infrastructure**, for example whether boreholes are working, where roads are washed out, etc.

Advanced and Iterative Planning to Increase Efficiency

In Sandwe Chiefdom, TGCC employed 20 enumerators to collect point data, which included information on access to water. The options provided were restricted to “boreholes,” which was meant to include both shallow (hand-dug) wells and commercially drilled can capped wells. The inability to differentiate provides limited value to the Eastern Water Company to strategically place future drilled boreholes. Fortunately, enumerators picked up on this early on and used a comments section to identify the status of the water source.

Similarly, after data was collected, the Petauke District Council noted that they appreciated the road network information but that it would be more useful to see the status of river crossings, bridges, and culverts, which the program had not previously been collecting. TGCC was able to revise its forms and have the program driver systematically collect this data across the chiefdom.

Stakeholders often do not recognize what can be collected until after they see their first draft maps. Using example maps with stakeholders early in the process may be helpful.



Location of physical infrastructure (above with schools and clinics, left, and borehole locations, right) can be important to help participants understand the current development context and identify gaps in service delivery.

- **Presence of conflict or management challenges**, for example boundary disputes with neighboring villages or chiefdoms and conflicts over resource users such as forest concessionaires, or government. This may include identification of pressures from outside the area such as transboundary issues or in migration.
- **Presence of state vs. customary land**, for example where historical farms have been abandoned, or where farmers may currently hold title, or within resettlement areas.
- **Population**, analyze the numbers, age, and sex structure, population trends and distribution. Plot these data – towns, villages, and dispersed rural settlements – on the base map.
- **Land resources**, obtain, compile or, where necessary, survey land resource data relevant to the planning task. This may include landforms, climate, agroclimatic regions, soils, vegetation, pasture resources, forests, and wildlife.
- **Employment and income**, summarize data by area, age, and social and ethnic groups.
- **Present land use**, existing information will often be out of date or unreliable. Make an up-to-date land use map. This is an essential basis for planning changes.
- **Production and trends**, tabulate production data; graph production trends and economic projections for the planning period. This information should be as quantitative as possible.
- **Infrastructure**, plot roads, markets, and service centers on the base map.

In peri-urban areas, the perceived community land jurisdictions will be particularly important to clarify with government records. This comparison of bottom-up vs. top-down data is crucial for conflict mitigation work. The maps developed under this Step should be targeted to address/inform the land use planning goals identified in Step 2.

DOCUMENT STAKEHOLDERS

Stakeholders in the land use planning process can be put into different categories. These include people or agencies that are affected by decisions on land uses in the planning area; interested in the results or outcome of the land use planning process; involved in a land use conflict in the planning area; and/or, have a considerable influence on the land use planning process.

Local community members are often the most directly affected by decisions on land use in the planning area. These members may be identified by their physical presence in the area. However, given that they are numerous, it may be difficult to reach all members to provide information, or to gather their input. Communities may be represented in Zambia by headpersons or chairpersons. While this is a culturally

accepted role and responsibility, additional efforts should be made for inclusivity. For example, making efforts to invite different interest groups will be important in the planning stage. These may include existing, established groups for women, recent migrants, or different agricultural dealers, or it may be an effort on the part of the planning facilitator to ensure inclusivity in meetings.

Government agencies are very interested in the results of the land use planning process and should be invited to participate fully. It is important to limit government control of the process, and instead create an environment where the local community, chief, and indunas feel that they have control over the direction of the plan. The range of relevant government agencies to be involved will depend on the landscape of the activity. For some decisions, such as infrastructure placement, it may be most appropriate to engage at the beginning and end of the process, while for other agencies like the Department of National Parks and Wildlife it will be important that they engage throughout.

The role of chiefs and chief's advisors are crucial as local decision-makers with the power to enforce rules and motivate people to action. There is a need to provide opportunities to engage this group frequently and at each step, but also to create opportunities for the voices of local community members to be heard. This may be through joint or separate meetings.

Those involved in any of the conflicts at hand should be engaged in the process, though those with power or the upper hand in a conflict may be reluctant to engage. Conflict mediation should be a concurrent process that does not necessarily hold up the implementation of the management plan, but also is not seen as outside of the plan.

Private sector and civil society groups that are active in the chieftom should also be invited to participate in the planning exercise and particularly to contribute data to the process. It is important at this stage to invite relevant people both from within and outside the chieftom to participate, and to engage decision-makers within the private sector and civil society groups as they have the potential to develop viable partnerships. This list of stakeholders may be developed at any stage in the process, and should include a consideration of their motivation and engagement, as well as how they are likely to fit into the realization of the land use plan goals.

It is important for those engaged in the land use planning process to articulate the linkage between state and local level institutions. The output of this process will feed into conflict mitigation and plan-implementation work.

The key outputs of the Step 3 are:

- Data capturing the description of land uses in the project area;
- A series of maps illustrating the spatial extent of different land uses accompanied by a detailed description of some of the attributes. In particular, there should be visual illustrations (maps and diagrams) of settlement patterns, development infrastructure and conflict sites. The examples of overlapping jurisdictions should be highlighted here as well;
- Depiction, description, and GPS readings of existing infrastructure (roads, bridges, schools, health facilities), settlement patterns, major land use patterns, existing boundaries, etc.;
- Case study profiles of specific activities like charcoal burning, timber or other resources. This is likely to consider the extent to which governance rules across the area are consistent;
- An inventory of formal and local institutions with a stake in the land use plan;
- A summary of the activities and the relative interests of identified stakeholders; and,
- Plans of stakeholders with a bearing on land use planning.

STEP 4: ANALYSING THE CHALLENGES AND IDENTIFYING OPTIONS

REANALYZE CURRENT LAND USE CHALLENGES

Using maps and stakeholder interviews and dialogues, the planning team should assess how current land use, stakeholder relationships, and other factors impact the achievement of planning process goals. This process should be done collaboratively, as different stakeholders may not perceive barriers in the same way. Additionally, current land use challenges often benefit subsectors of the community with entrenched interests, and therefore raising these challenges to the surface in an open forum may not be welcomed by all stakeholders. The challenges need to be specific enough that causes can be identified, but not so specific that it only reflects one small area, or a sub-issue.

Based on an understanding of these challenges, problem statements can be designed that break issues into manageable categories which may be based on administrative units, land units or land use systems.

DEVELOP PROBLEM STATEMENTS

Problem statements will outline a land use challenge and identify the immediate causes of the challenge using specific examples from the area. They will identify the actors, the legal framework, the land types affected and additional dynamics that have resulted in the problem. Problem statements may stand alone or may link together to address a larger development planning issue.

Illustrative Land Use Challenges in Sandwe Chiefdom

- Expansion of mining interests across the GMA area;
- New settler expansion from Katete into Sandwe; and,
- Use of GMA, particularly around common borders.

