



**Conflict and cooperation in local water governance – inventory of local water-related events in Namwala District, Zambia**

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### List of available papers

- Cossio, Vladimir, Rocío Bustamante and Thomas Skielboe: Cooperation and Conflict in Local Water Management. Conflict and cooperation in local water governance – inventory of local water-related events in Tiraque District, Bolivia. DIIS Working Paper 11/2010. Copenhagen: Danish Institute for International Studies.
- Djiré, Moussa, Abdoulaye O. Cissé, Signe Marie Cold-Ravnkilde, Amadou Keita and Anna Traoré: Conflict and cooperation in local water governance – inventory of local water-related events in Douentza District, Mali. DIIS Working Paper 12/2010. Copenhagen: Danish Institute for International Studies.
- Rivas Hermann, Roberto, Tania Paz Mena, Ligia Gómez and Helle Munk Ravnborg: Cooperación y Conflicto en torno a la Gestión Local del Agua en el municipio de Condega, Nicaragua. DIIS Working Paper 13/2010. Copenhagen: Danish Institute for International Studies.
- Nguyen, Yen Thi Bich, Le Thi Thanh Phuong, Thomas Skielboe and Pham Thi Mai Huong: Conflict and cooperation in local water governance – inventory of local water-related events in Con Cuong District, Nghe An Province, Vietnam. DIIS Working Paper 14/2010. Copenhagen: Danish Institute for International Studies.

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## **ABSTRACT**

Recent years have witnessed an increasing focus on water as a source of conflict. So far, much of the focus has been on the risk for transboundary water conflicts. Our current knowledge on local water conflicts is however more limited, and tends to be based on sporadic accounts of local water conflicts rather than on systematic empirical evidence. At the same time, the extent and nature of local water cooperation is often overlooked, just as we know little about the particular role of the poorest in water conflict and cooperation.

The lack of such knowledge jeopardizes current initiatives taken in many developing countries to ensure a more efficient and equitable water governance. To fill this gap, the Competing for Water research programme developed a conceptual and methodological framework for developing comprehensive inventories of local water-related conflict and cooperation. This report documents the results of applying this framework in Namwala District, Southern Province, Zambia and discusses the implications.



## ABBREVIATIONS AND ACRONYMS

|         |  |
|---------|--|
| DC      | District Commissioner                                  |
| DDCC    | District Developmental Coordinating Committee          |
| DWA     | Department of Water Affairs                            |
| D-Washe | District Water and Sanitation Health Education         |
| ECZ     | Environmental Council of Zambia                        |
| ESCO    | Engineering Services Co-operation                      |
| FAN     | Fishermen's Association of Namwala                     |
| FAWEZA  | Forum for Women Educationist                           |
| GRZ     | Government of the Republic of Zambia                   |
| GWP     | Global Water Partnership                               |
| MACO    | Ministry of Agriculture and Cooperatives               |
| MCDSS   | Ministry of Community Development and Social Services  |
| MEWD    | Ministry of Energy and Water Development               |
| MLGH    | Ministry of Local Government and Housing               |
| MTENR   | Ministry of Tourism, Environment and Natural Resources |
| NDWA    | Namwala District Women's Association                   |
| NFA     | Namwala Farmer's Association                           |
| NGOs    | Non Governmental Organisations                         |
| NWASCO  | National Water and Sanitation Council                  |
| PDCC    | Provincial Developmental Coordinating Committee        |
| PPAZ    | Planned Parenthood Association of Zambia               |
| SWASCO  | Southern Water and Sewerage Company                    |
| TFR     | Total Fertility Rate                                   |
| WAZ     | Water Aid Zambia                                       |
| WWF     | World Wide Fund for Nature                             |
| ZAMPOST | Zambia Postal Services Limited                         |
| ZAMTEL  | Zambia Telecommunications Limited                      |
| ZANACO  | Zambia National Commercial Bank                        |
| ZAWA    | Zambia Wildlife Authority                              |
| ZDHS    | Zambia Demographic and Health Survey                   |
| ZESCO   | Zambia Electricity Supply Co-operation                 |

## CHAPTER I

### I.1 Introduction and Background

Water and poverty are increasingly being linked in the public debate, not least due to the Millennium Development Goals and the explicit target to halve by 2015 the proportion of people without sustainable access to safe drinking water and improved sanitation. However, particularly in rural areas, the relationship between poverty and water reaches far beyond the lack of access to safe drinking water. Secure access to water for productive purposes, e.g. irrigation and water retention for crop production; watering of animals; ecosystem protection to ensure fish and grazing availability, as well as for environmental services (e.g. flood and drought control), is key to a significant part of the rural poor if they are to move out of poverty (Bruns and Meinzen-Dick, 2005; GWP, 2003; Hodgson, 2004; Hope, 2006; PEP, 2005; Molden *et al.*, forthcoming; UNESCO, 2006; World Bank, 2005).

As competition for water increases between users and uses, the poor and otherwise disadvantaged groups tend to do less well than others in securing their access to water. In particular, entitlements to access water for productive purposes are often the first to be lost by the rural poor (Barker *et al.*, 2000; Bruns and Meinzen-Dick, 2005). In this context, the current tendency to focus upon drinking water at the expense of the recognition of the wider importance of water to the rural poor (Black and Hall, 2003; GWP, 2003; PEP, 2005; Sossan and Frans, 2003) is unfortunate, among other reasons because it diminishes the likelihood that access to water, e.g. for productive uses for the rural poor, is catered for in the legal, administrative and institutional water reforms currently taking place in many developing countries (Bruns *et al.*, 2005).

Besides the fear that increased competition for water leads to poor people losing their access to water and thus further limits their options for moving out of poverty, there is a fear that increased competition for water leads to increasing conflict among users within as well as among different sectors. However, there is little empirical basis to support firm conclusions on causal relationships between increased competition for water and the emergence of conflict and subsequently about their nature, intensity and impact.

Inspired by Wolf and his colleagues (2003), we identify several shortcomings associated with the current evidence of the relationship between water competition and conflict:

- *Sporadic events.* Most people's understanding of the relationship between water competition and conflict has been based upon reports from sporadic events, rather than upon systematic overview of the complete range of water-related events within a given locality. Thus, the widespread sense that the number and intensity of water-related conflict is increasing, may just as well be a reflection of improved means of registering and communicating such as conflicts, rather than a reflection of the number and intensity of the conflicts themselves.
- *Excludes cooperative events.* Conflicts tend to be more spectacular and thus easier to identify than events of cooperation. Moreover, as norms, rules, and interests tend to be more explicit during conflictive situations than during times of cooperation, focusing upon conflict often entails methodological advantages. However, excluding cooperative events implies that conclusions about causality between increased competition for water and conflict are, at best, incomplete. Accentuating this, and contrary to

prevailing wisdom, Wolf and his colleagues (2003) found that there was no causal relationship between water stress and the likelihood of conflict in transboundary basins, and that often water acts as a unifier.

- *Lack of a temporal dimension.* Conflicts do get resolved. Over time and often through efforts of mediation and negotiation, conflicts, disputes and tensions get resolved and agreements to share or cooperate with respect to given water resources are reached. Snapshots of sporadic events – most commonly conflicts – fail to capture such processes of conflict resolution.
- *Loose definitions.* Terms such as conflict, dispute, tension and war tend to be used interchangeably and without clear definitions with respect to nature and intensity. The identification of these shortcomings had informed the design of this research programme. Thus, the research wanted to:
  - develop *comprehensive* inventories of water-related events within the selected site for the research;
  - ensure that the selected site covers a *wide variety of situations* encountered in the rural areas of the sub-humid wetlands of Zambia. Although not representative in a statistical sense, this range of cases provides a sound basis for drawing reliable and more general conclusions;
  - identify *conflictive* as well as *cooperative* water-related events;
  - include a *temporal dimension* so that inventories of conflictive and cooperative water-related events are developed for a 10-year period (1995-2005); and
  - define a *water-event intensity scale*, as an initial programme activity, ranging from violent conflict, through milder conflicts in the form of discontent expressed through formal, e.g. legal or informal but legitimate, channels to signing a formal agreement.

## 1.2 Research Objectives and Expected Results

Water is vital to local livelihoods and a key prerequisite for development. In recognition of this, recent years have seen an increasing focus on efforts to ensure effective water management in developing countries, reflected most clearly in the widespread water reforms taking place, often supported through associated donor-funded programmes. Alongside these developments, there is an increasing focus on water as a source of conflict. This has included growing attention to transboundary water conflicts and collaboration, and more recently also a spreading perception that the number and intensity of local water conflicts are growing (Carius *et al.*, 2004; Thomasson, 2005).

However, while transboundary water conflicts are quite well-documented (Wolf *et al.*, 2003), the perception of growing *local* conflicts is based mostly on sporadic accounts of local water conflicts rather than on systematic empirical evidence. Even less is known with respect to how the poor, women and otherwise disadvantaged groups fare in such local conflict and cooperation, and, in general, how they are affected by increasing competition for water (UNESCO, 2006). The lack of better insight into these issues limits the ability of governments and donors to ensure that water policies are consistent with Poverty Reduction Strategies and with the overall objectives of poverty reduction and equal access to resources for men and women as well as for different ethnic groups.

The research programme aimed to contribute to *sustainable local water governance in support of the rural poor and otherwise disadvantaged groups in developing countries* by *improving the knowledge among researchers and practitioners of the nature, extent and intensity of local water conflict and cooperation and their social, economic and political impacts,*

*and how this may change with increased competition for water.* Beyond its cognitive importance, such empirically-based understanding has significant implications for the water policy, legal and administrative reforms currently taking place in many developing countries, which – if poorly informed on the relationship between competition for water, conflict and poor people’s access to water – may cause such reforms to be ineffective and exacerbate rather than reduce rural poverty.

Based on comparative research conducted in five countries (Mali and Zambia in sub-Saharan Africa; Vietnam in south-east Asia; and Bolivia and Nicaragua in Latin America), the research programme sought to provide the following main results:

- Quantitative inventories and qualitative case studies of the origin, nature, extent and intensity of local water conflicts and cooperation in five countries in Africa, Asia and Latin America, and of their social, economic and political impacts
- Cross-cutting analysis and synthesis of findings from national studies, including typologies of water conflicts and cooperation and contributions to the theoretical understanding of the impact of economic and political inequality on the nature and outcomes of water-related conflict and cooperation
- Recommendations for ongoing water policy, legal and administrative reforms developed and disseminated to national decision-makers, practitioners, researchers and relevant Danida sector support and Danida support provided through multilateral organizations
- Enhanced capacity and experience in the partner institutions within poverty-oriented analysis of water conflicts and cooperation.

### **1.3 Conceptual Framework**

As witnessed by the many ongoing water reform efforts around the world, the need for better rules for coordinating water use and resolving conflicts accentuates with increasing competition for water. As noted by Bruns and Meinzen-Dick (2005:3), “similar pressures to define property rights have emerged for land as it has become scarcer, but whereas changes in land tenure institutions are more familiar, studied, and debated, changes in water tenure have received much less attention.” With water as a fluid and highly variable resource in quantity, quality and time, water tenure is more difficult to specify than land tenure. Yet, considerable advancement has been made, however, during the past decades to conceptualize water rights (Bruns and Meinzen-Dick, 2000 and 2005; Meinzen-Dick, 2003), and efforts are emerging which seek to accommodate and integrate formal and customary water rights (Bruns *et al.*, 2005; Rogers and Hall, 2003).

However, as is the case for other resources, holding ‘rights’ – whether formal or customary – is neither a sufficient nor a necessary precondition to enjoy access to water (Bruns *et al.*, 2005). In their *Theory of Access*, Ribot and Peluso (2003) distinguish between *property* and *access* as “the right to benefit from things” versus “the ability to benefit from things,” the latter in turn being gained, maintained or controlled through structural and relational mechanisms. These structural and relational access mechanisms include capital and technology, labour and labour opportunities, markets, knowledge, authority, social identity and social relations of friendship, trust, reciprocity, patronage, dependence and obligation (Ribot and Peluso, 2003). Politically or economically powerful stakeholders might obtain access

to water to which they have no formal or customary rights, just as poor farmers with landownership-based rights to water may not enjoy access to that water due to lack of capital and technology for making effective use of that water. In this way, poor people's access to water does not only depend upon their rights to water but also upon the nature and level of political and economic inequality which shape the institutions – whether formal or customary – registering, sanctioning and enforcing these rights as well as the economic and technological opportunities to benefit from existing water rights.

Recent empirical studies of natural resource management and conflicts furthermore suggest that processes of gaining, maintaining and controlling access are highly dynamic processes in which stakeholders actively negotiate maneuver and shift positions (e.g. Juul and Lund, 2002). In doing so, they draw on but also actively recreate existing institutional frameworks and social, economic and cultural structures (Berry, 1993; Cleaver, 2002). In order to capture this dynamic, the research project will apply a combined structure/actor perspective (Giddens, 1984; Bourdieu, 1998). Hence, apart from the structural features mentioned above (the institutions, rules and socio-economic resources held by stakeholders), the study will also explore the actual *processes* of water conflict and cooperation.

Thus, in addition to assessing the social impacts of water-related conflict and cooperation, the research programme aims to contribute to the understanding of the mechanisms through which political and economic inequality shapes the nature and outcomes of water-related conflict and cooperation.

## CHAPTER 2

### 2.1 Methodology

The mapping of water events involved both qualitative and quantitative methods of research. Qualitative methods involved establishing comparative working methods suitable for all five research countries – Bolivia, Mali, Nicaragua, Vietnam and Zambia, where research was collaboratively conducted, and this was facilitated by the Danish Institute for International Studies (DIIS). Methods designed included defining working terminologies in the research programme, designing entry strategies into communities for the collection of unreported events and identifying sources of institutional data and defining which data on both reported and unreported events needed to be collected.

The selection of study site was done quantitatively by narrowing down the study area to a manageable but representative sample; including the selection of communities.

#### 2.1.1 Research Definitions

Working terminologies/concepts in the research were defined to include conflict and cooperation, situations and events, reported and unreported.

##### *Conflict and Cooperative Events*

An event is *conflictive* if one or more parties challenge other actors' access to a particular water resource. This may range from e.g. petty water theft (which essentially challenges the access rights of the rightful water user) to open violence and aggression. The 'challenge' may include the amount of water being withdrawn, or the basic right to access water in the first place.

An event is *cooperative* if one or more parties engage in jointly coordinated actions with other actors to secure shared water access.

This may range from verbal acknowledgement of the rights of others, through joint water management mechanisms. The ‘sharing’ does not necessarily mean a common pool arrangement – it can also include allocation of individual/private water allocation. To qualify as cooperative, events must have an *active* element: While general co-existence does involve some form of passive recognition of the other, actual cooperation requires some form of active behaviour vis-à-vis the other.

*Situations and Events*

Competition for water takes place within particular situations. A *water situation* is a social situation where two or more parties have competing interests in the same water resource. The competition takes place through water events. Water situations may be cooperative when parties manage to negotiate and/or sustain agreements for water use or they may be conflictive when water access and use of one or more parties is contested. Competitive water situations can be characterized as ‘mainly cooperative’, ‘mainly

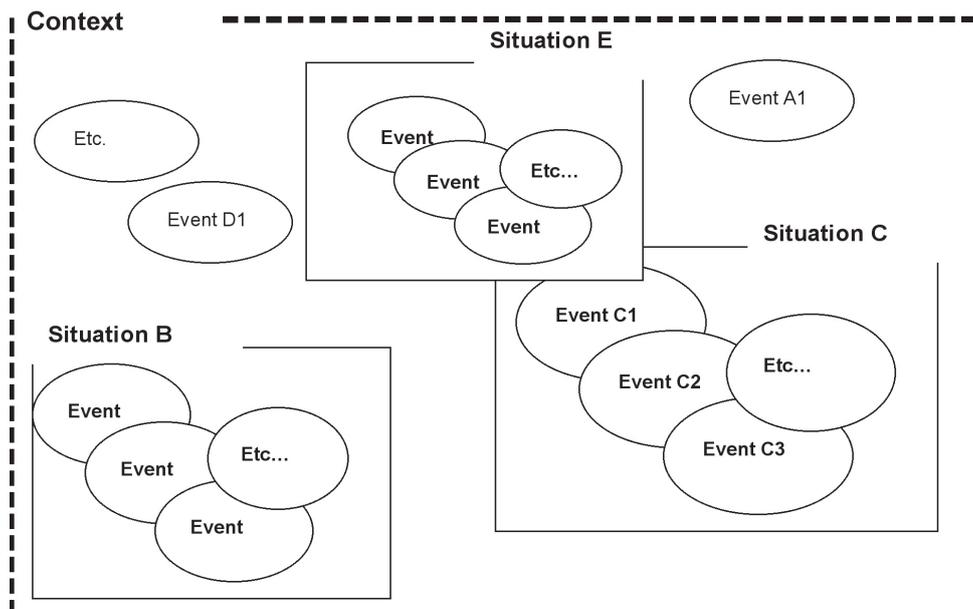
conflictive’ or an equal mix of both.

An *event* is an action (or set of actions) that seeks to secure a party’s water access by either challenging the access of other parties, or collaborating with other parties to secure shared water access. The parties in events may include individuals, groups and organisations. Examples of parties are households, user groups, communities, companies, regulating agencies and authorities, etc.. ‘Seeking access’ may include seeking direct access to water use (by e.g. farmers or pastoralists), or seeking to regulate and allocate that water resource (by e.g. state or traditional authorities).

Water conflict and cooperation take place within a particular national and local *context* or setting. This includes the local and wider physical and hydrological regime, the socio-economic, cultural and political setting, the various policies and legal and administrative frameworks, and the local natural resource management practices.

The nested relationship of the context, situation and event is illustrated in figure 1.

Figure 1. The nested relationship of the context, water situation and water event



*Reported and Unreported Events*

By ‘reported events’ we refer to events about which information has been obtained from institutional sources *outside* the location of the event. That could be local or national authorities, the media, NGOs, etc. By ‘unreported events’ we refer to events about which information has been obtained from local sources, meaning citizens or local institutions *at* the location of the event. Some events were both reported and unreported, meaning that information had been obtained both from institutional sources outside the location of the event, and from sources at the location of the event.

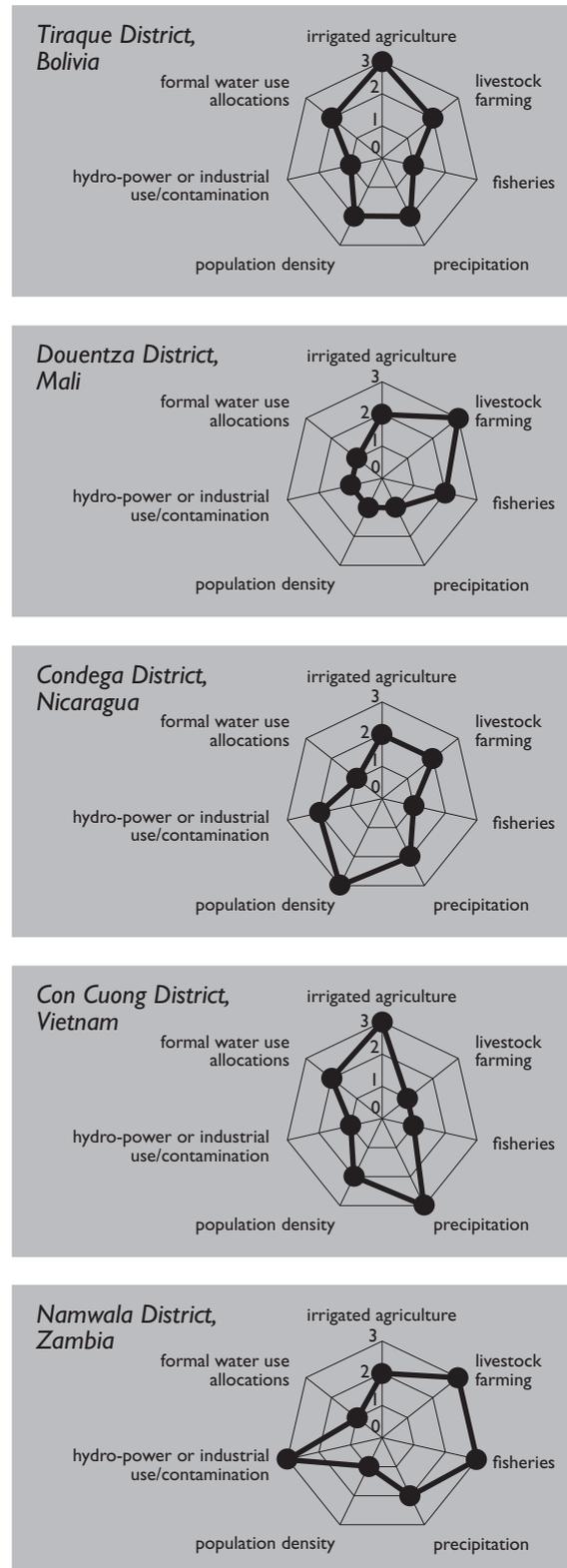
**2.1.2 Sampling Strategy**

Sampling for inventory was done at 3 different levels. Firstly, the selection of the site, secondly, village selection and lastly selection of informants for inventory. All three selections were of great significance to the research methodology in paving way for a successful and comprehensive review of water events in Namwala District. Different methods of selection for site, village and informants were used with each criteria being guided by methods developed collaboratively with partner research countries (Mali, Vietnam, Bolivia, Nicaragua and Denmark – the lead).

*Site Selection*

Site selection was diverse in all five research countries. In Zambia the selection of the study area was guided by the presence of a multitude of water uses such as small-scale farming, domestic water consumption, irrigation, and livestock keeping, including hydro power generation. There was also recognition of the importance to avoid *exclusive* focus on sites with extreme records of water-related conflicts.

**Figure 2. Motivating conditions for the selection of research site**



At a global level, selection of sites for research was guided by the geographical spread of sites across continents and agro-ecological zones were considered, including the representation of diverse conditions with respect to water availability and population density, as shown in figure 2.

Preference was given to Zambia as a country that had previously undertaken Danida programmes and presently has Danida programmes running. In addition, the selection of Zambia as a site for research was motivated by the existence of previous research experiences and established research partnerships.

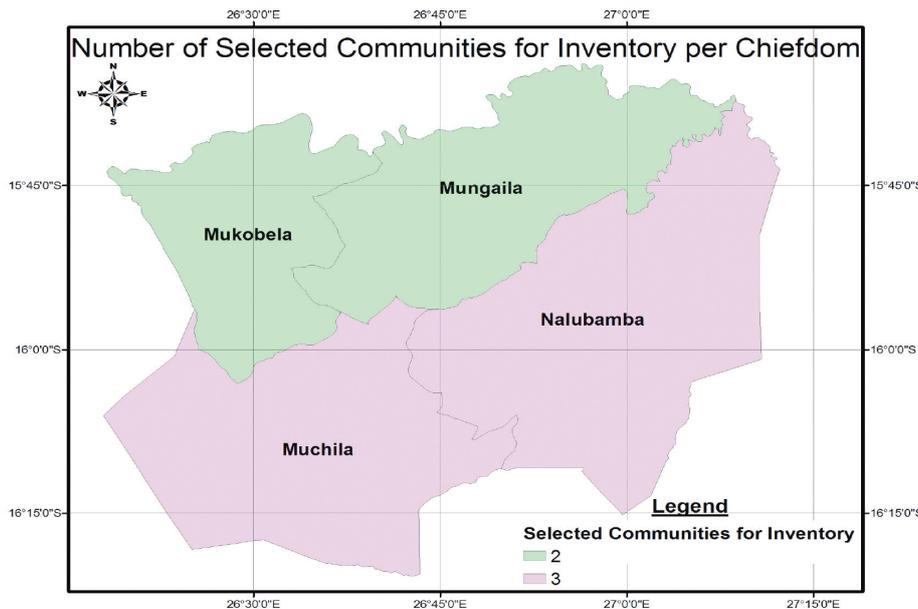
*Village Sampling*

For the identification of unrecorded events, a random sample of 10 villages was made from the total of 427 village communities identified in Namwala District. Identification of village communities was done by reviewing community records from Namwala Council

Office as well as records from 2000 Census Reports. Local level organisations, i.e. traditional structures, were consulted for recognised village communities in their traditional jurisdiction where community registers were provided.

The selection started by making complete lists of all the communities within Namwala District. In order to ensure that all communities (small and big) were included in the sample, complete lists of communities were ‘weighted’, so that a community with 10 inhabitants was weighted differently from one with 100. Weighting a community increased its likelihood for being selected by its size in terms of the number of inhabitants. From the weighed list of communities, we proceeded to select 10 in a lottery form – assigning each community number(s) and then randomly selecting 10 numbers corresponding to 10 communities. Map 1 shows the number of communities selected in each of the four chiefdoms.

Map I. Number of communities selected per chiefdom, Namwala District



**Table 1. Community sample description, Namwala District, Zambia**

*Sampling stratum: Composed of number of villages in chiefdoms, total number of households and ideal number of villages to be selected per sampling chiefdom.*

| <i>Chiefdoms (sampling stratum)</i> | <i>Wards (sampling stratum)</i> | <i>Number of villages in chiefdoms</i> | <i>Total households (2000) and share of total (%)</i> | <i>Ideal number of villages to be selected per chiefdom</i> | <i>Selected Villages</i>    |
|-------------------------------------|---------------------------------|--|---|---|-----------------------------|
| <i>Mukobela</i>                     | Baambwe                         | 71                                     | 636 (4.6%)  | 2   | 1. Kawilizhi                |
|                                     | Kaluweza Ngabo                  |  | 1045 (7.5%)   |   |                             |
|                                     | Namwala Central                 |  | 1256 (9%)   |   | 2. Chisenda                 |
| <i>Nalubamba</i>                    | Nakamboma and Mandondo          | 76                                     | 2905 (20.9%)  | 3   | 3. Hamunjile                |
|                                     | Chitongo and Mbeza              |  | 1083 (7.8%)   |   | 4. Mwanamwale<br>5. Sigwidi |
| <i>Mungaila</i>                     | Kantengwa                       | 169                                    | 921 (6.6%)  | 2   | 6. Shimukopola              |
|                                     | Kabulamwanda                    |  | 734 (5.3%)  |   |                             |
|                                     | Maala                           |  | 991 (7.1%)  |   | 7. Kazovu                   |
| <i>Muchila</i>                      | Moobola and Ndema               | 111                                    | 2941 (21.2)   | 3   | 8. Haababwa                 |
|                                     | Namakube and Itapa              |  | 1360 (9.8%)   |   | 9. Namakube<br>10. Mazhiba  |
| <i>Total – Namwala District</i>     |                                 | 427                                    | 13872 (100%)  | 10  |                             |

*Source:* Central Statistical Office, Namwala Council Office and Namwala traditional leaders

### *Informant Selection*

The selection of informants for review of water events that had been formally reported was guided by identifying institutions and departments of water relevance both at national and district level. Consideration was put on regulatory organisations as well as law enforcing institutions for the regulatory of water uses/management and maintaining law and order in water access, respectively. Both at national and district levels, informants for inventory for recorded events included persons from government tiers; Ministry of Local government and Housing (MLGH), Ministry of Energy and Water Development (MEWD), Ministry of Agriculture and Cooperatives (MACO), Ministry of Transport and Communication, Ministry of Community Development and Social Services (MCDSS), Ministry of Tourism, Environment and Nat-

ural Resources (MTENR), Ministry of Justice – local courts, extension workers; fisheries, agriculture, livestock, water and health.

The *quasi* governments and institutions were also contacted as sources of information for inventory. Contacted institutions included; Environmental Council of Zambia (ECZ), National Water and Sanitation Council (NWASCO), Southern Water and Sewerage Company (SWASCO) and Zambia Wildlife Authority (ZAWA). The media was also a key source of information for reported events.

Other key informants of great importance were personnel from Namwala Rural Council, and District Commissioner for Namwala District.

Selection of community level informants required knowledge and access to certain inhabitants and key informants who knew

about other people's livelihood. Key informants included community representatives including traditional leaders and members of various local organisations. For comprehensive inventory of all water events in the district, the four traditional rulers (chiefs) in the district were contacted as key informants of water events in their chiefdoms. Headmen and ward councillors also composed the pool of key informants for water events in Namwala District.

However, in order to ensure maximum variation sampling, ordinary citizens with varying backgrounds and in different segments of the community were interviewed. For the comprehensive inventories of all water events, community samples included:

- Women and men, young and old
- People from different geographical parts of the community
- Water Committee members
- Resident water users as well as absentee water users
- Pastoralists, crop farmers and domestic water users.

### **2.1.3 Overview of Event and Situation**

#### **Formats**

The inventory format developed was the same for all five research partner countries, to allow for cross-country comparison. It contained various data needed to obtain both recorded and unrecorded events. The formats were sufficient to capture data on all water uses and use types, including issues which the events and situations were about, whether events were on water access or management. Given the varied issues addressed, the events and situation formats addressed issues of the actual locations where events and situations took place. Inventory formats required and addressed data on the country, district, zone,

community and sector or neighbourhood or sub village. Basins, watersheds, micro-watershed and the actual locations (longitudinal and latitudinal) were mapped out to show the exact locations where events and situations took place.

The formats used to register events addressed types of water uses, including drinking water for both rural and urban water supply, irrigation, discharge of contaminating substances, fishing, consumptive uses, hydropower generation, navigation purposes, environmental uses, recreation, tourism and drinking water for animals. The design of the formats was sufficient to establish the types of water uses that attracted most events of conflict and cooperation.

Further, events formats disaggregated all types of water uses into more conclusive water use types where an analysis was made to establish whether events involved different uses (inter-use event), or same type of uses (intra-use event) or if events were between users and regulating authorities (user-regulator event).

Different issues of the water events were reviewed. Issues of water events were about competing claims of access for consumptive uses, types of consumptive uses, contamination, depletion of ground water, deviation of water, water regulation/flooding, privatisation of water supply, privatisation/concessions of water resource, timing for watering animals, timing for watering crops, contested/competing rules for water management, water scarcity, environmental protection, dam/hydropower construction, damaged drinking water supply infrastructure (well, small-scale piped water system; etc.), the need for drinking water supply, damaged irrigation infrastructure and the need for irrigation infrastructure, including other infrastructural developments.

The formats used for the water events sufficiently established interest groups that formed part of water events. In any competition, including competition for water, various stakeholders are involved as interest groups with varying motives for wanting to seek access, while others act as mediators or regulators. Importantly, inventory formats identified parties directly or indirectly involved in water events both as competitors for water access and as responsible parties for water management. Additionally, it was of great importance to identify parties in numbers directly or indirectly involved in water events and the share of women and men in those participations of water events. To a larger extent, the former reflects the gravity of the need for water access while the latter establishes the gender most involved and affected in water competition and access issues.

Provision was made in the formats to establish sources of information for the research. The data for the research was obtained through archival research (documents, newspapers, administrative records, etc.), on one hand and through interviews with authorities, community members and other relevant stakeholders on the other. The use of events formats became important in the latter as the realisation of comprehensiveness in review of events was seen vital.

In order to provide a checklist for the time frame of events occurrence, the formats addressed in detail the months, seasons and years when events started or ended and whether or not events were ongoing. The analysis of time frame provided answers as to why events were spaced in time. Water scarcity is most prominent in the dry season in Namwala when people tended to compete over access more than in the rainy season. With such a situation, most water events re-

corded were for the dry season. It should be mentioned here, however, that the rainy also recorded significant water events.

Finally, the formats provided an assessment of parties who gained and those who lost water access from water events. The idea was to envisage favoured and less favoured parties/actors when seeking the common goal.

#### **2.1.4 Sources of Data for Checking on Events**

Several organisations and institutions were identified as important sources of information for checking on reported and unreported events and events which, in addition to having been reported, had also been identified through community interviews.

##### *Reported events*

Among sources for reported events were the media, with a focus on public and private newspapers, national and local radio and television stations, including the internet.

Checking for more reported events was done at government ministries and departments in Namwala District. Focus of such events was on the Office of the District Commissioner (DC) as the main overseer of administrative/political issues in the district, the Department of Water Affairs (DWA), under the Ministry of Energy and Water Development (MEWD) as a water relevant department, the Veterinary, Fisheries and Agriculture departments under the Ministry of Agriculture and Cooperatives (MACO) as administrators of major economic activities in the district that demand the use of the water resource. The District/rural council authority, the Police department under the Ministry of Home Affairs and the local and magistrate courts under the Ministry of Justice formed part of sources of data for checking on water events.

Other sources of information for checking on water events were the water utility company in the District – Southern Water and Sewerage Company (SWASCO), and Non Governmental Organisations (NGOs). Also international organizations such as World Wide Fund for Nature (WWF) were important sources of information for checking on reported events.