ASSESS OPPORTUNITIES FOR IDENTIFIED PROBLEMS

Planning involves seeking and appraising opportunities for closing the gap between the present situation and the goals. Opportunities are presented by untapped human and land resources, new technology, and economic or political circumstances.

- **The people** present opportunities in the form of labor, skills and culture and, not least, the ability to adjust to change and to survive adversity. Cooperation at the local level may be promoted by encouraging the participation of land use groups in the planning process.
- **The land** may have underdeveloped regions or unexploited resources such as water power, economic minerals, or scenery and wildlife. The location of the planning area may give it a strategic advantage for trade. Land nearly always has the potential for greater or more diverse production, given investment in management.
- **New crops and land uses** may be available. Circumstances may have changed so much, for example through population growth, that it is no longer possible to solve problems by improving the existing land use. A completely new use, like irrigation, may be necessary.
- **Improved technology** can transform the productive potential of the land – for example fertilizers, pesticides, improved drainage or irrigation practices, new ways to store or process products, or improved crop and livestock varieties. Research and extension services play key roles in developing, adapting and introducing new technology.
- **Economic opportunities** include new sources of capital, new or improved markets, changes to the price structure, and the improvement of transport and communications. Often, the

application of improved technology to land is rendered difficult or impossible by the relative prices of inputs and products. Government action may create opportunities, for example by the reform of land tenure and administrative structures or through policies of taxation, pricing, subsidies, and investment.

At this stage, the opportunities considered need not be specified in great detail but should be wide-ranging to include all possibilities that appear realistic (a process sometimes called "brainstorming").

DESCRIBE OPTIONS FOR CHANGE

There is usually more than one way to tackle a problem. Alternatives may be needed to give due attention to the interests of competing groups and serve as a starting point for negotiations. The plan that is finally accepted may include aspects of more than one option.

The options developed in this step will depend on the goals, the strategy pursued to reach these goals, and the opportunities and problems presented by the people, the land, and the financial and other resources available. For example, problems of food production will demand agricultural or economic action; opportunities for tourism will depend on ways of attracting and accommodating tourists.

Options can be described in terms of ways and means:

- **Allocations of land use:** Land use types are allocated to specific areas of land; for example, irrigated farming to bottomlands, forestry to steep slopes and stream reservations. This option is widely applied in new settlement schemes but is more difficult to apply where land is already occupied.
- **New land uses:** A complete change is made by introducing new kinds of land use not previously practiced in the area, for example irrigation.
- **Improvements to land use types:** Improvements are made to existing farming systems or other land use types to make them more productive or sustainable. Improvements may be brought about through extension services, often combined with improved infrastructure and services (e.g., supplies of inputs). This option follows directly from the analysis of problems. It is one of the principal means of bringing about change in areas that have already been settled.
- **Standards.** Standards may consist of planning guidelines or limits. For example, conservation standards might specify no cultivation within 40 meters of streams; limits to safeguard life and property might specify no housing or industrial development in designated flood hazard or landslide zones. Other standards refer to land management: for example, standards for terrace construction, fertilization, or land drainage. Standards may also refer to development control, for example, prohibiting settlements within road servitudes, or requiring registration of land next to roads.

All stakeholders should be encouraged to present their opinions. There is no fixed procedure for selection of options. Some courses of action will be suggested by farmers, others by extension staff or people with an interest in the area, while the planners may develop still others from the information obtained in Step 2. What is essential is to keep all interested people informed and seek their views.

Identify a range of possible solutions. Options may be built around various themes. The planner must find the theme that is most relevant to the goals and the planning area. Again, a compromise between extremes will be necessary. For example, discussions may range on issues from:

- **Types of production:** Which type of production should be encouraged: commercial, subsistence, or a combination of the two? How should land and resources be allocated between the different kinds of production?
- **Production or conservation?** A trade-off between these alternatives is often necessary in the short term.
- **Self-reliance or outside investment?** An alternative favoring self-reliance would be based on traditional crops, intermediate technology and local credit. An alternative requiring outside assistance might introduce more sophisticated technology, perhaps new crops and outside finance.

Develop options within the extremes. Develop options that have a realistic chance of being implemented. Moderate the maximum range of options by social imperatives, budgetary and administrative constraints, the demands of competing land uses, and an initial assessment of land suitability. Thus, the planner addressing the fuelwood and grazing problems might develop three options. For example:

1. To allocate ~20 percent of the area to fuelwood plantations;
2. To retain 30 percent of the area in grazing and import fuel to meet the continuing need;
3. To meet the fuelwood demand by having 30 percent of the area under plantations, with a reduction in pasture; or,
4. The second option, but with a parallel extension effort in intensive livestock production to compensate for the reduction in grazing area.

Compatible land uses can be combined to satisfy multiple demands. For example, multiple forest management methods can be developed that combine elements of wood production, watershed protection, wildlife and recreation. Agroforestry technologies exist that permit the production of fuelwood or fodder with food crops on the same land, or that combine soil conservation with production.

At the end of this step, promising land use types have been identified and specified in terms of what they have to achieve; for example, integrated arable and livestock farming to increase livestock production and stabilize soil loss. At this stage, however, information about the requirements and potential of these land use types is very incomplete. Results from later steps may show that promising options are not viable, thereby making it necessary to reconsider the alternatives in Step 3.

STEP 5: APPRAISE THE ALTERNATIVES: ENVIRONMENTAL, ECONOMIC, AND SOCIAL ANALYSIS AND CHOOSING OPTIONS

The essence of land use planning is to allocate land to a form of land use that it is best suitable for and to anticipate future needs. In this regard, land use planning should be guided not only by the desires of the community and government, but the capacity of the land and the human and financial resources available to realize the goals of the process. Given the geography, natural resource endowment, history and livelihoods context, land use patterns could include: urban expansion; mining; agricultural expansion; community forest use; protected forest use; tourism development; commercial agriculture; grazing; residential settlements; and, gardens. It is against this background that actors should consider the viability of land for different land uses. These may be done through quantitative, outside assessments or may be based on existing knowledge, or qualitative discussions among stakeholders. In general, technical assessments, supported by local knowledge, will be the main tool used in informing the zoning process.

The technical assessments should address each land use under consideration as well as each of the topics below.

REDEFINE ZONING AREAS

While rural areas may have less apparent development, there are still local stakeholders who will be affected by any change in land use or promotion of new practices. The planning process must consider what areas are open to changing/revising land uses and the role of the existing stakeholders. Efforts should be made not to relocate households or livelihoods, but rather to incentivize or convince stakeholders to participate in the process. There should be an effort to build consensus with local stakeholders on current and future land use patterns.

NARROW VIABLE LAND USES

The stakeholders should consider each of the above land uses (and any others) and develop a matrix of current extent of the use; demand for increase in the land use; and, ideal type of land for the land use. In particular, seasonality and tenure of the land use types should be considered. For example, in Zambia grazing often occurs on customary agricultural fields into the dry season, while during the rainy season cattle may be restricted to forests.