*Unreported events*

Sources of information for checking on unreported events included traditional water monitors, extension workers, shopkeepers, community leaders (*elected or appointed*), village headman/chief, elders’ councils, women’s groups, water committees, irrigation committees, drinking water committees and the village representatives.

Events mentioned by community leaders (*elected or appointed*) had the highest count of 75 reflecting the high knowledge of community leaders in activities that occur at community level. Events mentioned by the village government had the count of 67, while those mentioned by drinking water committees had the count of 53 and events mentioned by headmen/chiefs had the count of 47.

The lowest number of events was mentioned by shopkeepers accounting for only two, as shown in figure 3.

Individual interviews with male and female citizens were important sources of information for the review of water events. In some cases, group interviews – either jointly with men and women or separately with men and women – were also used as most

**Figure 3. Sources of information for unreported events**

*Number of events*

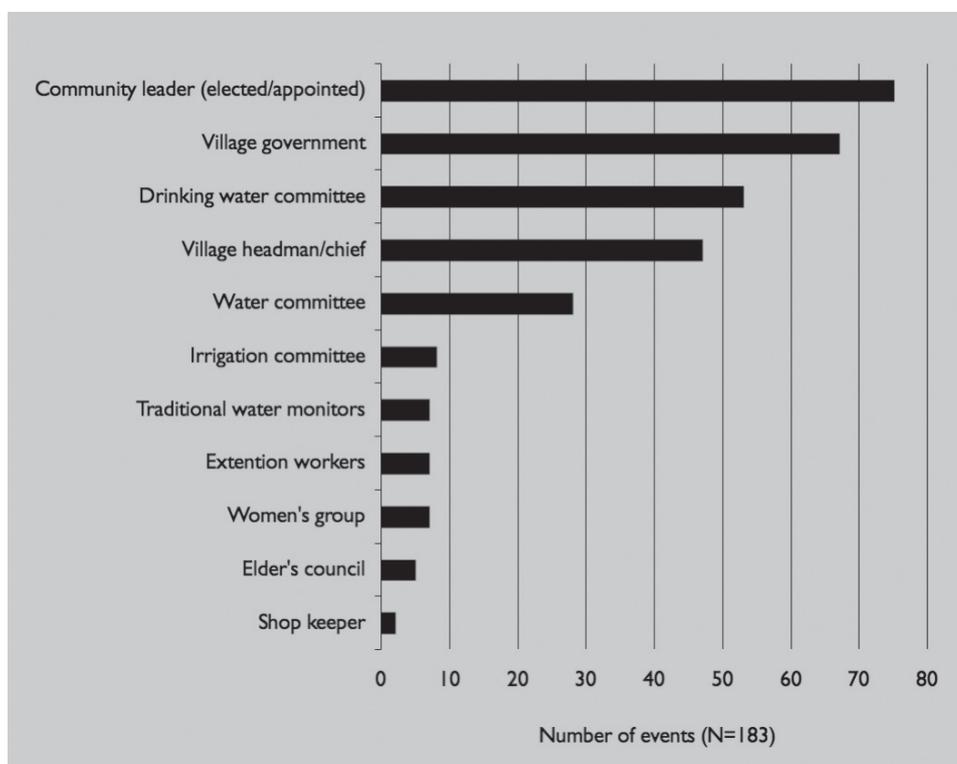
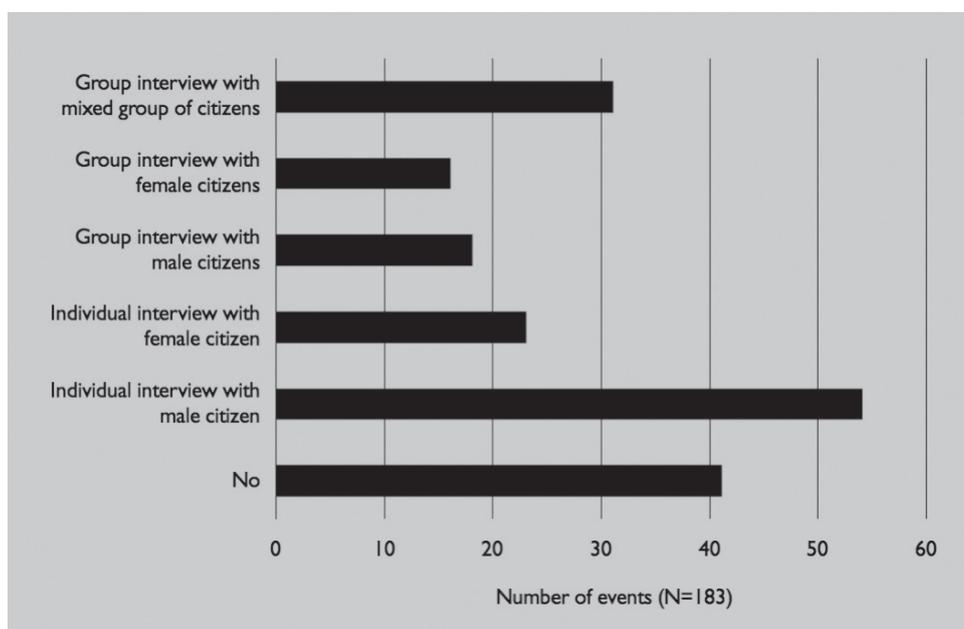


Figure 4. Event mentioned by ‘ordinary’ community members



important sources of information, as shown in figure 4.

Events not mentioned by ordinary community citizens were represented by institutional sources of information. However, other events mentioned by institutional sources of information were also reported through community interviews.

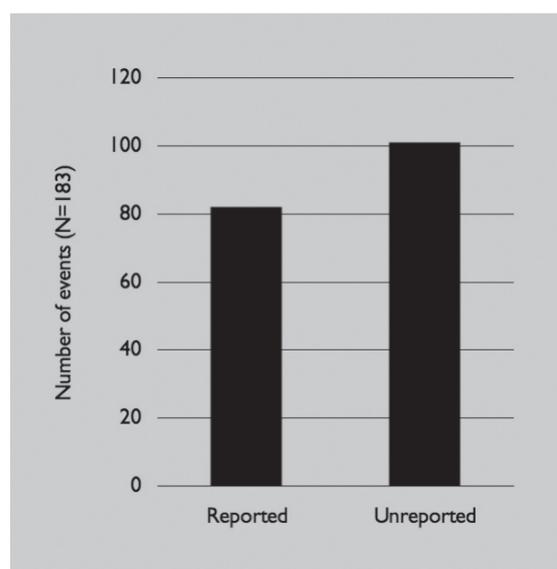
### 2.1.5 Reported and Unreported Events

Rather than discussing actual events reported and those that are formally unreported, emphasis is put on the ratio of reported to unreported events. Figure 5 shows the ratio between events reported and unreported events.

In Namwala, most events reviewed were unreported events accounting for 55% as opposed to events reviewed to have been reported which accounted for 45%. Despite the existence of institutions where occurrences of events can be reported formally, not much is achieved in terms of actual reporting, as

observed in figure 5. Long distances that people have to cover from their villages to the Boma are a hindrance to formal reporting of water events.

Figure 5. Reported and unreported events  
*Number of events*



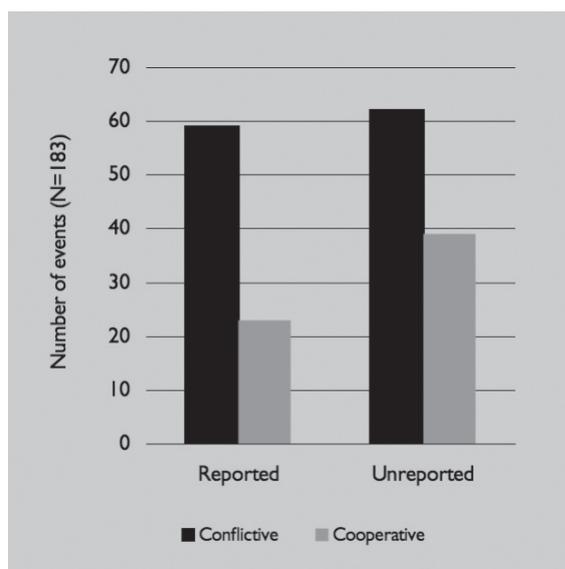
Rural areas where events take place are far spaced and not easily accessible by authorities to document all events that occur. The difficulty in reaching for information on the occurrence of water events causes a decline in reported events documented at formal institutions and authorities, hence most events are unreported formally. In addition, the reluctance by people affected and by people being the direct parties to the events to report events and make known of events that occur, formally challenges the documentation of all water events for formal authorities to document.

In a more elaborate form, figure 6 disaggregates the reported and unreported events into character types.

Conflictive events are high for reported and unreported events; reported events at 59 while unreported events are at 62.

**Figure 6. Ratio of reported to unreported events by event character**

*Number of events*



**2.1.6 Biases and Limitations in the Data**

Focus for community interviews for inventory of water events was on 10 village communities within the district with a sample size of not more than 15 respondents in each village community. The selection criterion of communities was representative of the whole community but did not capture all events that occurred in other communities. In addition, the review of water events focused on events at water points and water bodies in the study areas because events were about water access. However, some communities had less water resource availability in terms of water points and water bodies, rendering a reduction of events recorded in those areas. In other cases, the less availability of water resources meant increased competition for water access at few water sources and hence more water events would be reviewed. Therefore it can not be deduced that all events were reviewed in the area of study because hydro-geological disparities in communities distorted perceptions of the availability of water events to be reviewed. Further, informants in communities of water deficiencies discussed events that resulted from water inadequacies leaving out other important aspects of access and management that the study sought to establish.

In most cases, community respondents tended to recite events of particular characteristic of conflict and cooperation, and often initially focused on high-profile events that they remembered well or which were particularly important to them. Community interviews were challenged when respondents associated the research to past unpleasant experiences they had with some named projects that had previously been executed in the project area. In one part of the district, some individuals suspected that the research

programme was a 'mask' to seize part of the flood plains from pastoral farmers using it as grazing land for their cattle and use it for other developmental purposes, e.g. crop fields at commercial level. In these cases, creating conversations and getting information on events from suspecting respondents proved difficult.

Poor documentation of events at local authorities, media and government departments meant that our identification of reported events in some cases relied on the recollections of government staff, rather than written records. Institutions and organisations identified as resource institutions for information in the review of events were not entirely willing to allocate time to the researchers. Review of reported events from media libraries also had limitations. The major limitation was entry to and/or access to the libraries and archives that were restricted to be accessed by research personnel.

On this basis it cannot be ruled out that a minor proportion of events have been missed in the development of the inventory. We have, however, sought to minimize this by interviewing multiple informants with different characteristics in the same sites, by careful probing during interviews, and by checking our data with key informants at village and district levels. It should furthermore be kept in mind that our study and findings are focused on *public* events involving multiple actors, which must be expected to be more easily traceable than events of a more discrete and private nature (which are not included in the inventory). It is therefore believed that the inventory provides a sound and extensive database on which to base an analysis of conflict and cooperation events in Namwala District.

## CHAPTER 3

### 3.1 General Overview of Zambia

Zambia is a landlocked country, lying between latitudes 8° to 18° south and longitudes 22° to 34° east. The country shares boundaries with eight other countries, Democratic Republic of Congo and Tanzania in the North; Malawi and Mozambique in the East; Zimbabwe and Botswana in the South; Namibia in the South West; and Angola in the West.

Zambia covers a total area of 752,612km<sup>2</sup> and is administratively divided into nine provinces and 72 districts. Two of the provinces, Copperbelt and Lusaka, are predominantly urban while the seven other provinces (Central, Western, Luapula, Northern, North Western, Eastern and Southern) are largely rural. About 64% of the population lives in rural areas and 36% in urban areas. (National Statistics, 1996:10,15)

#### 3.1.1 Climate

Zambia, though situated within the tropics, enjoys a moderate temperate climate largely because of its elevation. Rainfall is the most important element in distinguishing the three seasons:

- Rainy season: a warm and wet season from November to April
- Cold season: a cold and dry season from April to August
- Hot season: a hot and dry season from August to November.

The rain starts in the north-west and progresses towards the south-west. The annual rainfall amounts to approximately 1,250 mm in the north and under 700 mm in south-west. A lot of rain falls from December to March. The mean daily temperature ranges from 2°C to 15°C during the cold season and 27°C to

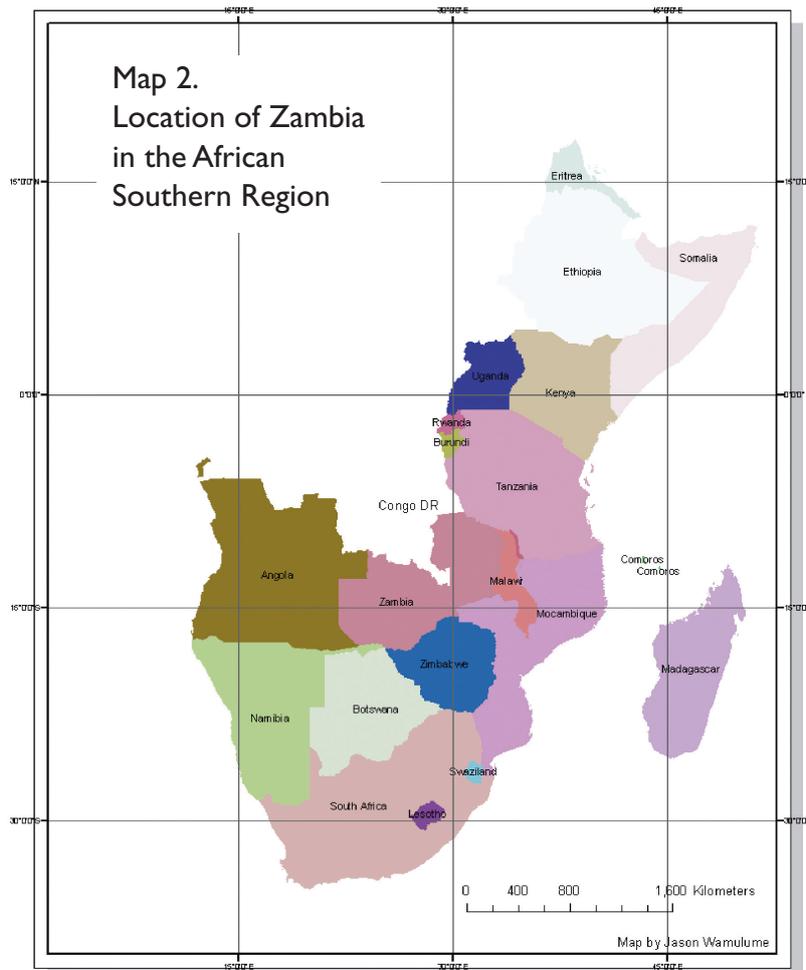
37°C during the dry season. The humidity in the valley basins during the hot and wet seasons can be oppressive.

**3.1.2 Relief**

Zambia’s characteristic features of relief are a series of undulating and flat plateaus which are broken by isolated hills into low ranges of resistant rocks. The plateaus are also divided by well-defined deep-cut linear valleys (related to the East African rift system) into very shallow broad-based depressions known as dambos and smaller semi-circular depressions called pans. The plateau, with an average elevation of 1,300 metres above sea level, consists of a series of terraced surface which

either merge gradually or become separated by intensely dissected escarpment zones.

The plateau reaches its maximum height of 2,164 m in the east on the Malawi border and decreases gradually in a south-westerly direction to a minimum height of 325 m at the Zambezi River, on the border with Mozambique. The greater part of the country lies between 900 and 1,500 m above sea level. These significant erosion surfaces characterise the plateau, the larger between 1,300 m and 1,400 m and the smaller between 1,000 m and 1,300 m. The third lies beneath the cover of loose sediments in Western Zambia. The warping of the surface has resulted in swamps and a faulting into rift valleys. (Monley, 1986).



Map 3. Zambia's drainage areas and catchment systems

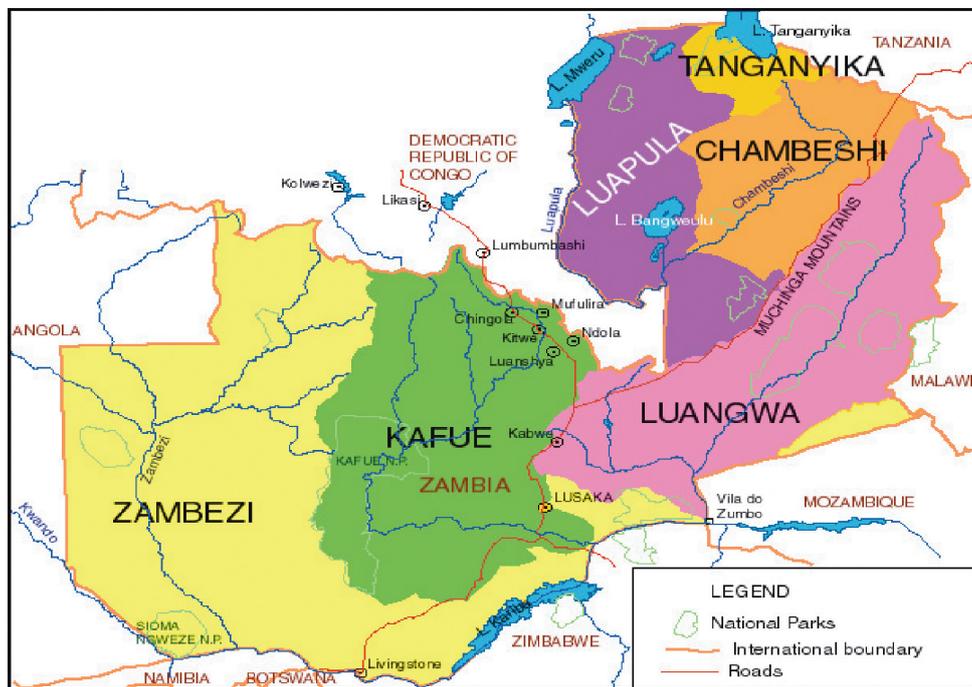
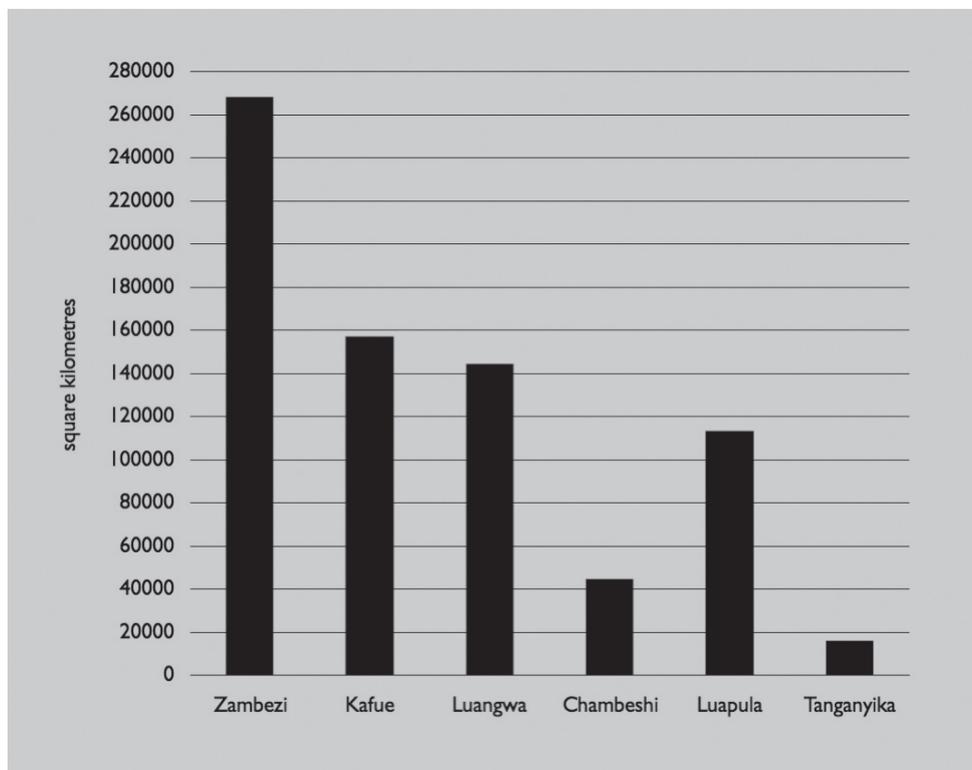


Figure 7. Major river basins within Zambia in km<sup>2</sup> per basin area



### 3.1.3 Drainage

Zambia has five main rivers: the Zambezi, Kafue, Luangwa, Luapula and Chambeshi. In addition to these rivers, the country also has the lakes Tanganyika, Mweru, Mweru wa Ntipa, Bangweulu, and the man-made lakes Kariba and Itzhi Tezhi. Zambia and Zimbabwe share the renowned and beautiful Victoria Falls, one of the natural wonders of the world.

Zambia surface waters flow within two major drainage basins, namely the Zambezi and the Congo River Basins. Zambia can be subdivided into six catchments including the Zambezi, Kafue, Luangwa, Luapula, Chambeshi and Tanganyika. She also has enormous ground water reserves which remain largely as unexploited potential that can be developed. Figure 7 shows major river basins in square kilometres per basin area.

Given her huge rivers, Zambia has substantial hydroelectric potential. The Kariba Dam on the Zambezi River is the country's main power source. Zambia shares the Kariba system with Zimbabwe. Other stations on the Lunsemfwa and Mulungushi rivers serve Kabwe town. Installations have also been built on the Kafue River. In 2001, the total output of electricity in the country was 7.8 billion kilowatt-hours, and nearly all of it was produced from hydroelectric plants.

### 3.1.4 Vegetation

The natural vegetation of Zambia is mainly woodland savannah with a great variety of trees and isolated small areas of grassland and swamps.

Savannah woodland includes a close mixture of trees standing in tall growth of grass, the latter being dominant. The crowns of the trees are far enough apart not to touch each other. Savannah denotes an open mixture of shrubs and trees standing in a tall growth of

grass; the latter being as much as 80 cm tall where not grazed.

Grasslands denote areas covered by natural grass and are confined to alluvial plains, dambos, and swamps and to permanently wet areas. Reeds of various types and aquatic plants are dominant in permanently flooded areas of the Bangweulu, Mweru Wantipa and Lukanga-Busangu swamps.

Deforestation, especially through forest fires, for firewood and charcoal and the clearing for agriculture, is having an adverse impact on the Kafue basin. Charcoal used in the Lusaka region is now obtained at a distance as far as 150 km from the city. Until the emergence of forest plantations on the Copperbelt, mining was an important agent of deforestation. Deforestation by overgrazing has led to noticeable erosion of grazing lands in the Kafue flats and where cattle has caused eutrophication of lagoons (Kasonde, 1990).

### 3.1.5 Demographic Profile of Zambia

Population census reports of 1980, 1990 and 2000 reported total populations of 5.7 million, 7.8 million and 9.9 million, respectively. Population densities were estimated at 7.5 persons per square kilometre in 1980, 10.4 in 1990 and 13.7 in 2000. The highest population density is found in Lusaka Province with 65 persons per square kilometre and the lowest in North-Western Province with nine persons per square kilometre.

According to estimates from the census data, fertility has been declining at a slow pace, the Total Fertility Rate (TFR) going from 7.1 in 1980 to 6.7 in 1990 to 6.0 in 2000. The 2000-2001 Zambia Democratic and Health Survey (ZDHS) found the TFR to be 4.3 in urban areas, 6.9 in rural areas and 5.9 overall.

According to census data, infant mortality increased from 99 per 1000 live births in

1980 to 123 per 1000 live births in 1990, and declined to 110 per 1000 live births in 2000. The 2000-2001 ZDHS reported under-five mortality to be at 140 per 1000 in urban areas, 182 per 1000 in rural areas and 168 per 1000 overall.

Life expectancy at birth has declined since 1980, when it was estimated to be 52.0 years for males and 52.5 years for females. In 1990, the estimates were 46.1 years for males and 47.6 years for females. By 2000 life expectancy had increased somewhat, to 48.0 for males and 52.0 for females. (CSO, 2002:124)

### **3.2 Main Characteristics of Study Area – Namwala District**

#### *3.2.1 Geophysical Location of Namwala District*

Namwala District is located in the Southern Province of Zambia. The district shares boundaries with four districts, i.e. Monze (South East), Choma (South), Kalomo (South) and Itezhi-tezhi (North West). It is located 170km North West of Choma District and 158km from Monze. About a quarter of its traditional land is covered by the plain that stretches from a point beyond Kafue Road Bridge in Kafue District to Itezhi-Itezhi Dam. It covers an estimated total area of about 10,000 square kilometres and lies between latitudes 15 and 17 degrees south of the equator and longitude 25 and 27 degrees east.

#### *Climate*

Namwala District is divided into three ecological zones namely:

- The Kafue basin covering the Southern bank with heavy alluvial clay soils. The average annual rainfall is 800 mm.
- Semi-arid zone covering Ngabo/Kaluweza, Luubwe and Baambwe. The soils are

generally light brown to grey silt or sand loam (covering the Central part of the District) and the annual range of rainfall is 600-1,000 mm.

- The plateau zone covering Mbeza, Nakamboma, Muchila and Chitongo areas. The soils are generally rich red clay/red brown loams. The annual range of rainfall is 800-1,100 mm.

Generally most of the district is covered by alluvial derivative soils varying in texture and colour from dark-coloured topsoil to sandy loamy soils. The district is characterised by a dry and hot weather from September to October, warm to hot and rainy weather from November to April, cool to cold and windy weather from May to August.

#### *Hydrology*

The main rivers in Namwala is the Kafue and a braided channel of the Kafue called Namwala River. The latter comes out of the Kafue and joins it again. It is the main source of water for domestic use and animal watering. The other usages of the two rivers are small-scale agriculture and fishing. The abundant water resources from the rivers and the fertile plains give the district great potential for irrigation on a large scale. The other rivers that drain the district are Chitongo and Mbeza, which flow intermittently.

#### *Topography*

Most of the land is flat but slants slightly towards the Kafue River basin. The altitude of the district is between 1,100 m and 1,300 m above sea level.

#### *Vegetation*

Namwala District has three types of vegetation, namely: closed forests, open forest or woodland and grassland. A closed forest is

a two-strayed forest with a closed canopy, whereas an open forest has an open canopy. Grassland is land which is naturally without trees and is found in places with a permanently high water table.

#### *Natural Endowment/Resources by Ecological Zone*

The district falls in agro ecological zone 1. It has a variety and abundant natural resources with rich soils for agricultural development. The Kafue River and the flood plains are used for cattle grazing, wildlife, fisheries and forests.

#### **3.2.2 Population Distribution**

According to the 2002 census of population and housing, the population of Namwala District is about 83,000 and is concentrated in major settlement areas of the District such as Namwala town, Kabulamwanda, Muchi-

la, Maala, Mbeza and Chitongo. The annual growth rate of the population is estimated at 4%.

### **3.3 Context Data of Namwala District**

Namwala District is basically a rural district located on the low-lying plains with pastoral farming as a major economic activity practiced. Namwala District holds a higher percentage of stock compared to all districts in the Southern Province of Zambia. The Kafue River that drains the district gives it opportunities for fishing and crop irrigation at small scale.

#### **3.3.1 Water Availability, Use and Access**

Water resources are available to meet all needs in Namwala District. However, most rural parts of the district lack developed

**Table 2. Population distribution by ward and gender**

*The percentage of males is 49 and that of females is 51.*

| <i>Ward No</i> | <i>Ward Name</i> | <i>Males</i> | <i>Females</i> | <i>Total</i> |
|----------------|------------------|--------------|----------------|--------------|
| 1              | Baambwe          | 1,411        | 1,463          | 2,874        |
| 2              | Chitongo         | 2,049        | 2,127          | 4,176        |
| 3              | Kabulamwanda     | 2,236        | 2,348          | 4,584        |
| 4              | Kaluweza Ngabo   | 2,725        | 2,774          | 5,499        |
| 5              | Kantengwa        | 2,402        | 2,216          | 4,618        |
| 6              | Maala            | 2,616        | 2,760          | 5,376        |
| 7              | Mbeza            | 1,377        | 1,381          | 2,758        |
| 8              | Moobola          | 6,096        | 6,578          | 12,674       |
| 9              | Nakamboma        | 9,281        | 9,843          | 19,124       |
| 10             | Namakube         | 4,518        | 4,796          | 9,314        |
| 11             | Namwala Central  | 2,736        | 2,796          | 5,532        |
| 12             | Ndema            | 3,039        | 3,242          | 6,281        |
|                | Total            | 40,486       | 42,324         | 82,810       |

*Source:* Namwala District Development Plan 2006 -2010

water infrastructures to enable easy access of water for all uses such as domestic uses. Generally, boreholes, wells, dams, dambos, rivers and streams are the major water resources found in the district. The average distance between water sources is about 2.8 km for most areas. The distance increases in the dry season, as most water sources nearby dry up, silt or break down, causing people, especially women and children, to walk more than 3 km in search of domestic water. The situation challenges people in accessing water for various uses. In addition, consumption of clean water is compromised in water scarce situations; because people tend to get water for drinking from any available sources, whether or not the water is clean is usually the last concern. Namwala D-WASHE reports that only 46% have access to safe drinking water, out of the total population of 82,708 people. (Namwala D-WASHE Strategic Plan Report, 2006-2008)

Wells and boreholes are the main sources of water mostly used by the rural people of Namwala for domestic purposes, i.e. drinking, washing and bathing. Construction, crop and stock watering are usually done at rivers, dambos and streams. However, wells and boreholes are still used for these purposes when streams within the communities dry out. The peri-urban part of the district uses tap water for domestic purposes. However, the water reticulation network in the peri-urban area of the district is old. Pipes and the two available pumps used to supply water to the communities are old and the water tanks are dilapidated. The peri-urban community of Namwala receives water supplies for 16 hours a day. The population within the peri-urban district with access to water is above 70%. The organisation responsible for supplying water is the Southern Water

and Sewage Company (Environmental Policy Situation Analysis – Namwala District, December 2004).

### 3.3.2 Land and Land Use

The district is characterized by two main forms of land tenure: trust land and traditional land. The largest part of the trust land is a forest reserve. The gazetted forest area, Ila natural forest, covers 44,880 hectares. The land has two main plantations, i.e. Chinyemu and Ngabo. However, the plantations are poorly managed due to lack of funds and machinery. Traditional land is owned and controlled by traditional leaders. Most farmers under the traditional system do not have title deeds to their land, with only a few knowing the importance of titles and beginning to acquire them for their land. The district also has two settlement schemes, i.e. Ngabo and Muchila. Other parts of the district are characterized by pastoral commercial farmers, while the most prominent in the entire district are the small-scale and emergent farmers.

A relatively big portion of the district is covered by the plains and is used for cattle grazing. Other parts of the district are covered by traditional land covering four Chiefdoms: Mukobela, Mungaila, Nalubamba and Muchila. The chiefdoms are characterized by mixed forms of farming with pastoral farming as the most important economic form of farming. Crop farming is also practiced in the district, however at a smaller scale.

### 3.3.3 Governance

Government is represented through the full council in Namwala District. The district has one parliamentary constituency which is sub-divided into 12 wards, namely Namwala Central, Kaluweza/Ngabo, Baambwe, Maala, Kantengwa, Kabulamwanda, Chitongo, Nakamboma, Mbeza, Ndema, Namakube and

Moobola. An elected ward councillor represents each ward. The head of the full council is the Council Chairman.

Traditionally the District is divided into four chiefdoms. The chiefdoms are governed by chiefs as the highest persons in ranking and have several headmen/women governing sub-divisions of the chiefdoms.

#### *District Administration*

The district is headed by the District Commissioner (DC) and is assisted by the District Administrative Officer (DAO) responsible for the coordination of developmental activi-

ties in the district. Administratively, all Departmental Heads report directly to the DC and technically to their Provincial Heads.

Namwala District Development plan 2006-2010 reports that the district has 19 existing government departments, seven parastatal organizations and nine non-governmental organizations.