ASSESS ECOLOGICAL VIABILITY

Land use planning in rural contexts is guided by the suitability of the landscape to support different land use practices. It is possible to carry out assessments of soil and agricultural suitability for a range of crops; however, this does not mean that farmers will easily switch to a new crop profile. If any large-scale proposals are made, for example from investors or Ministry of Agriculture for the introduction of commercial crops, the soil suitability and other characteristics should be investigated by the chief and communities before expressing an interest/willingness in converting land. A matrix on the ability for different land uses to co-exist should also be established.

ASSESS FINANCIAL VIABILITY

The viability of the proposed land uses must be presented and considered. The extent to which the proposed land use can be carried out using internal vs. external financial and human resources, and the extent to which resources exist or need to be sourced are crucial elements of this basic financial assessment. In cases where outside actors are expected to be engaged in commercializing a resource or providing infrastructure, the distribution of benefits and costs needs to be described. Where there is existing experience related to financial options, this should be summarized for each land use.

ASSESS SOCIAL IMPACTS

Any potential negative or positive impacts of proposed land uses on communities should be identified, particularly if they are likely to change access to particular resources. There should be a summary of the number of people affected by a decision, the potential winners and losers, any opportunities for compensation, and any broader social impacts that may be expected, such as migration, health or education impacts.

Together with the outputs of the community mapping process, the results of technical assessments will inform the zoning process. However, trade-offs will be made as part of the conflict mitigation strategy (see also conflict mitigation annex). Simple matrices and series of questions need to be established for the above assessments.

CONSULT ON OPTIONS PUBLICALLY AND WITH DECISION MAKERS

A further stage of responsibility now lies with the decision-makers. The core planning team prepares the problem statements (from Step 2), options and assessments of viability in terms that are suitable for public, and executive discussion: clear, brief summaries, but with detailed evidence available for scrutiny. The alternatives are presented to representatives of the local people, government officials, and other relevant stakeholders, as well as through a public consultation.

A basic decision is required in terms of which problems are to be given priority and which are the most promising alternatives. Finally, the decision-maker can draw attention to action needed at other levels of land use planning (e.g. at the national level, arising from a district-level plan) and action desirable outside the scope of land use planning.

The key outputs for Step 5 are a description of viable land uses based on ecological, financial, and social assessment, and description of the outcomes of public consultations.

Choose Options

The allocation of parts of the chiefdom and village area to certain land use options is made according to their land use potential. In addition, socio-economic, socio-cultural and logistical aspects and the need to meet demands for raw materials have to be considered. Land use options have various requirements and, therefore, create restrictions with respect to their implementation.

Allowable uses. Land use plans must identify uses, or allocations, that are allowable, restricted, or prohibited in the project area. Land use plans also identify lands where specific uses are excluded to protect resource values. Certain lands may be open or closed to specific uses based on legislative, regulatory, or policy requirements or criteria to protect sensitive resource values. In other cases, the community or group may decide to apply for rights that had previously not been attainable, for example community forest management rights, or registering grazing areas as communal, under forthcoming customary land administration legislation.

Use Evidence for Decision Making

At the point of decision, the roles of the planning team and the decision-makers must interact. The planning team has to assemble and summarize the facts needed to make an informed decision, namely the results obtained from the previous steps. The decision-maker has to choose the land use option that best meets the goals.

In simple cases, a good decision may be made by intuitively weighing the evidence that has been built up through the previous steps of planning.

Land Use Allocation, Recommendation, and Assistance

In the simplest planning situation, that of new land settlement, land units can be allocated to specific uses. Settlers are then brought in and, at least initially, required to practice those uses. Far more commonly nowadays, the land is already settled and is being cultivated, grazed, etc., so the purpose of the plan is to help solve problems of existing land use systems. In this situation, land use cannot be simply “allocated.” New land use types can be recommended for specific areas, through extension services and through provision of inputs and services.

Decisions on land allocation or land use recommendation for competing uses begin with:

- a set of *policy guidelines*, for example, a minimum acceptable production of staple foods and fuelwood, the preferred location within range of existing services and a limited amount of development capital;

- *land units*, delineated by a natural resource survey;
- *land use types*, designed to be sustainable and economically viable within the planning area.

STEP 6: PREPARE A LAND USE PLAN

As a process, planning can be described as a continuous activity aimed at guiding the preservation and development of a community, or region. An important pillar of the planning process is zoning,² a tool used to implement the policies and goals established in a community's plan as they relate to land use. The proposed land use spaces will specify activities earmarked for each area of land, together with any associated standards or planning conditions. In the context of these activities, planning is responding to the causes of complex rural problems relating to ambiguous and overlapping jurisdiction, land use conflicts, and general underdevelopment of communities. As such, zoning is used as a method of developing sound and cost-effective solutions to the identified set of problems. Zoning in the rural context should not be seen as a definitive and exclusive use, but rather a process to identify preferred uses, with a consideration of viability of activities and community interest.

In principle, the proposed land uses should be sustainable; socially and environmentally compatible to the needs of society; technically viable; and, make economic sense. The land utilization type is designed to ensure that the natural basis of living is sustained in the long term: the use of the land should correspond to its natural potential. It is also important for the measures applied to be desired, accepted, supported, and largely carried out by those affected by them, the communities. The benefits of carrying out the land use plan should also be available to the community.

In the context of the above, zoning in the project area should be guided by the technical assessments and the decisions of communities as captured in existing practices and their land use preferences. Ultimately, land use proposals are a negotiated product that reconcile and promote the interests of all stakeholders as identified in the context of this intervention. On the whole, the motivation is not to force communities into new livelihoods, but rather to help communities identify a diversity of viable livelihoods and protect their lands from being grabbed or allocated to outside interests. It also aims to help identify where new pressures may be felt on the landscape.

Given the social and resource context, as well as the development needs of rural communities, zoning will most certainly include the following specific land uses:

- Settlement areas;
- Cultivation areas by communities;
- Land for cultivation in the future by communities;
- Investment areas for commercial agriculture and tourism development;
- Community forest;
- Pastures and cattle routes;
- Areas for commercial tourism development;
- Areas for commercial game ranches and hunting;

² It is envisaged that a more adjustable application of zoning will be applied. It is not intended to be a rigid and legalistic planning tool, leaving space for flexibility at implementation stage if need be.

- Mining areas;
- Places of historical/cultural importance; and,
- Public/institutional land uses.

Contents of a Land Use Plan

Three elements in the land use plan are:

- What should be done: the proposed changes to land use and development activities, not just where but also any new management rules to be implemented;
- How should it be done: responsible stakeholders, logistics, costs and timing; and,
- Reasons for the decisions taken.