#### *Government Departments*

Government departments represented in the district are Office of the President (District Administration), Health, Education, Fisheries, Agriculture, Forestry, Water

**Table 3. Number of males and females in formal employment**

| <i>No</i> | <i>Department</i>     | <i>Male</i> | <i>Female</i> |
|-----------|-----------------------|-------------|---------------|
| 1         | DCs                   | 3           | 3             |
| 2         | Agriculture           | 36          | 9             |
| 3         | Police                | 20          | 1             |
| 4         | National Registration | 2           | –             |
| 5         | Prisons               | 13          | 3             |
| 6         | Social welfare        | 1           | –             |
| 7         | Community Development | 2           | 3             |
| 8         | Buildings Department  | 5           | 1             |
| 9         | ESCO                  | 3           | –             |
| 10        | ZAM POST              | 2           | –             |
| 11        | Roads Department      | 2           | 1             |
| 12        | ZANACO                | 9           | 2             |
| 13        | ZAM TEL               | 7           | –             |
| 14        | ZAWA                  | 1           | –             |
| 15        | Local Court           | 4           | 2             |
| 16        | Magistrate            | 4           | 3             |
| 17        | Health                | 53          | 61            |
| 18        | Namwala High School   | 10          | 37            |
| 19        | OPP(SD)               | 7           | 1             |
| 20        | Education             | 9           | 3             |
| 21        | Central Statistics    | 1           | –             |
| 22        | Southern Water        | 10          | 1             |
| 23        | ZIS                   | –           | –             |
| 24        | ZESCO                 | 10          | –             |
| 25        | Council               | 29          | 10            |
| 26        | Water Affairs         | 3           | 1             |
| 27.       | Forest                | 4           | –             |
|           | Total                 | 250         | 142           |

*Source:* Namwala District Development Plan 2006 -2010

Affairs, Veterinary, Community Development, Social Welfare, National Registration, Buildings, Roads, Police, Prisons, Judiciary, Central statistics, Marketing and Co-operatives.

#### *Parastatal Organizations*

Parastatal companies represented in Namwala District include; Zambia Electricity Supply Co-operation Limited (ZESCO), Zambia National Commercial Bank (ZANACO), Zambia Postal Services Limited (ZAMPOST), Zambia Telecommunication Limited (ZAMTEL), Engineering Services Co-operation (ESCO), Southern Water and Sewerage Company (SWASCO), and Zambia Wild Life Authority (ZAWA).

#### *Non-Governmental Organizations (NGOs)*

Non Governmental Organisation present in the district include Planned Parenthood Association of Zambia (PPAZ), Namwala District Women's Association (NDWA), Red Cross Society, District Water Sanitation Health Education (D-washe), Forum for Women Educationists (FAWEZA), Namwala Farmers Association (NFA), Fishermen's Association of Namwala (FAN), and Water-Aid Zambia (WAZ).

All the above organizations are coordinated through an integrated institution called the District Development Co-ordination Committee (DDCC) which is chaired by the District Administrator. The District council, through the council secretary, is the secretariat. The committee reports its proceeding to the Provincial Development Coordinating Committee (PDCC) which in turn reports to a higher organ at the national level. Table 3 shows the number of employees in a formal setting of administration in Namwala District.

## **CHAPTER 4**

### **4.1 Distribution of Events in Space and Time**

In most cases, water events distributions are highly linked to the geographical locations of the communities and water resource availability. Obviously, areas rich in water resources are most likely to have fewer challenges in water access as compared to areas of water scarcity. Similarly, communities situated in the 'rain shadows' are more prone to drought and lack sufficient water required to fill up water bodies in their areas, such as rivers and lakes, including supplying the water table with sufficient ground water in wells and boreholes. Zambia is well endowed with water resources. Estimates of water generated are at 100 km<sup>3</sup> per year of surface water and an estimate of 49.6 km<sup>3</sup> of annual ground water potential per year<sup>1</sup>. The surface water is unevenly distributed, with high runoffs and high density of rivers in the north. To the south, there are very few large rivers, which makes general access to surface water very difficult. Zambia has well-distributed ground water resources,, but unfortunately there is inadequate data to make an accurate assessment of the ground water availability for exploitation.

Over the years, several provinces have experienced droughts. A reduction in rain over the years has caused reduced runoffs in major rivers that feed small rivers and streams with water, making them become seasonal and drying out soon after the end of the rainy season. The situation is similar for many small rivers in Namwala District. Water sources, such as shallow wells, on which the majority of Namwala's communities depend lack sufficient water to last the whole year, because they dry out in the months starting late August to early November. In commu-

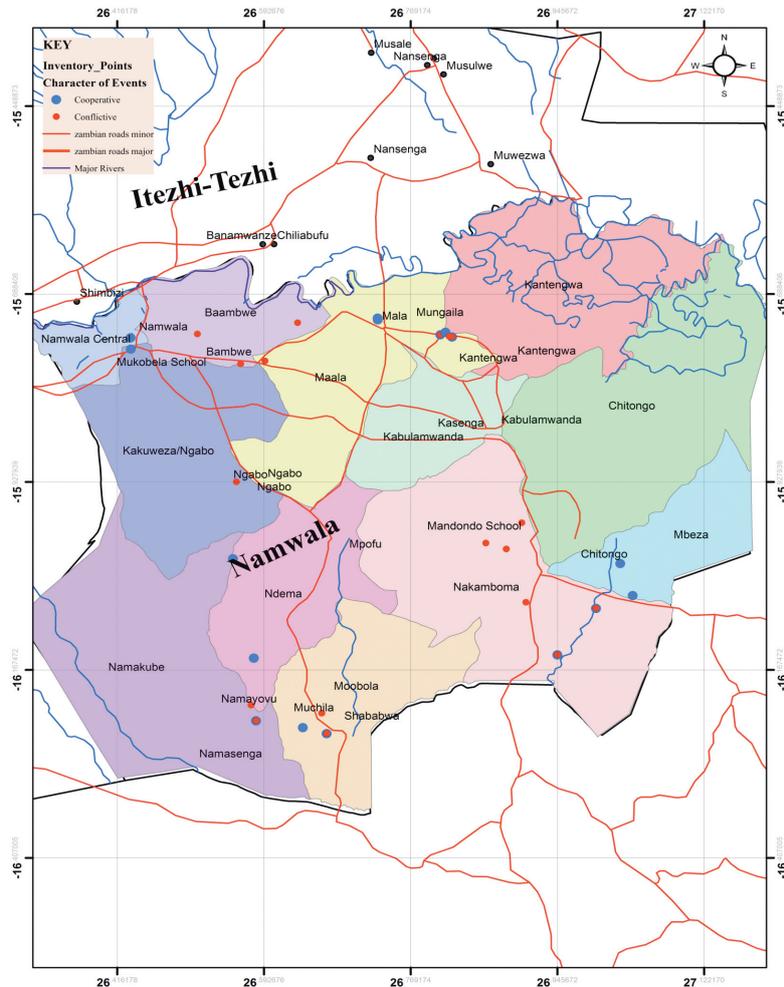
nities of water-scarce situations, more events resulting from competitions over water are expected.

**4.1.1 Distribution of Events across Communities**

Results from this study suggest that there is uneven distribution of water events in Namwala District. Generally, the largest numbers of events were recorded in communities found in the northern part of the district near the Kafue River. In the southern and south-

east parts of the District water events tend to build up following a trail of streams in Namakube and Moobola Wards and Munyeke/Chitongo River. Most events in these areas took place in the dry season and mainly about stock watering, which was the major user of water in the district. However, the dry season create a critical water-stressed situation, especially for stock watering, because most rivers and streams dry out. The estimated cattle population is about 110,280 in the entire district, thus the total water demand for stock

**Map 4: General distribution of water events in Namwala District**



*Note:* Some points are on top of each other and represent more than one event because coordinates recorded represented more than one event.

water is 4.5 million litres per day<sup>2</sup>. The lack of sufficient inland water causes people to move most of their cattle northwards toward the main channels of the Kafue River and other smaller streams/rivers, while a few remain within their communities. However, the events distribution for community interviews within drylands were water point based, e.g. at wells, boreholes, rivers and streams. The occurrence of these events is multiplied by the number of people using same water sources for various uses. Map 4 shows the location of the water events identified in Namwala district.

Communities with high populations recorded a high number of events as compared to communities of sparse populations. For the reported events that had taken place outside the 10 sample communities, the inventory of water events shows high numbers of occurrence of reported events in densely populated areas. Figure 8 shows that Namwala peri-ur-

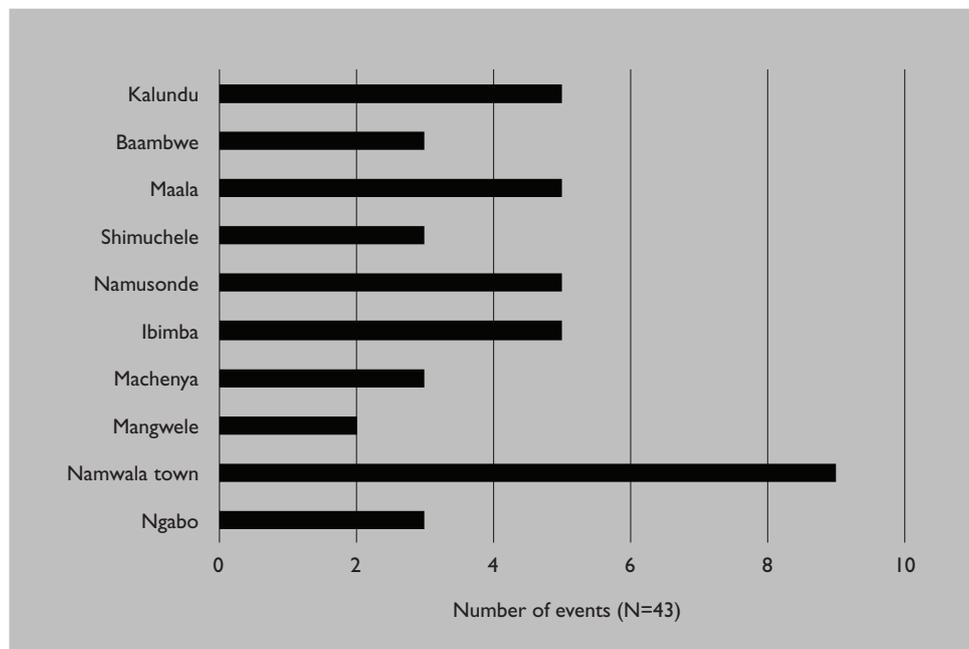
ban recorded the highest number of events accounting for 5% of the total number of events identified in Namwala District.

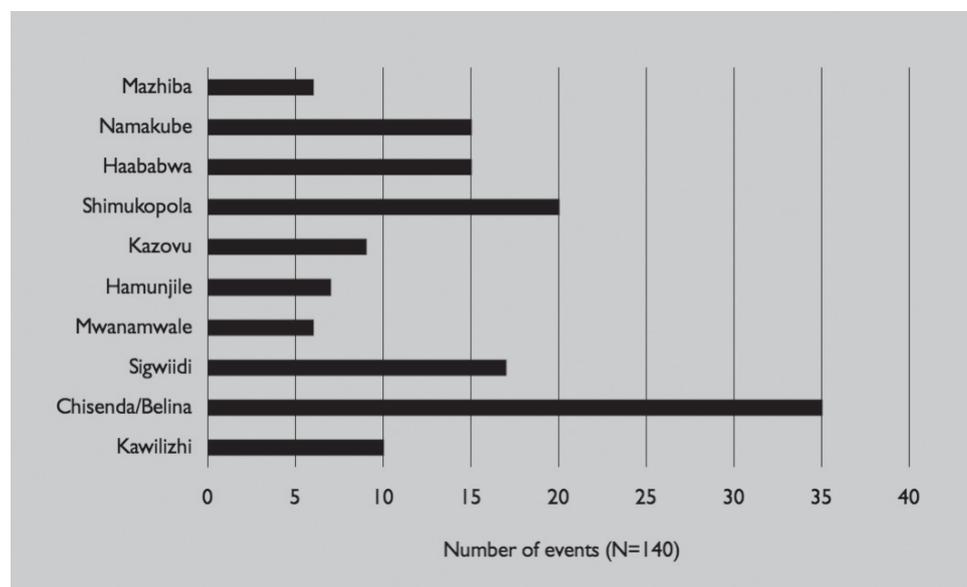
The rain-fed water sources form important water sources for dry lands of Namwala District. Rainwater fills dambos and all open water sources, including seasonal rivers in the District. The situation changes drastically in the dry season as the waters from all seasonal streams/rivers and open sources, including shallow wells, begin to dry up. This leaves a few deep wells and boreholes with insufficient water for the various water needs.

The events (reported as well as unreported) identified in the sample communities showed high numbers of events in Chisenda/Belina accounting for 19% of all events identified followed by Shimukopola accounting for 11% of events reviewed in the village communities selected for inventory. Least events in selected village communities were recorded in Mwanamwale and Mazhiba, both at 3%.

**Figure 8. Distribution of reported events by community**

*Number of events*



**Figure 9. Distribution of unreported events by sample community***Number of events*

Other events were mapped out in other communities and districts<sup>3</sup> as reported events outside the communities selected for inventory. Such review was a follow-up of events that occurred in the main selected communities but also included parties and/or actions from other communities (including districts) within the locality of the event. However, the number of events that occurred in sub-sectors of the communities was minimal.

Authorities responsible for rural water supply are keen to ensure that all people in rural areas have access to clean water and within an acceptable distance for access. In order to ensure that water is evenly distributed to all people in need, population increases and distance to water sources are taken into consideration. For instance, the department of water affairs in collaboration with the council authority responsible for rural water supply are sinking boreholes and digging wells for rural communities within a distance of 500m from each other. This is

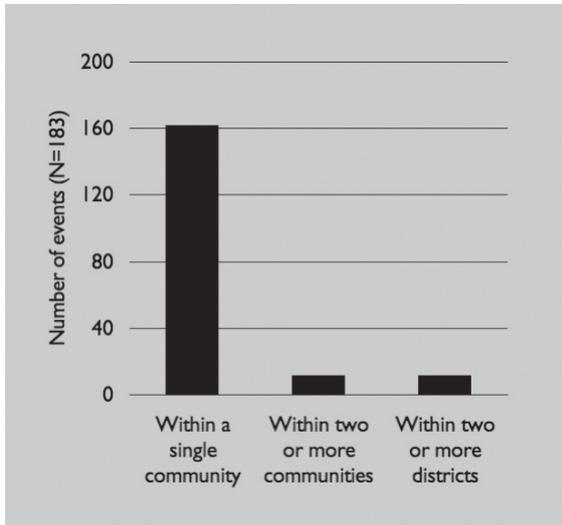
the acceptable distance that people are supposed to cover to access clean water. These efforts are, however, challenged by the carelessness of users of the boreholes and wells, who in many cases are not willing to repair damage caused to these water sources. If the nearest borehole breaks down users may not fix it but shift to the next borehole further from their homes already congested by other users, thus creating more water access problems. Such situations cause conflicts over water access and this could be attributed as one of the reasons some communities recorded more events than others.

#### 4.1.2 Inter- and Intra-Community Events

In terms of frequency, events that take place within a single community clearly dominate. Results (Figure 10) show that of the 183 events recorded, 88% were from single communities, while events from two or more communities and from two or more districts/municipalities each amounted to six percent.

**Figure 10. Inter- or intra-community events**

*Number of events*



We deduce from the data that most water events are restricted within single communities because most water sources, such as boreholes and wells, are localized within single communities.

In the Namwala District, seasonal streams and rivers drain more than one community. However, water events at these water sources are point-based, meaning that events occur at specific points within single communities.

On the other hand, there are events that occur within two or more communities and within two or more districts, however minimal. Simply put, the fewer the water sources shared among several communities and districts, the fewer the occurrence of events in those places, explaining the low occurrence levels of water events within two or more communities and within two or more districts.

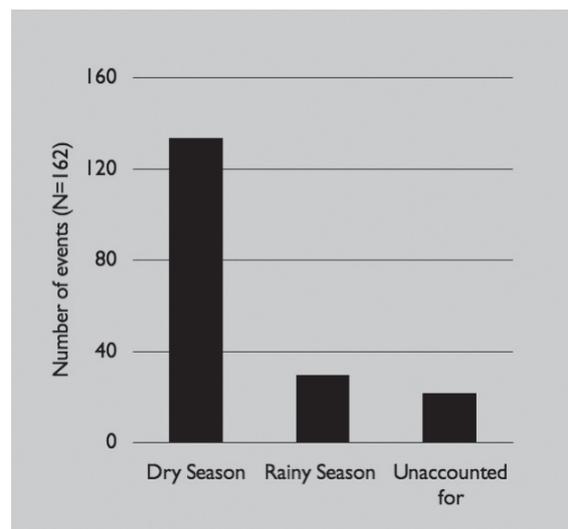
**4.1.3 Events Duration**

The time dimension is important in understanding the occurrence of events. The understanding of when water events occur helps

explain differences in numbers of events at different times in a year. The dry season runs from early April to late October and has the highest occurrence of events recorded, mainly, about insufficient water resources and problems with access and management, accounting for 133 of the events recorded, while the rainy season, when water access opportunities for people and stock are improved, accounted for 29 events (figure 11). Events recorded with data missing on period were 21.

**Figure 11. Event seasons**

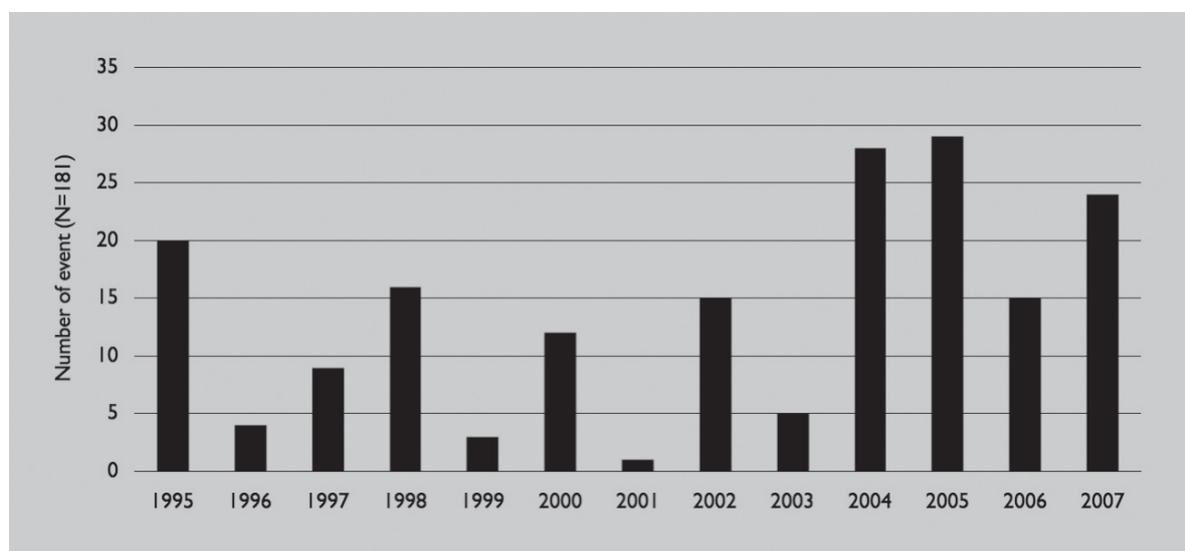
*Number of events*



**4.1.4 Event Years**

The mapping of events undertaken in Namwala sought to review events that occurred during a 10 year period, from 1995 to 2005. An inclusion of events after 2005 was done for purposes of analysis and to enhance the understanding of how events unfold over time. The highest numbers of events were recorded in 2005, accounting for 16%, while the least numbers were recorded in 2001, accounting for 0.1%. In most in-

Figure 12. Year in which event started

*Number of events*

stances, hydro-related events draw influence from social-cultural situations that provoke their occurrence. In other cases, the occurrences of events in particular years interact with water-related hazards. Such hazards in Zambia are flooding and drought conditions, negatively affecting the livelihoods of people in that excess of water cause destruction to crops and property, while scarcities cause food insecurities and lack of the resource for everyday uses. The years 2005 and 1995 recorded high numbers of events because of drought conditions in Zambia. In order to preserve the water resource, people in communities were forced to give up some of their economic activities that demand the use of water to secure that water for drinking be available for most of the year, especially in the dry season. However, some parties were not always agreeable to such ideas. The claim was that they would have no means of survival if they gave up building and crop growing, for instance, because these were a means of earning a living and

supporting their families. Because of such situations, conflicts of interest occurred.

In the 2007/2008 rainy season, Zambia experienced flooding in most parts of the country. People were displaced from their homes, property destroyed, including crops grown, posing a threat on food security. Namwala was also hit by the scourge. The understanding by many is that people cooperate in cases of disasters and try to find measures to alleviate the chaotic situations. On the other hand, disasters such as floods are a source of conflict and can fuel more arguments among communities. As expected, lots of conflictive or cooperative events occurred and could be recorded. However, results from the review show no significant records of conflict or cooperation events in relation to water access as a result of flooding. Events recorded in 2007 were about *de facto* ownership of water sources and water contamination at boreholes and wells. Figure 12 show the number of events taking their beginning in the years from 1995 to 2007.

Table 4 disaggregates the year of start of events by event character. Results show that 2004 recorded the highest numbers of conflictive events with a count of 22 of all the conflictive events recorded from 1995 to 2007, while 2005 recorded the highest numbers of cooperative events accounting for 13.

There are more conflictive than cooperative events recorded during the review period. Conflictive events were recorded for all the years except 1996 where no events were recorded. Overall, conflictive events constitute

66% of all events identified while cooperative events constitute 34% showing that conflicts are more pronounced than events of cooperation in Namwala District. The situation is attributed to the high competition over water and poor coordination of management structures for water resources to enhance cooperation, including the unwillingness of water users to manage their water resources properly in order to harmonise the water access process. Cooperative events were recorded for the whole review period, except the year 2001.

**Table 4. Event years disaggregated into character of events**  
*Number of events*

|              | <i>Conflictive</i> | <i>Cooperative</i> | <i>Total</i> |
|--------------|--------------------|--------------------|--------------|
| 1995         | 14                 | 6                  | 20           |
| 1996         | –                  | 4                  | 4            |
| 1997         | 8                  | 1                  | 9            |
| 1998         | 9                  | 7                  | 16           |
| 1999         | 2                  | 1                  | 3            |
| 2000         | 10                 | 2                  | 12           |
| 2001         | 1                  | –                  | 1            |
| 2002         | 5                  | 10                 | 15           |
| 2003         | 3                  | 2                  | 5            |
| 2004         | 22                 | 6                  | 28           |
| 2005         | 16                 | 13                 | 29           |
| 2006         | 11                 | 4                  | 15           |
| 2007         | 18                 | 6                  | 24           |
| <i>Total</i> | <i>119</i>         | <i>62</i>          | <i>181</i>   |

## CHAPTER 5

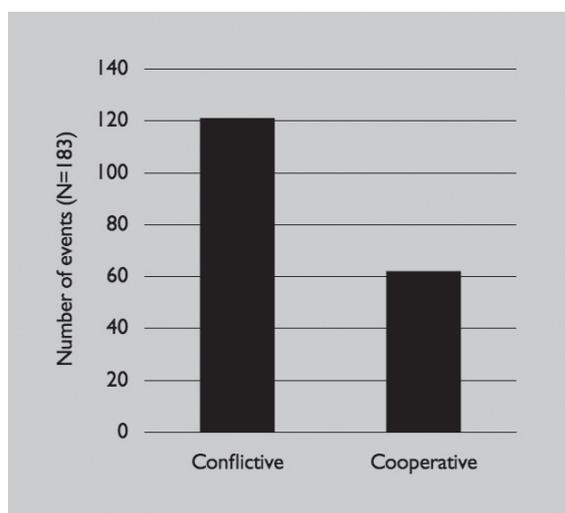
### 5.1 Extent to which Events are Conflictive and Cooperative

#### 5.1.1 Character of Events

Event characters are conflictive and cooperative. Conflictive events recorded the highest percentage (62%), as compared to cooperative events (34%) (figure 13).

**Figure 13. Character of Events**

*Number of events*



Rural communities in Namwala District have sufficient water supplies to cater for all their water needs. However, inadequacies in developed water infrastructures, such as boreholes, wells and dams, challenge water supply and access for domestic uses, stock watering and small-scale irrigation. The inadequacies in water infrastructure cause water to be in short supply, yielding high competition over access. Wrangles at water sources such as boreholes are prevalent because of insufficient infrastructure to accommodate all people. Conflictive events are more prominent than events of cooperation in water wrangles

at water points. This explains the high percentage of conflictive events compared to cooperative events.

During the mapping of water event, respondents found it much more convenient to recite events of conflict than of cooperation, because such events related to the difficulties people faced in accessing water for various uses. Cases of denied water access among different sexes, ages and statuses in society were prominent at most water points in Namwala. This suggests that conflict does not only take place as a result of changing environmental conditions, but that also features such as wealth, poverty, gender and identity play important roles in water access.

At the same time, acts of cooperation and conflict resolution do in fact take place within these ongoing local competitions over water, suggesting that we need to see local water competition not only as a downward spiral but also as an opportunity for developing new forms of cooperation or revitalizing and scaling-up customary conflict resolution practices.

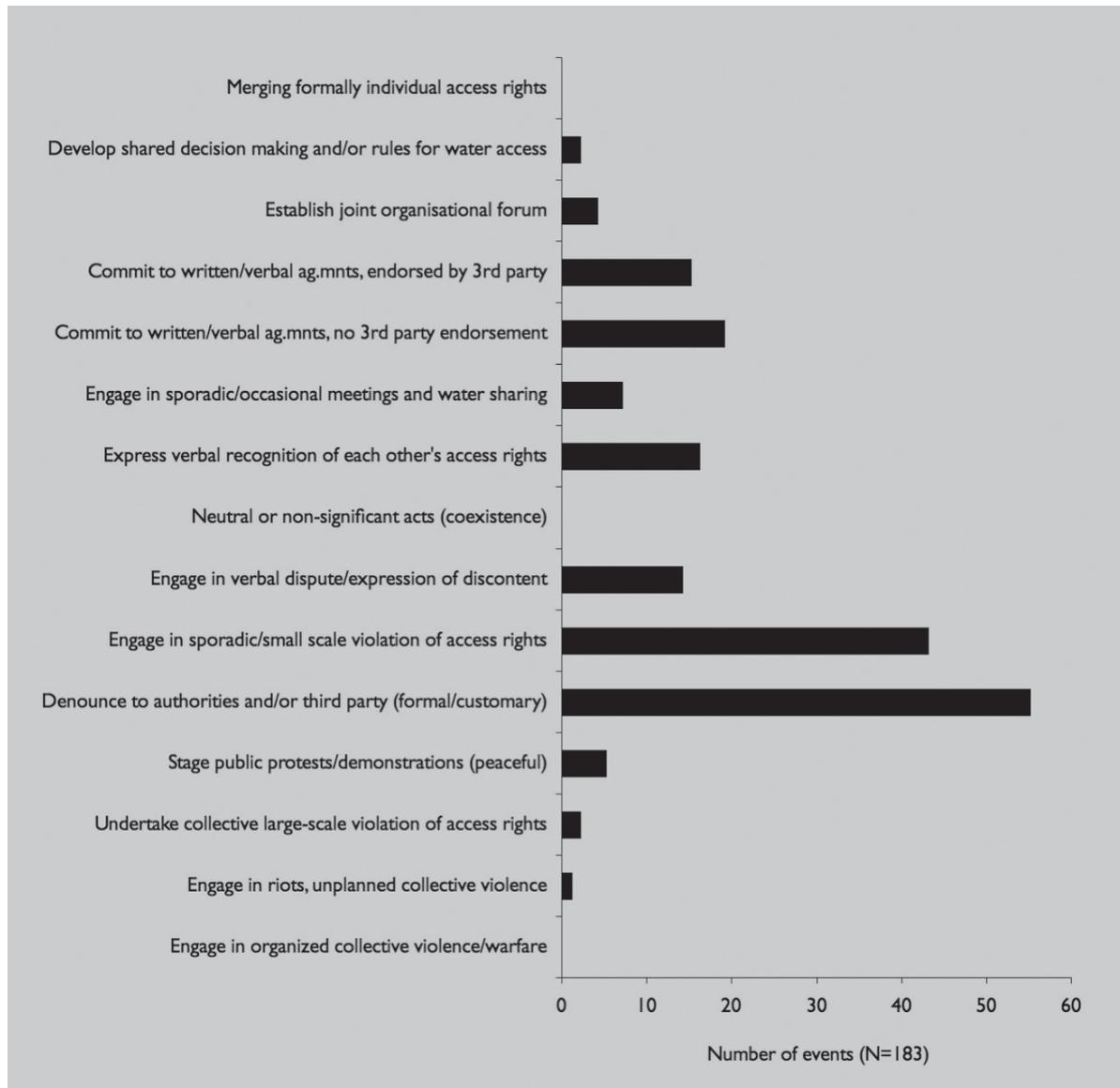
#### 5.1.2 Intensity of Water Events

An event intensity scale was developed by the Competing for Water programme to measure the intensity of conflict and cooperation in connection with water events. On the scale, -7 represented the highest level of conflict while 7 represented the highest level of cooperation. 0 signified neutral or non-significant acts (coexistence).

The highest levels of conflict involve engaging in organised or collective violence, while the highest level of cooperation involves merging formally to foster individual access rights. However, no events of these levels of intensity of conflict and cooperation were identified in Namwala, as shown in figure 14.

Figure 14. Event intensity according to local water-event intensity scale

*Number of events*



The intensity scale shows that riots or unplanned collective violence are not common in the research area. This is the case because rural people are accustomed to passive reactions in conflict resolution rather than adopting violence measures. However, denouncements to authorities and/or third parties (formal/customary) are the most frequently occurring intensity level for the

water events. The situation is common in rural settings because village structures<sup>4</sup> in the Zambian rural areas are held in very high esteem and are regarded as important institutions for conflict resolution at the local level. This, however, is not the situation for authorities at district or national levels. Rural people seldom interact and involve third parties from the district or national levels

Table 5. Water event intensity scale

|                    |    |   |
|--------------------|----|---|
| <i>Conflictive</i> | -7 | Organized collective violence/warfare                             |
|                    | -6 | Riots, unplanned collective violence                              |
|                    | -5 | Collective large-scale violation of other part's access rights    |
|                    | -4 | Public protests/demonstration (peaceful)                          |
|                    | -3 | Denouncement to authorities and/or third party (formal/customary) |
|                    | -2 | Sporadic/small-scale violation of other party's access rights     |
|                    | -1 | Verbal dispute/expression of discontent to party or third party   |
| <i>Neutral</i>     | 0  | Neutral or non-significant acts (coexistence)                     |
| <i>Cooperativ</i>  | 1  | Verbal recognition of each other's access rights                  |
|                    | 2  | Sporadic/occasional meetings and water sharing                    |
|                    | 3  | Written/verbal agreements, no third party's endorsement           |
|                    | 4  | Commit to written/verbal agreements, endorsed by third party      |
|                    | 5  | Establishment of joint organizational forum                       |
|                    | 6  | Developed shared decision making and/or rules for water access    |
|                    | 7  | Merging of formally individual access rights                      |

because of hindrances in distance to access them. Communication barriers and different perceptions cause people in rural areas to reduce contacts with officials at district and national levels.

The distribution of events according to the intensity scale further show that conflictive events have the highest percentage as compared to cooperative events. However, the

higher percentage in intensity for all conflictive events does not rule out that cooperation does occur. Though to a minimum, people employ measures of conflict management and strive to engage in jointly coordinated actions with other parties to secure shared water access.

**CHAPTER 6**

**6.1 Driving Factors for Water Events**

**6.1.1 Types of Water Uses**

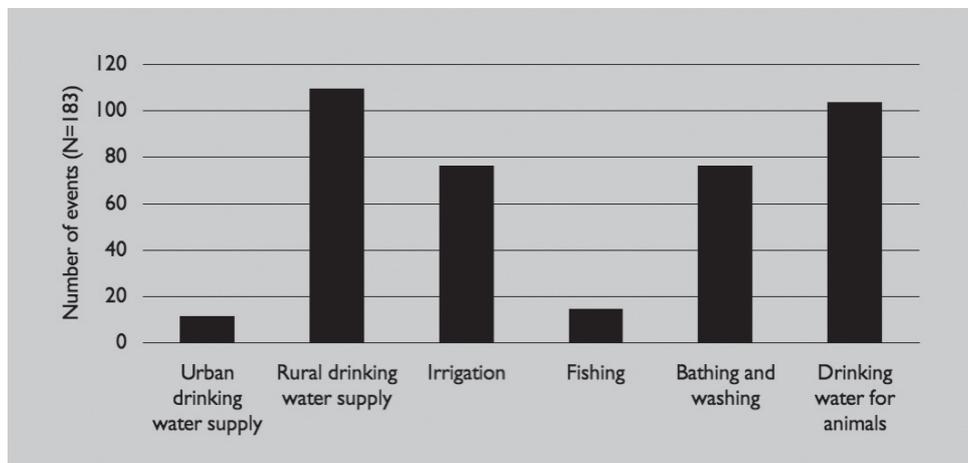
Most of the water in Zambia is used for non-consumptive purposes in hydropower generation<sup>5</sup>. The rest of the water is used for consumptive uses, such as agriculture, industry, drinking water and domestic water supply. This situation is generalised for the entire country. However, situations in rural areas do not reflect the overall situation for the entire country, as shown by the study undertaken in Namwala District.