The plan will include:

- A land use map;
- Proposed land use zones in the project area; and,
- Written narrative that explains the key land use proposals, and the underlying assumptions, supporting regulations and implementation arrangements.

The structure of the written statement of the land use plan may follow:

- Background and objectives of the land use plan;
- Description of current land uses and governance regimes;
- Problem statements;
- Major land use proposals and justification;
- Implementation and monitoring mechanisms, including responsibilities;
- Costs and benefits of the land use plan for stakeholders; and,
- Agreed compensation for restrictions on land use (if applicable).

Depending on the level and purposes of the planning study, the results may also be implemented as guidelines for priorities or by being incorporated into legislation, development budgets, agency programs, management standards, and extension programs.

As in many other phases of the land use planning process, when drawing up plans, one must ensure that not only the content of the plan, but also its form reflect the collaboration process between the project and the local population. The process and the results (agreements) must be reflected in such a way that all participants can identify themselves with it. The plan drawn up is the result of a negotiation process that is transparent to all. The plan to be implemented contains only those measures whose implementation was agreed upon. Land use planning is a learning process and can be extended, amended, and evaluated within a fixed timeframe.

Map Preparation

Land use planning is critically concerned with what should be done, where. The planning procedure so far has been based on the fact that land conditions are highly variable and so land use types that will be

sustainable and economically viable on one land unit will fail, in either or both of these respects, on other kinds of land. Hence, maps form a key element in the presentation of results.

Several sets of maps have been prepared as part of the planning procedure: base maps, summaries of available data and possibly maps based on original surveys; land suitability maps; and allocations or recommendations of land use to areas of land. These are now drawn up and printed so that they can be used as a basis for implementation and revision.

These maps will be used in the field and in the office by a variety of people – executive, technical, and administrative. For the maps to be useful, the following points should be observed:

- The base-map detail (roads, tracks, settlements, administrative boundaries) should be clear; users will constantly need to find where they are and what should be done, where.
- At the same time, the features shown in the maps (e.g., land use types, soils, water resources) should be easy to see; a good quality of cartography, normally using colour, is essential.
- The legend (key) must be an integral part of the maps.
- The maps should be printed in sufficient quantities to supply all implementing agencies with copies for several years.

Maps are in no way a supplementary part of the report. On the contrary, it may be nearer the truth to say that the text supplements the maps, although they in fact complement each other. The map showing land use allocations and recommendations is the focal point of the land use plan.

STEP 7: IMPLEMENTATION, MONITORING, ENFORCEMENT, AND REVISIONS

The objective of the entire land use planning exercise so far has been to identify and put into practice beneficial land use changes. Hence, implementation is included as a “step” in the planning process, albeit a step of a different nature.

- At the **national level**, implementation is likely to be through policy guidelines which may also serve as a framework for selection of possible projects at the district level. In this sense, the planning team remains throughout a part of implementation, supplying information to government as a basis for decisions.
- At the **district level**, the plan will frequently be implemented with support from a development project. There may be a time gap between planning and implementation for financial, bureaucratic, or political reasons. The responsibility for putting the plan into effect rests with the decision-makers, the implementing agencies, and the people of the area.
- At the **local level**, implementation is sometimes carried out almost contemporaneously with planning. The planning team may move from one locality to another and draw up detailed plans for implementation (within a framework set at the district level), while leaving the local extension staff, village agricultural committees, or other local agencies to put the plan into practice.

The decision-makers have to release funds, instruct sectoral agencies, and facilitate the work of private-sector collaborators. Governments may use incentives such as grants and subsidies and may introduce regulations. Sectoral agencies such as the Forestry, Agriculture, and Irrigation Departments may work directly where they have the necessary staff and experience; alternatively, they may work indirectly by training as well as through extension services, field demonstrations, and workshops.

Integrating Planning Team into Implementation

The planning team has several important contributions to make to implementation. The first is simply to ensure that the measures recommended in the plan are correctly understood and put into practice by the implementing agencies. Representatives of the planning team form an essential link between planning and implementation. Additionally, the planning team can take a lead in coordinating the activities of the implementing agencies and generally maintain communications between all parties to the plan. It can assist in institution-building, the strengthening of existing institutions or, where necessary, the formation of new ones. This can include staff education and training.

A further activity regards public relations. This may include explaining the land use situation and plan to the media, at public meetings, and in schools. The planning team is in a particularly good position to organize research related to the plan, since they are aware of the problems likely to be encountered. Finally, the team will monitor and evaluate the success of the plan (Step 10).

Much time may be needed to ensure the comprehension, participation, and satisfaction of the people of the area as well as that of the local and national government authorities. This is clear in the case of the more socially oriented activities such as pasture management committees, cooperatives, and credit for small farmers, yet it applies at all levels.

Public relations should not be a one-way process of government “explaining” actions to the people, but a two-way interchange of ideas. If members of the local community say, for example, that it would be unwise to graze cattle in a particular area during the dry season, they may have excellent reasons which the implementation team should take into account.

Implementation will often depend on efficient project management. The time, finance and other resources devoted to it will often considerably exceed those of the entire planning process preceding it. Implementation involves many aspects that lie beyond the scope of these guidelines, hence the brevity of this section.

Two aspects which lie at the interface between planning and implementation are institution-building and participation. These two pieces are particularly important for defining responsibilities and promoting enforcement by those responsible.

Supporting Institutions

It has never been established that the efficient use of land depends on long-term planning. For one thing, the means of implementing long-term plans to date have not proven very effective. Indeed, many government attempts to make farmers conform with (misguided) land use plans are now seen as counterproductive.

Government agencies and budgets are mainly organized by sector (Agriculture, Livestock, Forestry, Irrigation Departments, etc.). Land use planning must cut across these administrative hierarchies; however, it must do this without appearing to challenge the influence and budget of established institutions.

Attempts at integrated planning are commonly frustrated by:

- Ill-defined responsibilities for coordination of sectoral activities and regional administrations;
- Inadequate cooperation with national and regional authorities and with specialist agencies, leading to inefficient use of the available data and expertise; and,
- Lack of experienced staff and the absence of a career structure.

Bureaucratic conflicts can be avoided by hiring consultants to prepare a plan, but experience suggests that plans commissioned from consultants are not often used unless external funding has been built in. Typically, there is little local involvement and neither the executive nor the sectoral agencies have the commitment to implement them. There are two proven alternative strategies:

- *Set up a special planning area* with its own budget and administration. This avoids interagency conflicts by replacing the existing agencies, but it is costly and takes time.
- *Set up an independent land use planning unit.* This will need a range of expertise, access to authority, and the ability to make quick decisions. If it is yet another sectoral body, it will merely compete with other agencies and will not be in a strong position either to influence their programs or to implement plans of its own.

Probably, the most effective role for the land use planning unit is as a direct support to the executive. At the highest level, land use planning might be dealt with by a small committee of permanent members drawn from appropriate departments or agencies with a technical (rather than administrative) secretary. The land use planning committee should make recommendations on priorities, the allocation of resources, and the establishment, approval, and coordination of land development programs. Above all, the chain of responsibility must be clear.

Continued Participation

It should be clear from all that has been said that land use planning must involve the local community, the technical agencies, and decision-makers at all levels. Their participation must be built into the planning process.

Among the many reasons for this are:

- To ensure that the right questions be addressed, different groups of people can have very different perceptions of land use problems and opportunities, and specialists do not always know best;
- To make use of the pool of local knowledge of the land and the economy of its use;
- To draw on the inventiveness of local people, technical staff and administrators, locally developed solutions will be accepted and implemented more quickly than external technology;
- Planning time and skills are limited, so planning down to the last detail is not a realistic option – if land users are committed to the broad outlines of the plan, they will attend to the details anyway.

The planners must work to secure the commitment of all parties to whatever consensus is arrived at in the land use plan. The best way of achieving this is to keep all parties informed at every stage of the process, and to make use of the skills and knowledge that they have to offer. If there are no procedures for consultation, then these must be devised and put into effect.

Participation is of the highest importance in incremental planning. This involves building up and documenting knowledge of the land use situation and identifying important gaps in that knowledge. On the one hand, it requires strengthening the capacities of local communities and decision-makers to make use of the planners' information. On the other, it involves helping decision-makers to focus on land use goals, the underlying causes of problems and the range of opportunities open to them.

The implementation of a land use plan does not happen on its own, nor is it done voluntarily by all stakeholders involved. Considerations and agreements on the implementation strategy are also part of the plan. The mechanisms needed to define the obligatory nature should therefore be clarified and

agreed on at the earliest stage in drawing up the plan. However, the obligatory nature can only be applied if appropriate measures have been agreed upon before counterbalancing any restrictions on land use for certain stakeholders, e.g. in the form of land replacement or compensation.

Generally, motivated land users are able to take action themselves against infringements of the rules. On the other hand, there must exist a legal framework for dealing with infringements of the rules. This serves both to support and protect those adhering to the contract as well as to sanction those violating the contract.

At the village level, there are ways to take action against people who infringe on internal village regulations. The regulations involve social pressure, but can also mean imposing penalties. To avoid any irregularities or even excesses enforcement of internal village regulations, government authorities often have the right of approval or the right for checks.

Focus on Monitoring

Now the planning process comes full circle. Information is needed on how well the plan is being implemented and whether it is succeeding, so that the implementation agencies can improve the way in which the plan is being applied, allowing the planning team to learn from experience and respond to changing conditions. It is necessary to know:

- Are the land use activities being carried out as planned?
- Are the effects as predicted?
- Are the costs as predicted?
- Have the assumptions on which the plan was based proved to be correct?
- Are the goals still valid?
- How far are the goals being achieved?

Data are needed to answer all these questions, but data collection must not be allowed to become an end in itself. The more time spent gathering data, the less time available for analysis and action. The focus should be on readily measurable outputs or land conditions relevant to the planning goals, and established methods of data collection such as product sales records should be used. The importance of items to be measured should be ranked, so that time and budget constraints do not prevent important data from being acquired.

Monitoring may involve observations at key sites, regular extension visits, and discussions with officials and land users. A checklist and periodic meetings in the planning area may serve the purpose. Those responsible for plan implementation should list the tasks needed to correct problems as they arise and should also take action.

Review and Revision of Plans

By analysis of the data collected, achievements should be compared with what was intended. Problems in the plan implementation or in the underlying data or assumptions should be identified.

There are a wide variety of reasons for failure. For instance, it could be that the plan was found to be based on incorrect assumptions. There may be changes in economic circumstances, such as when the world price of a cash crop falls. Often, failures occur in the logistics of implementation; if monitoring finds that fertilizers are not reaching farmers, is this a result of inefficiencies in the distribution system? Such problems should first be approached by finding out the reasons through talking to farmers.

Solutions should be sought and discussed with those who have to initiate corrective action. For minor changes, this can be at the level of the implementing agencies, for example in the form of revised extension advice. More substantial changes, amounting to a revision of the plan, must be referred to decision-makers. Continuous minor revisions are to be preferred where possible, since attempts to make more substantial changes can lead to delays. However, there is no point in persisting with methods that are clearly failing to achieve their objectives.

This is the point at which benefits can be derived from the research initiated as part of, or in association with, the plan. This also applies to technical problems, for example of water quality or social difficulties. Where new problems arise, additional research will have to be undertaken.

There will usually be a change of emphasis over the lifetime of a development plan. In the beginning, there will be an investment-intensive phase in which the results become visible in the shape of roads, water supplies, job opportunities, credit, and material inputs. The second stage, consisting of extension and maintenance and operation of capital works, is harder to monitor. Day-to-day management is in the hands of individual farmers; credit repayments must be administered, supplies of inputs maintained, and marketing arrangements reviewed. The transition from the politically popular investment phase to the phase of ongoing maintenance and improvement is difficult. The latter calls for even more effective and willing cooperation between implementing agencies and land users.

To progressively update the plan, a considerable input of time and attendance by all participants in the planning and implementation process is required. Endless meetings quickly stress some stakeholders, in particular farmer groups, and can lead to demotivation. In addition, the land use plan should receive all the “official” approvals, a process which cannot be repeated continuously. Also, a plan which is changed frequently is often not of good quality in the opinion of participants; it is a patchwork, which leads to a loss of credibility. Continuous planning in a team of technicians or managers is somewhat different from planning in a village.

It is therefore recommended that the land use plan is only to be updated after a certain period of time but within the fixed limits, i.e. every three to four years. In the meantime, it has to be verified whether changes in land use are being made within acceptable limits. If there are cases of “destabilizing” land use being introduced without permission, an appropriate mechanism of licensing and supervision must be established at the village level and a regular check made to ensure that it is functioning accordingly. The process of development of the land use plan and its implementation need to prove themselves useful to stakeholders and need to be made public to have a lasting impact. They require champions in the local leadership structure who can promote the use and revision of land use plans.

2.0 CHALLENGES

The methods presented here reflect a land use planning process built on data and consultative structures. Typical of planning interventions, the proposed methods are centered on participatory approaches to planning and the use of technical assessments. Yet, the collection and analysis of data and in depth consultation are costly and require vastly different skill sets.

As expected, there are challenges to be met in undertaking the outlined tasks.