In order to ascertain the types of water uses which events were about, the study explored uses on drinking water supply, irrigation, discharge of contaminating substances, fishing, consumptive uses other than drinking water, hydropower generation, navigation, environmental uses, recreation, tourism and drinking water for animals. However, the assessment showed that water events in Namwala were centred only on drinking water, irrigation, fishing and drinking water for animals.

Results reveal that drinking water for people was the most dominant water use type in the research area being associated with a total of 109 events. Stock watering was equally high being associated with 103 events. Of all use types, water used for fishing was the least use type recorded with a count of 14 (figure 15). There were no records for water used in tourism, recreation, environmental uses, navigation, hydropower generation, consumptive uses (non-drinking, e.g. industry) and discharges of contaminating substances.

The dominance of water used for human consumption (domestic) and stock watering does not rule out the importance of other uses. Water used for crop irrigation is important in everyday use. Crop irrigation is practised at a small scale and not necessarily important for survival of the majority of the population of the district. However, some segments of Namwala District that do not centre their economic activities on pastoral farming, engage in small-scale farming/irrigation. In addition, a good portion of the population earns a living through fishing and fish selling. However, the population of fish-

**Figure 15. Water use types associated with water events**  
 (one event may be associated with more than one water use type)  
*Number of events*



ermen/women is reduced by the non-availability of water bodies, such as rivers and major streams inland the district. Most fishing is done at the Kafue and Namwala River channels where there are no or few challenges in terms of access of water for fishing.

Fishing done at small seasonal rivers and streams, such as Chitongo and Ulwafuli, is faced with challenges of access because the water bodies are also used for human and stock drinking. In addition, water levels in these water bodies are low; hence fishing is not allowed, to preserve clarity of water for purposes of drinking. Users such as pastoral farmers and other users at large argue that water should be used for cattle and human drinking only because fishing in those rivers disturbs water clarity. Impurities and sediments from the base rise to the top when people are fishing and get mixed up with the clear water required for domestic purposes and cattle drinking. In such cases of denied water access for fishing, conflictive events are noted. Similarly, cooperation is noted when the parties (pastoral farmers/domestic water users and fishermen) agree to set procedures on how all would access water for their uses, without infringing on the access rights of others. For instance, they may set different times to use the rivers/streams for all uses and still access clear water for human and cattle drinking, while other parties continue accessing the water for fishing purposes. The idea is to use water for domestic purposes and cattle watering, before fishermen/women engage in their fishing activities.

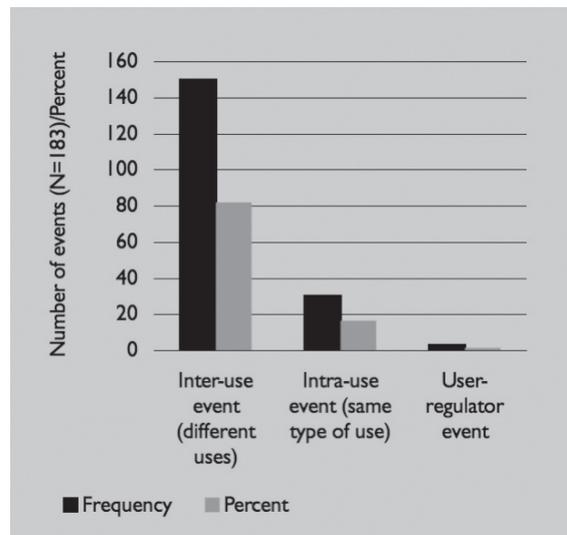
**6.1.2 Intra, Inter and User/Regulator Events**

Inter/intra events and user/regulator events summarise the types of water uses which events were about. Figure 16 shows that the majority of events were inter-use water (i.e. events involving different types of uses) ac-

counting for 82% of the events identified, while user-regulator events were the least common, accounting for only 2% of the events. Intra-use events (events involving only one type of use) accounted for 16% of the events.

**Figure 16. Intra, inter and user/regulator events**

*Number of events*



Water sources such as boreholes, wells, rivers and streams cater for different uses of water in communities. Most of these water sources are used for stock watering, human drinking, construction and crop watering (gardening). Community initiatives to secure shared-water access rights at same sources and for all uses give water sources the potential to account for different uses. The importance lies in satisfying all uses without infringing on other users' access rights. The fact that the same sources of water tend to be used for various uses explains the high proportion of inter-use water events viz-a-viz intra-use events.

A further assessment suggests that the dominance of inter-use (different use) events relates to water needs that are required by in-

dividuals and groups at the same time. Water required for domestic purposes include water for drinking, bathing, and household cleaning. Some incidences of water access at boreholes, where events were recorded, were about more than one use event.

**6.1.3 Issues of the Events**

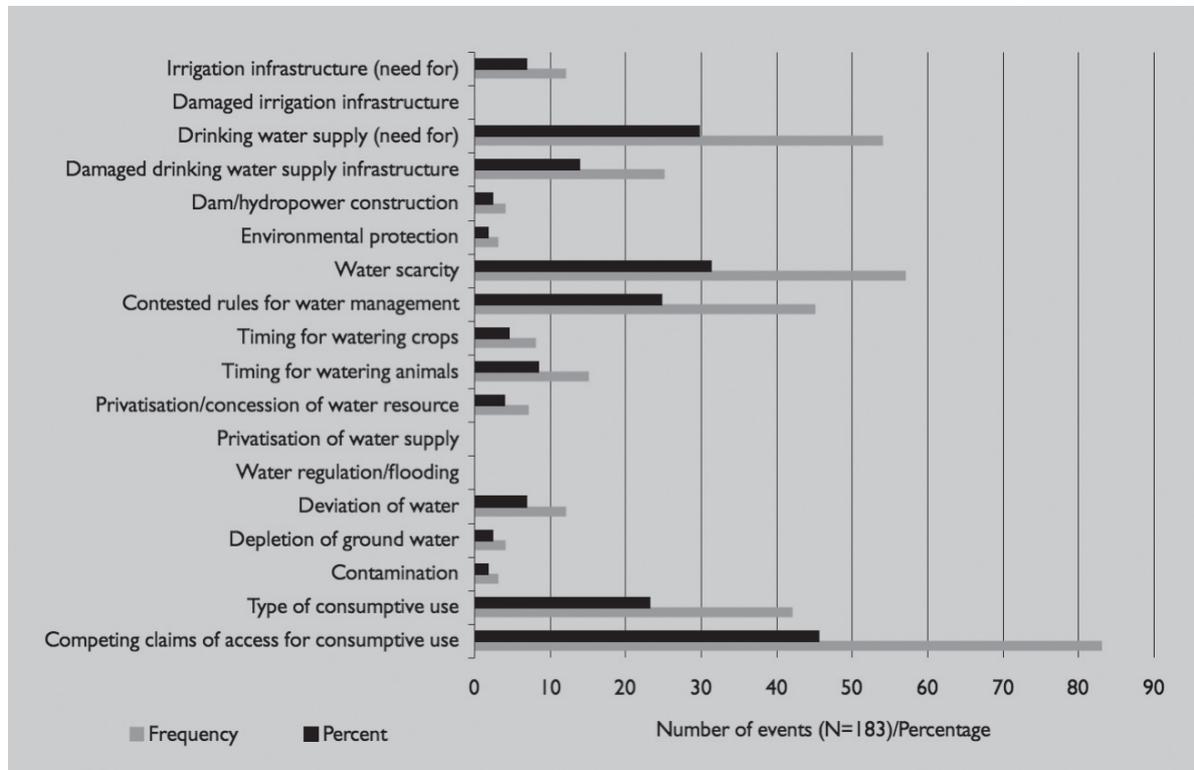
The occurrence of water events has raised awareness on the need to better manage the water resources in many different places, but the urgent need is to first address the issues that prompt the occurrence of these events. It is assumed that the lack of water for various uses is often the result of unreliable supplies for most communities in Zambia. However, this assumption leaves much to be desired. In this study, several issues have been identified to be the perpetrators of the occurrence of

events, i.e. conflictive as well as cooperative events.

Several issues were outlined as grounds for the occurrence of events. Issues of the events were about competing claims of access for consumptive uses, types of consumptive uses, contamination, depletion of ground water, deviation of water, timing of watering animals, timing of watering crops, contested/ competing rules for water management, water scarcity, environmental protection, dam/ hydropower construction, damaged drinking water supply infrastructure, drinking water supply, irrigation infrastructure, infrastructure development and privatisation/ concession of water rights.

Results showed (figure 17) that competing claims of access for consumptive uses had the highest count being the issue of a total of 83

**Figure 17. Issues that events were about (each event may have more than one issue)**  
*Number of events*



events. Issue of water scarcity applied to 57 events, while the least count of event issues were those of contamination and environmental protection, both with a count of 3 events.

Results suggest that most events recorded relate to competition over water because of inadequacies in availability of water required to satisfy various needs. Wrangles at water points, such as wells and boreholes, between different water users; domestic users, cattle watering and gardening are attributed to multiple uses at the same water sources that do not satisfy all uses at the same time. The importance of allocating different times for different uses has been used as a measure to cooperate in water access for different uses and bring sanitation to water users in the communities.

Other issues, such as drinking water supply and/or damaged drinking water supply, timing for watering animals as well as rules for water management were among the issues that formed part of the causes for the occurrence of water events.

Exploring water issues that events of conflict and cooperation were about gives ideas of causes of events in the study area. However, the complete understanding of issues that bring about conflicts and cooperation requires a complete understanding of the types of communities being studied. Results from the study undertaken in Namwala cannot depict the actual situation in the rest of the country, because economic and social issues vary from place to place and due to cultural and perceptual differences in Zambian communities.

**6.1.4 Types of Water Sources**

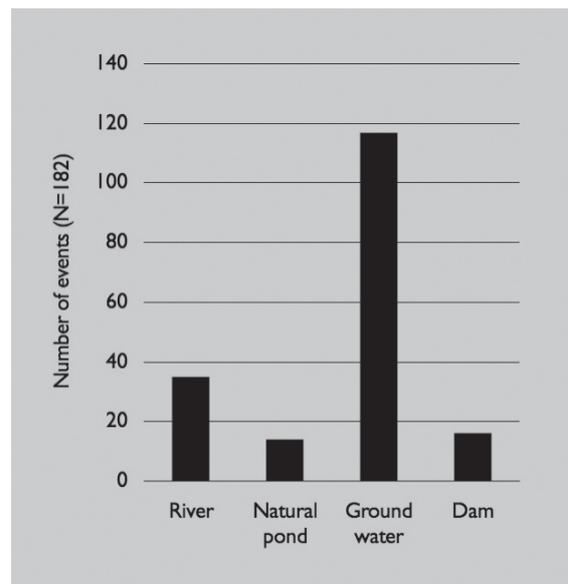
Surface and ground water resources form important sources of water for different developmental purposes in Zambia. All types of water sources in Zambia have great potential to meet

present and future water demands. However, most of these water resources are not developed to meet demands for different uses in most areas. The situation is exacerbated by the poor and uneven distribution of surface water in most areas of the country on the one hand and the lack of development for ground water resources on the other. This has resulted in major shortages of water, especially in the southern part of the country, of which the District of Namwala is part, and the district has not been spared from the scourge.

In Namwala District, water sources used for various purposes vary significantly. The use of water from natural ponds and rivers with counts of 14 and 35 (figure 18), respectively, are important for stock and crop watering both in the wet and dry seasons. Relatively, a big portion of the northern part of the district is covered by the flood plains of the Kafue River used for cattle grazing and watering.

**Figure 18. Water source types which events were about**

*Number of events*



Surface water from rivers and dams are also important for the provision of piped water by the water utility companies in Zambia. However, the utility company in Namwala providing water to the peri-urban centre of the district has preference on the use of ground water as the least expensive mode. A total of 117 events were related to the use of ground water, being associated both with the piped water supply in the peri-urban centre of Namwala and with the boreholes and wells for domestic purposes being the most common form of water supply in the rural communities of Namwala District.

#### 6.1.5 Type of Infrastructure in the Events

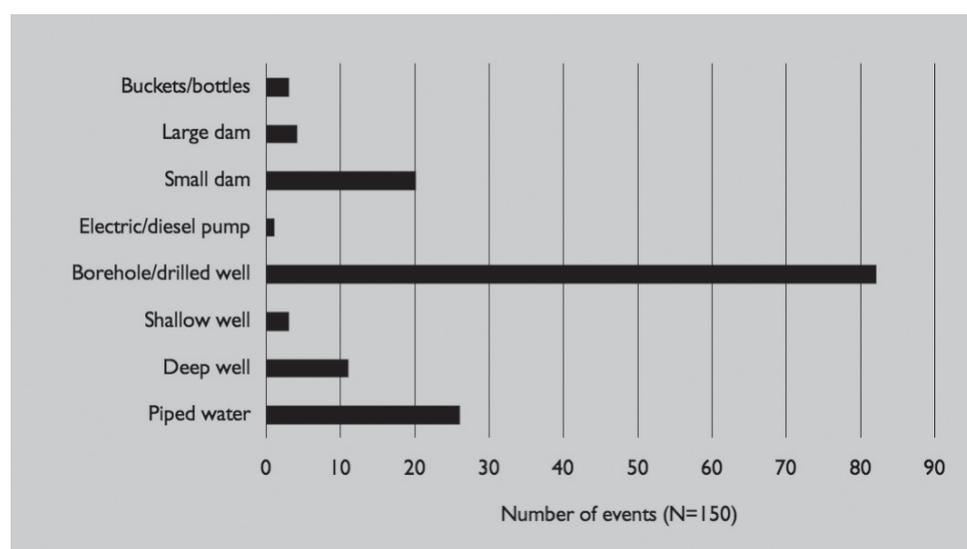
Different infrastructures are used for accessing water in different circumstances. The supply of water in an urban setting requires piped-water types of infrastructures, while a rural setting engages in the use of boreholes and wells. The research established that different uses of water required the use of suitable infrastructures. The review of infra-

structure for water sources included piped-water sources, tanks, wells/shallow wells, boreholes/drilled wells, hand-pumps, electric/diesel pumps, irrigation canals, artificial ponds, small and large dams and buckets or bottles.

Borehole infrastructure is the most dominant infrastructure in use in Namwala District being employed in a total of 82 out of the 183 events identified (figure 19). The high occurrences of borehole uses are attributed to the high distributions of boreholes and borehole reliance in the district. Piped-water supply is restricted to the urban and peri-urban areas in Zambia, regulated by the *Zambian Water Policy*. The Local Authorities, i.e. councils working hand in hand with the Department of Water Affairs, has, however, a responsibility to sink boreholes and drill water wells for the rural areas where piped water cannot be supplied. Namwala District, of which more than 80% is predominantly rural, uses ground water in boreholes and wells, hence the high records for borehole.

**Figure 19. Water source infrastructure which events were about (no infrastructure was involved in 33 events)**

*Number of events*



The least common infrastructure in use in the district was the electric/diesel pumps which was only involved in one event. The use of electric/diesel pumps is only popular among a few well-to-do people practicing crop irrigation at small and sometimes large scale. In addition, the kind of technology is used to access water for domestic purposes by a few private individuals. Cattle watering at private sources with electric/diesel pumps is also practiced.

In order to give a comprehensive analysis of infrastructural uses for most types of water sources, it becomes important to acknowledge the importance of the use of buckets or bottles at most water sources. Small-scale irrigation at boreholes, wells, rivers and most open water sources requires the use of buckets to move water from water sources to crop fields. Similarly, water for domestic purposes is moved from water sources using buckets and bottles, usually done by women.

### 6.1.6 Ownership of Water Sources in the Events

In many instances, water ownership is a contentious issue that requires adequate attention.

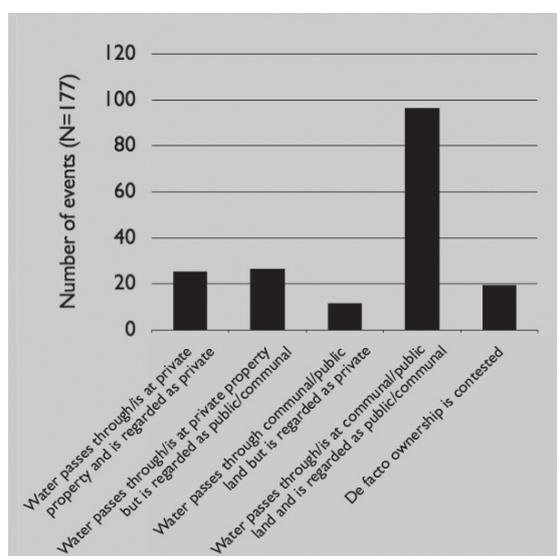
The inventory finds that the most commonly used water sources are publicly owned either within same communities or among several communities. In addition, the study establishes locations of these water sources to ascertain actual situations of events in the district. An analysis was done to establish *de facto* ownerships of water and water sources in Namwala District. In order to comprehensively understand the *de facto* ownerships of water and water sources in the district, five categories were used:

- water passes through/is at private property and is regarded as private

- water passes through private property and is regarded as communal
- water passes through/is at communal/public land and is regarded as private
- water passes through/is at communal/public land and is regarded as public/communal
- *de facto* ownership is contested.