- Conflict generation and resolution;
- Ambiguous planning roles;
- Incomplete decision-making authority;
- Limited control over investments;
- Limited financial and human resource capacities; and,
- Crisis management

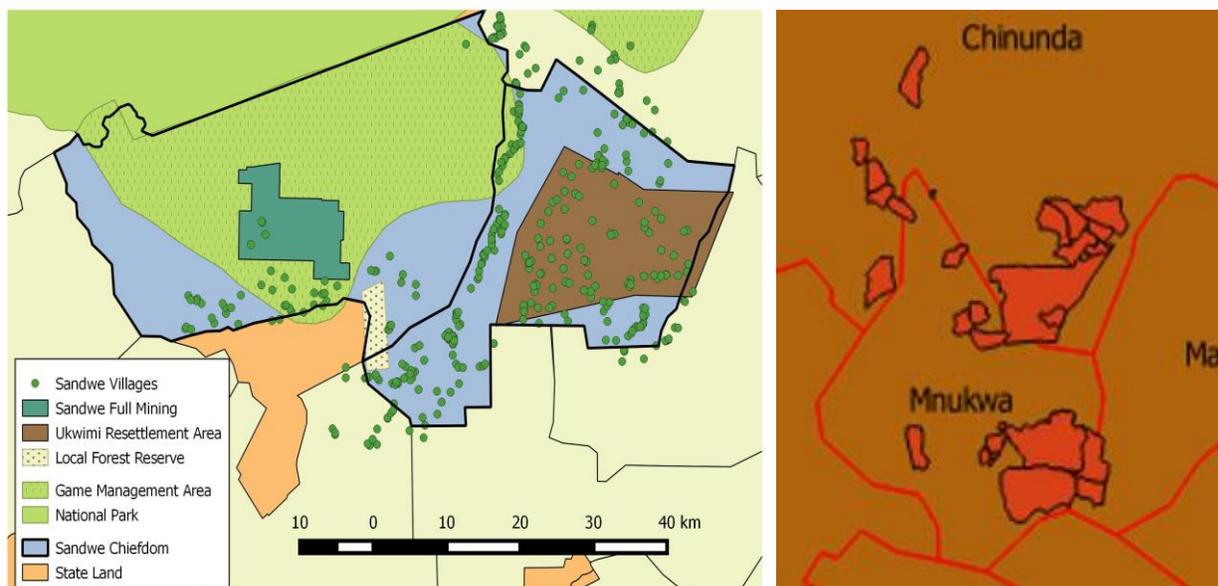
Each of these challenges represents a constraint to the successful implementation of a land use and development plan. This methodology should be harmonized with chiefdom level rural development plans. Particularly important is the demonstration that elements of this plan are not contingent on outside resources.

ANNEX A: GEOSPATIAL SUPPORT TO LAND USE PLANNING

Various sections of this report allude to the role of geospatial work in supporting land use planning. This section elaborates on some of the details of the required geospatial support. Map 1 illustrates the TGCC project areas for land use planning, in relation to administrative boundaries. Initial consultation with government officials and community members suggest that there are disagreements to the correct alignment of some the chiefdom boundaries with government maps. Although there are known errors or unknown accuracy in all GIS data layers sourced, it is the use of these layers alongside bottom up data collection that help to establish an effective land use plan.

Boundary demarcations can be contentious in and special caution has to be taken to communicate the known error of the boundaries. To promote stakeholder buy-in and help reduce skepticism by communities, community/participatory mapping tools and workshops can be used to develop community perspective boundary demarcations. The community maps will be loaded into a GIS and mapped for review by appropriate state institutions and other interested parties.

Map 1: TGCC projects areas for land use planning



Examining the relationship between government shapefiles of boundaries of chiefdom jurisdictions (black lines in map on left and red line on maps on right), and community identified locations or boundaries (green dots on left, and red shapes on right), demonstrating the value of using participatory approaches to validate the area of interest.

Land use planning efforts should use geospatial technologies to allow diverse stakeholders to have input into the planning process. A GIS database for baselayers should be developed using best available data with additional layers being created and verified using GPS technology and participatory (community) mapping exercises. All GIS base layers are detailed and described in Table I.

Table I – GIS base data layers for TGCC land use planning

Layer Name	Date	Accuracy	Source	Description
Roads	2017	3-5m	TGCC vehicle	Road center lines
Geographical Features	2014-2016	10-20m		Streams, mountains, as well as forests, which differ from land uses based on being a description of the state of the land not explicitly related to how it is used
Parcel Boundaries	2015-2017	~3m	TGCC	Digitized boundaries of fields/agricultural parcels
Village Centers	2014-2017	~3m	TGCC	Center point of each village in each chiefdom, associated with governance information about that village
Household Demarcations	2015-2017	~3m	TGCC	Centerpoints for fields and land parcels
Land Uses	2014-2016	Unknown	TGCC	Shared resource boundaries and associated communities with each resource
Development Infrastructure	2017	~3m	TGCC	Points of interest collected with community members
Village Boundaries	2014-2017	Varies	TGCC	Collected via boundary walks
Land Classifications	~2014	Varies	Various	Government administrative authorities, for example mining, wildlife, forestry, who may have different and overlapping jurisdictions
Administrative Boundaries	~2014	Varies	Ministry of Lands	Boundaries of Provinces, Districts and Wards
Satellite Imagery	2013-2017	2-10m	USGS	Imagery covering various areas of Eastern Province at various resolutions
Topographic Maps	1960-1985		Ministry of Lands	1:50,000 topographic maps from Ministry of Lands

Source: TGCC Project Documents, 2012 (revised 2018).

GIS base layers will be converted into a digital format that can be viewed, though the main database is housed on a server in the field.

TGCC GIS LAYER SOURCING DEVELOPMENT

To support decision making for the Zambian land use planning exercise, a comprehensive set of GIS layers are required. Because this exercise occurred through a customary land documentation process, relevant data was collected over time to feed into the land use plan. The project used a number of methodologies to accomplish these tasks:

Digitizing features from Google Earth: where features are visible on Google Earth’s satellite imagery – digital lines, points, or polygons representing features can be captured using tools within the Google Earth application. TGCC typically used Google Earth to identify potential areas of settlements (see Figure 1).

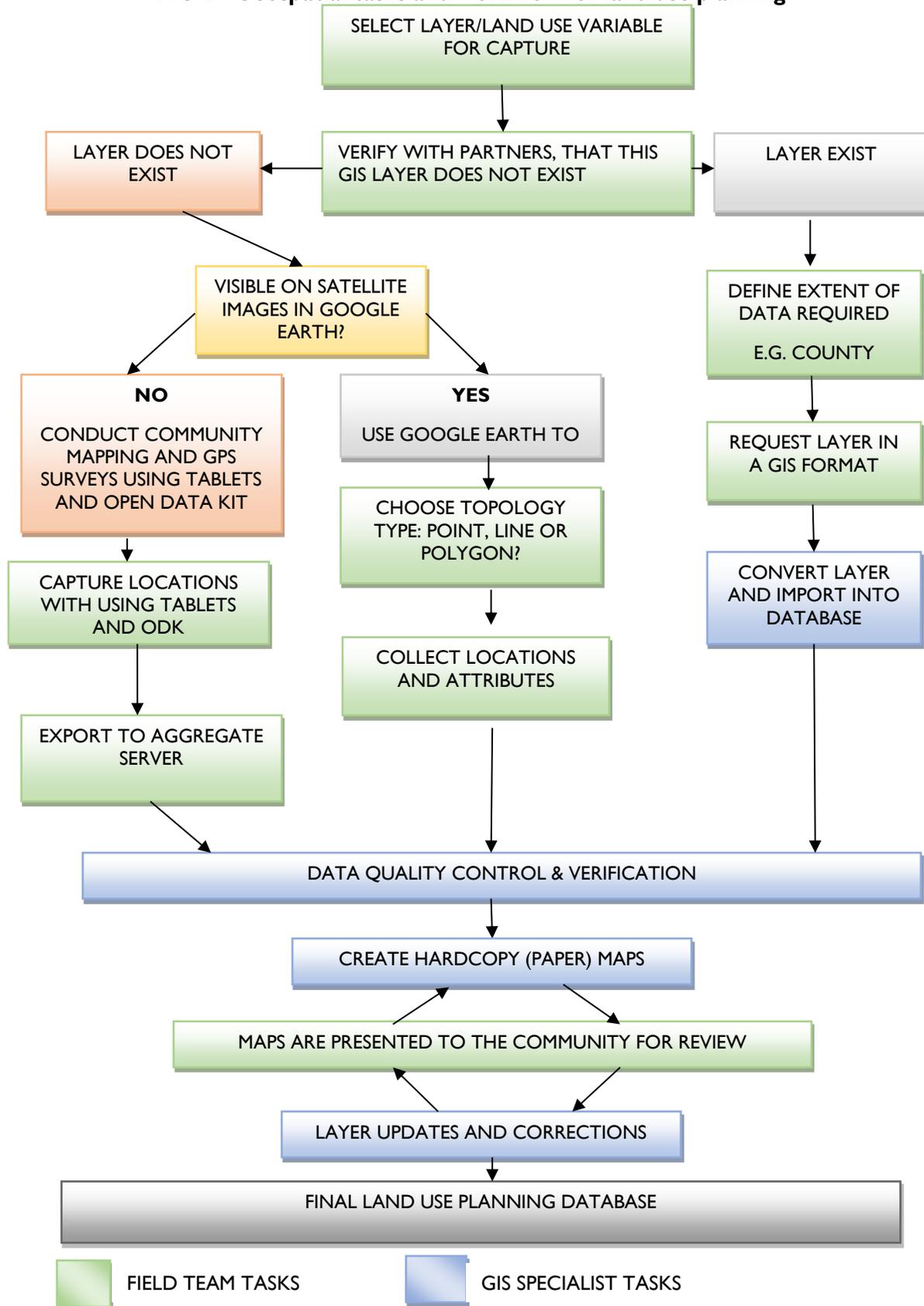
Participatory/Community Mapping: The TGCC team worked with communities across Eastern Province to identify the locations of features required for land use planning. Community members were invited to travel to individual points or to map points and resources on hard copy maps, which were subsequently digitized. Hard copy paper maps were compiled once the GIS Specialist has checked the GPS survey data. These maps were taken back to the community to provide additional input and corrections.

All TGCC field land use planning staff were trained on the technologies used to create, manage, and share geospatial data and had ongoing technical support and input from the GIS team who have received training in database management.



Location of village settlement, as identified by Google Earth

FIG 2 - Geospatial tasks and work flow for land use planning



ANNEX B: IMPLEMENTING CONFLICT MITIGATION APPROACHES

There is a high incidence of land-based conflicts in the project area, particularly in the dry season and during preparation of fields. Conflicts over land inheritance and associated with divorce are common. Another common cause of conflict is the damage caused by cattle and goats to farms/gardens.

In the context of the above, multiple approaches are proposed to deal with land conflicts in the project area. A detailed investigation of the dynamics of land conflicts is needed initially. Issues for further investigation include the historical development of land conflicts, types of conflicts, causes and drivers of conflicts, trends and incidence of conflicts, the geographical/spatial extent of the conflicts, existing conflict management mechanisms (including local rules regulating access to pastures) and their effectiveness, policy responses to the conflicts, and the existing legal frameworks on conflict mitigation. A good understanding of the political economy of land conflicts is required. Of particular interest is how politics, local power dynamics, and local economic relations shape the dynamics of the conflicts. The sociology of land conflicts relates to how culture, attitudes and perceptions, and the interests of different social groups influence the occurrence of conflicts. Another important issue for further investigation is a methodology for managing and sharing common property resources, as well as tenure rights issues. Further, the environmental dimensions/consequences of the conflicts are an important issue for investigation. This includes the analysis of how the environment and other natural processes are fueling the conflict situations and vice versa. The assessment will also assist in the physical demarcation of conflict sites, and provide detail on the location of various levels of boundaries, whether contested or not.

In light of the foregoing, the challenge is to explore and test strategies on the land use plan can mitigate the identified conflicts. Conceptual clarity on how effective and relevant the land use plan will be in solving land conflicts is required. The assessment will construct a nuanced argument on what the land use plan can realistically achieve and the conditions that need to be put in place for such a planning instrument to be effective. The studies can use both primary and secondary methods of data collection.

Resource user groups in the project area include households engaged in cultivation, forest clearance, and increasingly mining. Conservation based stakeholders, particularly those involved with wildlife, represent another group with defined interests. As part of developing consensus on the set of rules governing access and use, TGCC will initially meet such groups separately. The next stage will involve bringing all groups together to reach consensus on issues pertaining to access, rights, obligations, and trade-offs on the use of chiefdom resources. The intended outcome will be documentation of negotiations and conflict resolution efforts. It remains desirable for the review of legislation to provide for legal entities that represent communities, thus strengthening communal land rights.

Training on conflict management is appropriate with local communities. The training will be delivered to customary officials, as well as targeting resources users who have been involved in disputes historically.

Another integral part of conflict mitigation is the role of government officials in imparting knowledge on policy prescriptions that assist in the conservation of resources. As an illustration, officials from the

Department of Forests and non-governmental organizations working on conservation have expressed the need for protecting forests on hills. Thus, balancing the interests of resource users and policy requirements required for sustainability is an important part of conflict mitigation. To reduce conflict between government and communities, it is useful to interpret and disseminate key sections of the Lands Act dealing with, inter alia, land acquisition procedures, compensation, and the regulatory role of government. Training and dialogue sessions can target government officials and community leaders. Following identification of topics, the next step will seek the refinement of the linkage between local institutions for dispute resolution and formal structures at state and customary levels. Appropriate partnerships between these two sets of institutions will be pursued as a strategy of strengthening conflict mitigation strategies.

Key outputs for implementing conflict mitigation approaches are the following:

- A project brief on the sociology of land conflicts;
- Lists of conflict sites in the project area;
- Partnerships on implementing conflict mitigation work;
- Dialogue sessions on rights and responsibilities of different resource users;
- Agreements on sharing resources by different users with competing interests;
- Creative solutions to conflict mitigation (e.g., compensating for closed routes by providing a development project, funding a demonstration project etc.);
- Simplified materials and explanatory notes on key sections of the Land Act; and,
- Reduced incidence of land conflicts.

ANNEX C: LAND USE PLANNING REFERENCE SHEET



CUSTOMARY LAND DOCUMENTATION DEVELOPMENT LAND USE PLANNING REFERENCE

THE PROCESS TO DEVELOP A LAND USE AND DEVELOPMENT PLAN

This meeting will introduce the program to a clustered group of villages and seek to gain consent from the communities to move forward on village registers and documentation and governance rules.

STEP 1: CLARIFYING THE LEGAL FRAMEWORK

Discuss with participants if the plan fits into any national legal framework, and if so, what its relationship is to other plans that may be done in the area. As the plan area is defined, discuss whether any stakeholders know any other relevant plans. Write up a brief summary of stakeholder perceptions of the legal framework.

STEP 2: DEFINING THE PROJECT AREA AND GOALS OF THE PLANNING PROCESS

DEFINE THE PLANNING AREA: In the process of identifying the specific planning area, paper and digital copies of all maps, development plans, and histories of the area should be collected. These should be scanned or photographed so that they may be used in the process. Some basic data collection may occur in this step; for example, sending out individuals on motorbikes to collect information on the location of villages or key development features.

ESTABLISH GOALS: The plan will not be able to solve all the development challenges or meet all the potential development goals facing a community. Be realistic about the opportunities and what can go into the plan, and as the goals are developed identify the constraints to realizing them.

CLARIFY STAKEHOLDERS AND DECISION MAKERS & ESTABLISH OPERATIONAL DETAILS: Discuss roles and responsibilities and who has the right to “own” the plan and how it may be enforced. How long will it take to develop the plan? How often will it be updated? Who will be expected to work with it and how will partners hold each other accountable?

STEP 3: CURRENT CONDITIONS: STAKEHOLDERS, LAND USES AND INFRASTRUCTURE

MAP CURRENT LAND USES AND DEVELOPMENT INFRASTRUCTURE: Put current information on a series of maps. Be careful to not put too much information on maps, but also make

sure to integrate multiple sources of information into one map if possible. Use existing data; if there is a need for data collection, attempt to collect during Step 2. Depending on the audience of the plan and the scale of planning, it may make sense to have different maps for infrastructure (which tend to be point data) and land uses (which tend to be polygon/shapes). Consider the scale at which to map this data. It could be by district but most likely needs to be at smaller scale. Consider mapping not only the presence of items, but also the absence.

MAP STAKEHOLDERS: Consider the locations, interests, and rights of households across the landscape. This should include not only residences, but also agricultural fields and state leasehold and customary land. Consider government interests as well, particularly as it relates to national boundaries, national forests, and protected areas.

STEP 4: ANALYZING THE CHALLENGES AND IDENTIFYING OPPORTUNITIES

ASSESS KEY ISSUES: With local communities, government, and stakeholders, take time to prioritize planning challenges. Encourage a prioritization exercise and if there is time/need, A partner can undertake a formal review of the challenge; for example, the dynamics of the charcoal trade.

DEVELOP PROBLEM STATEMENTS AND ASSESS OPPORTUNITIES: Develop and prioritize the issues that emerged above, and assess opportunities to address the problems using the maps social and spatial responses to the issues.

DEVELOP OPPORTUNITIES INTO OPTIONS: The options can be a visualization of how to move forward and can be placed on the maps as well as into narratives, as locations and timing for carrying out opportunities may vary. These options development activities should be undertaken with multiple interest groups together. It should not just be a government option or a chiefdom option, they should be developed jointly to better understand opportunities.

STEP 5: ASSESSING OPTIONS

ANALYZING OPTIONS: Prior to voting or final decision-making, the options identified should be analyzed against multiple criteria, which may include the following:

Zoning/Re-Zoning Based on Viable Land Uses: Certain options may have impact on individuals with respect to what they can do in a given area, or may also require relocation. Relocation should be avoided, if at all possible, and if necessary should be done taking into account best practices for compensation and negotiations.

Ecological Viability: Needs for water, certain soil types, or topography should be considered before planning and siting land use types to understand whether a proposal is viable.

Financial Viability: Cost and the difference between internal and external financial and human resources need to be considered. The plan should be realistic and in line with existing or likely future resources.

Social Impacts: The distribution of both positive and negative impacts of any decision should be considered. For example, how many people can a new borehole service, or where should a school be placed to reach the most youth.

Public Consultation: Prior to the plan being put in place, there is a need to consult with stakeholders to hear their concerns and integrate their input into plans. The extent of the consultation will depend on the scale and social impacts of the plan.

CHOOSING OPTIONS: Community leaders should integrate the above criteria to decide on particular pathways forward.

STEP 6: PREPARING A PLAN

ESTABLISH CONTENTS: A land use and development plan will describe proposed changes to land use and development; how any changes should be undertaken; and, reasons for the decisions taken.

PRESENT MAPS: Both existing and future land use priorities should be presented. Multiple maps may be required for example to define different scales of decision, whether it is point data focused on particular villages, or areas of land use.

PRESENT A NARRATIVE: Each existing and proposed map should be accompanied by a narrative that describes the proposed changes, and approaches to implement the changes, for example labor, time, and financial resources required.

DEFINE AN IMPLEMENTATION PLAN: An implementation plan ties together the narratives, presents the problem statements, and proposes an approach to move forward. The plan should reflect community collaboration and be well communicated to receive full buy-in.

STEP 7: IMPLEMENTATION, MONITORING, ENFORCEMENT, AND REVISIONS

SUPPORT INSTITUTIONS: Implementation should both consider actors within the area and those from different levels of government who are required to support implementation. Particularly as government is integrated into implementation, it is necessary to get the commitment of government, civil society organizations, and communities. It is worth establishing an independent unit responsible for supporting the implementation of the development plan

IDENTIFY FINANCING: As noted above, financing for implementation is likely to come in pieces, and parts of the plan may need to be implemented at various times. It is worth identifying what local labor can contribute to the realization of the plan as opposed to waiting for external financing.

REVIEW AND REVISE: Parties should be brought together to be held accountable and avoid having the plan sit on the shelf. Reviews should be both retrospective and forward looking to allow for changes as conditions change and opportunities emerge. This may result in a revision to the plan. Periodically, the results of the plan should be shared broadly.

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