Figure 20. De facto ownership of water which events were about

Number of events



Results show that 96 events were about water that passed through/was at communal/public land and regarded as public/communal (figure 20) and thus reflect the fact that water sources are shared resources in Namwala District. To avoid unnecessary claims of the water sources by powerful and influential people in societies, the placements are at neutral sites where nobody claims ownership of the water source. However, claims of ownership are still made by traditional leaders, in most cases because they have the responsibility to oversee the well-being of the community, including water sources.

Water that passes through or is at communal/public land and being regarded as private was the least common type of *de facto* ownerships of water, being related only to 11 events. The result depicts a reality of the rare possibility for private water sources to be found on public land. However rare, a few individuals choose to have their private boreholes and/or well at public land to facilitate easy access for the rest of the community members<sup>6</sup>.

Nineteen of the identified events were about water for which ownership was contested. Undefined ownerships of water have posed problems for a good number of people in rural areas. Some sources of water are claimed to be owned by the community or traditional leaders, while a segment of the population disputes such claims with reference to government or NGOs providing water sources for the larger communities and not for individuals.

## CHAPTER 7

### 7.1 Event Stakeholders and their Actions

#### 7.1.1 Direct Parties to the Events

Effective water resource management at the local levels often requires all stakeholders in water-relevant institutions and organisations to be involved. Some tasks are best performed by user organisations, while others require the involvement of organisations at a larger scale, e.g. at the sub-district or basin level. (Ittersum and Steenbergen, 2003). Stakeholders in water events vary in responsibility and roles played. Some roles are regulatory, while others are user roles. However, it is extremely important to understand that all roles are important in improving the well-being of the poor and disadvantaged groups in local societies. The

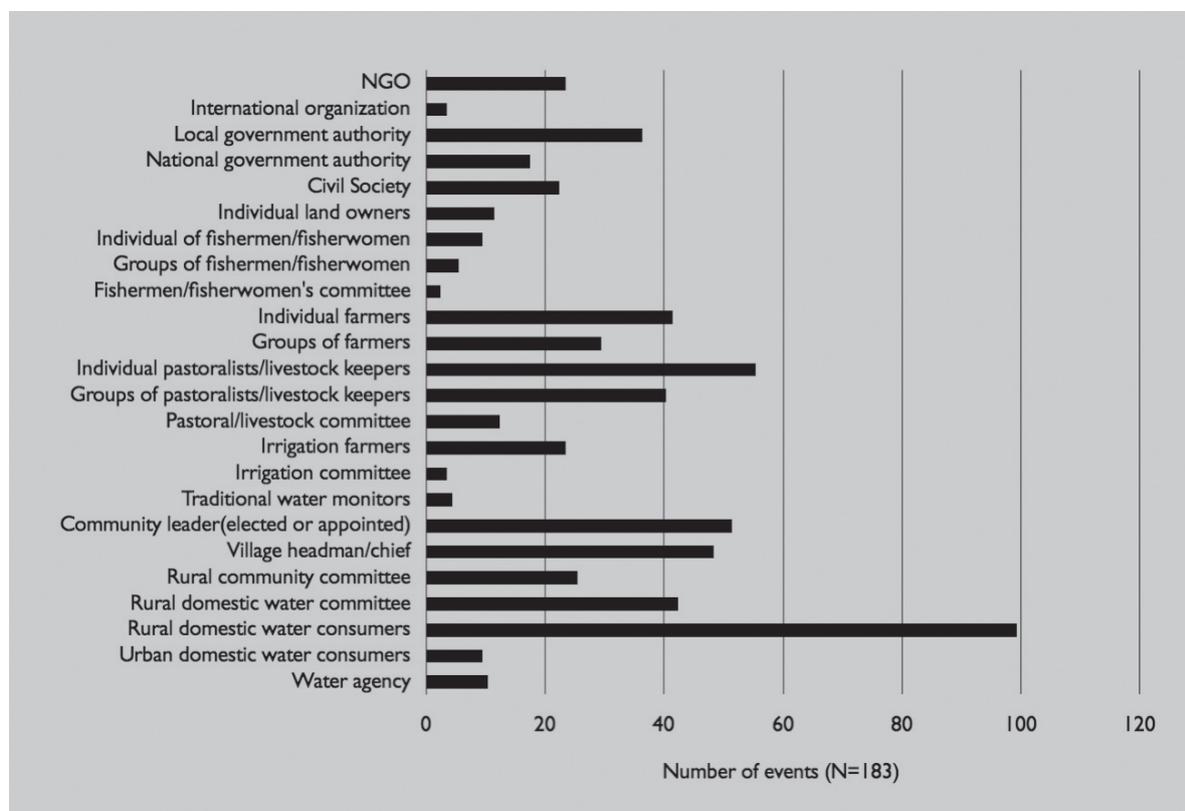
review of water events revealed that various interest groups were involved as stakeholders in addressing issues related to water events. In Namwala, water consumers were the major parties in water events with consumptive roles as a major role. However, regulators and authorities also played important roles as mediators in addressing the occurrence of water events in the district.

The review of water events established that direct parties to the events were the water agency, urban and rural water consumers, rural domestic and community committees, village headmen/chiefs, community leaders (elected or appointed), traditional water monitors, irrigation committees, irrigation farmers, pastoral /livestock committees, groups and individual pastoralist/livestock keepers, farmers' committee, groups and individual farmers, fishermen/fisherwomen's committee, groups and individual fishermen/fisherwomen, individual landowners, industry, civil society, national and local government authorities and international organisations (figure 21).

The study revealed that the rural domestic water consumers were highly involved in water events, being involved as a direct party in 99 events (figure 21). Everyday livelihoods of domestic water uses depict the high frequency of rural water uses in rural Namwala which covers over 80% of the district.

Local and national government authorities were involved as direct parties in respectively 36 and 17 events. The involvement was with regard to rural water supply and ensuring equitable water access and distribution in rural communities. The decentralisation policy developed in 2002 reaffirms the district councils (local authorities) as the institutions responsible for water supply and sanitation. More importantly, it acknowledges the need for the government to decentralise with matching re-

Figure 21. Direct parties to the event (each event may have more than one type of direct party)  
*Number of events*



sources some of its functions to the district, thus empowering the local authorities to undertake their responsibility with respect to rural water supply and sanitation services. The district councils and ward councillors have the responsibility to sink boreholes and dig wells to ensure water supply in the rural parts of the country where they operate. Though this is the case, their efforts are challenged because the leadership at the national level is diffuse. In addition there are several other institutions providing water supply services to rural areas. The situation contributes to the low profile of and the low resource flows to the district councils for execution of their water supply programmes.

Fishermen/women's committees had the least counts of involvement as direct parties

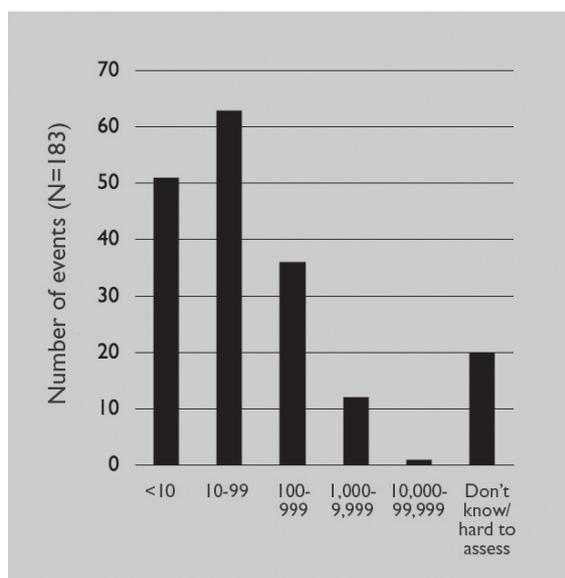
to the events recorded. Individual and groups of pastoral/livestock keepers were actively involved in events at community levels with the former being involved in 55 events while the latter being involved in 40 events. Village headmen and chiefs were involved as direct parties in 48 events. Local leaders (headmen/chiefs) played an active role in addressing events of water in their communities. In the same light, community gatherings to discuss water access rules and management were called upon by the traditional leaders to foster cooperation as people competed for the water resources. However, in some cases, the involvement of local leaders was about downplaying the water access of other members of the community because of their high influence in community activities.

### 7.1.2 Number of People Involved in Events

Results from the inventory of water events show that small groups of 10-99 people are the most dominant numbers of people involved in events, accounting for 34% of the events (figure 22). The least dominant or least common groups of people to be actively involved in water events are those involving 10,000 to 99,999 accounting for 0.5%. Groups of 100 to 999 persons are favourably high, accounting for 20%.

**Figure 22. Estimated number of people involved in events**

*Number of events*



The events that involve less than 10 persons typically are about decision makers such as headmen and local authorities over water access and management from various sectoral groups. More commonly, events involve between 10 and 99 persons and involve small groups of people who which to use the same water sources for various uses.

Events involving groups of 100-999 people were typically events where whole com-

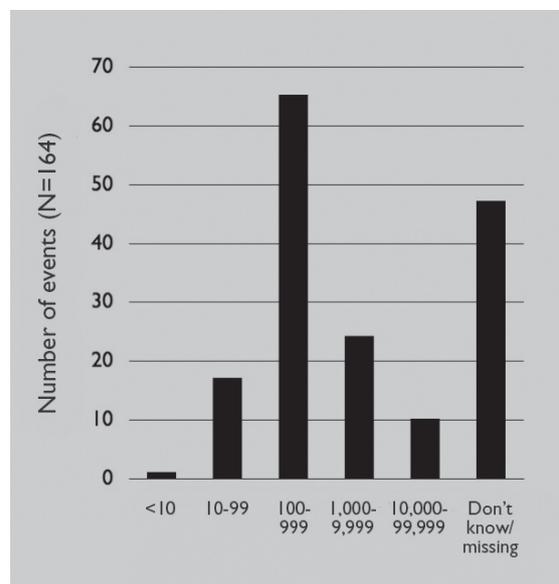
munities negotiate to decide on water access and management issues involved all members living in particular localities. Similarly, reactions to unfair distribution of water sources, e.g. borehole sinking and well digging, raised concerns from the entire community.

### 7.1.3 Number of People Affected by/Benefiting from Events

Results revealed that most events (36% of all events identified) affected or benefited between 100 and 999 persons. Only 10 events affected or benefited between 10,000 and 99,000 persons while one event affected or benefited less than 10 persons (figure 23).

**Figure 23. Number affected by/or benefiting from water events**

*Number of events*



For approximately a quarter (26%) of the identified events, it was not possible to estimate the number of persons being affected by or benefiting from the event.

#### 7.1.4 Share of Women/Men Involved in Events

The many involvements in community activities that involve both men and women also include involvements in water events. However, the share of involvement for both sexes differs due to variances in water uses and access needs between the two sexes. The figure below (figure 24) shows estimates in shares of women and men involved in water events.

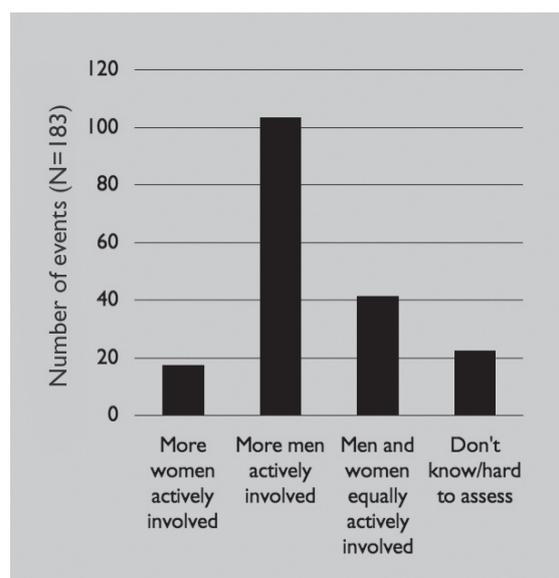
Direct involvement in water events is dominated by men. More men than women were involved as direct parties in 56% of the events, while in 9% of the events more women than men were involved as direct parties. From the results, it can be deduced that gender plays an important role in water events participation. This is explained by the distribution of power and control. In a rural community like Namwala District, decision making over livelihoods, including water access and management in villages, is mainly a responsibility of men because of the traditional way of influence men have over livelihoods and the respect they command in societies where they live. This fact transcends to their high involvement in water events involving access and management. In other cases men's involvement signifies the dominance they have in accessing the water resource. Water sources such as boreholes and wells are most patronised by females because they constantly draw water for daily domestic uses. However, men tend to demean women when accessing water at boreholes and wells for cattle watering, which accounts for the major use of water in Namwala. In situations like these, women take a silent stance and leave men to wrangle over water access amongst themselves.

Furthermore, Namwala District is traditionally a pastoralist district. Pastoral farm-

ing is an activity dominated by males in the district. Most water events are about water needs/access for cattle watering at boreholes, wells, rivers, streams and dambos. The vast numbers of cattle in the district require vast water resources, and men and young males have a responsibility to ensure that cattle receive sufficient water to survive. Therefore men's active involvement in water events is attributed to the importance of water use for cattle watering which has been given top priority in the area.

**Figure 24: Share of men and women involved in events**

*Number of events*

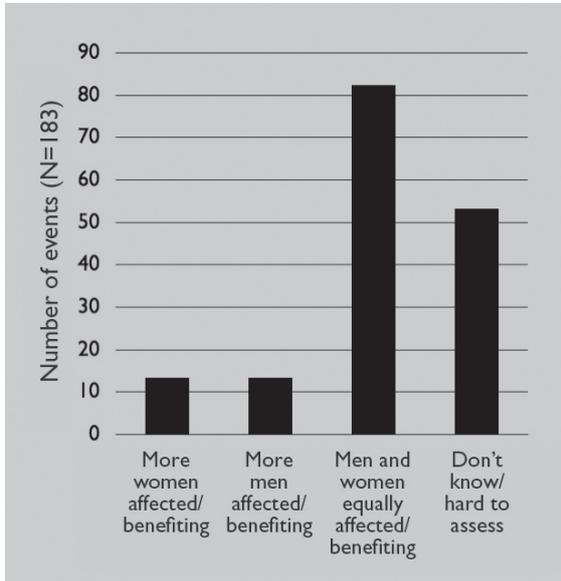


#### 7.1.5 Share of Women/Men Affected by/Benefiting from Events

While the majority of the events tend to have more men than women among their direct parties, the largest share of events were events that affect or benefit men and women equally (figure 25). Close to half (45%) of the events were assessed to affect/benefit men and women, equally.

**Figure 25. Share of women and men affected by or benefiting from events**

*Number of events*



#### 7.1.6 Types of Actions Taken During Events

With an understanding that people seeking access to resources care about their interests the most, it is very important to understand the underlying desires and concerns that motivate certain actions to be taken. Engel and Korf (2005) observe that, in some cases parties' interests are often compatible, and hence negotiable, even when their positions seem to be completely opposite. In other cases, parties' interests are conflicting and not negotiable, and hence people wishing to secure their interests take different actions.

Negotiations/discussions in meetings are some of the actions people take to secure water access rights. The study revealed that both private and public meetings between (some of) the parties involved in events were used to discuss issues of water access, vis-à-vis management. Other means to communicate water access rights and management were through written and unwritten agreements sanctioned

or not sanctioned by third parties. The inventory revealed that the most dominant messages conveyed to other parties in securing water access were conflictive. Records show a high occurrence for private statements of disagreement between (some of) the parties to the event with a total count of 54 out of the 183 events reviewed, as compared to private statements of agreement between (some of) the parties to the event made in 16 of the total of 183 events identified during the inventory (figure 26).

As noted, it is easier and more tangible for most people to discuss matters affecting people in small gatherings. Private meetings formed part of 51 of the 183 events identified, while public meetings/hearings formed part of 40 events (figure 26). Public meetings/hearings are, however, important in the resolution of conflicts and for the discussion of rules to guide water management.

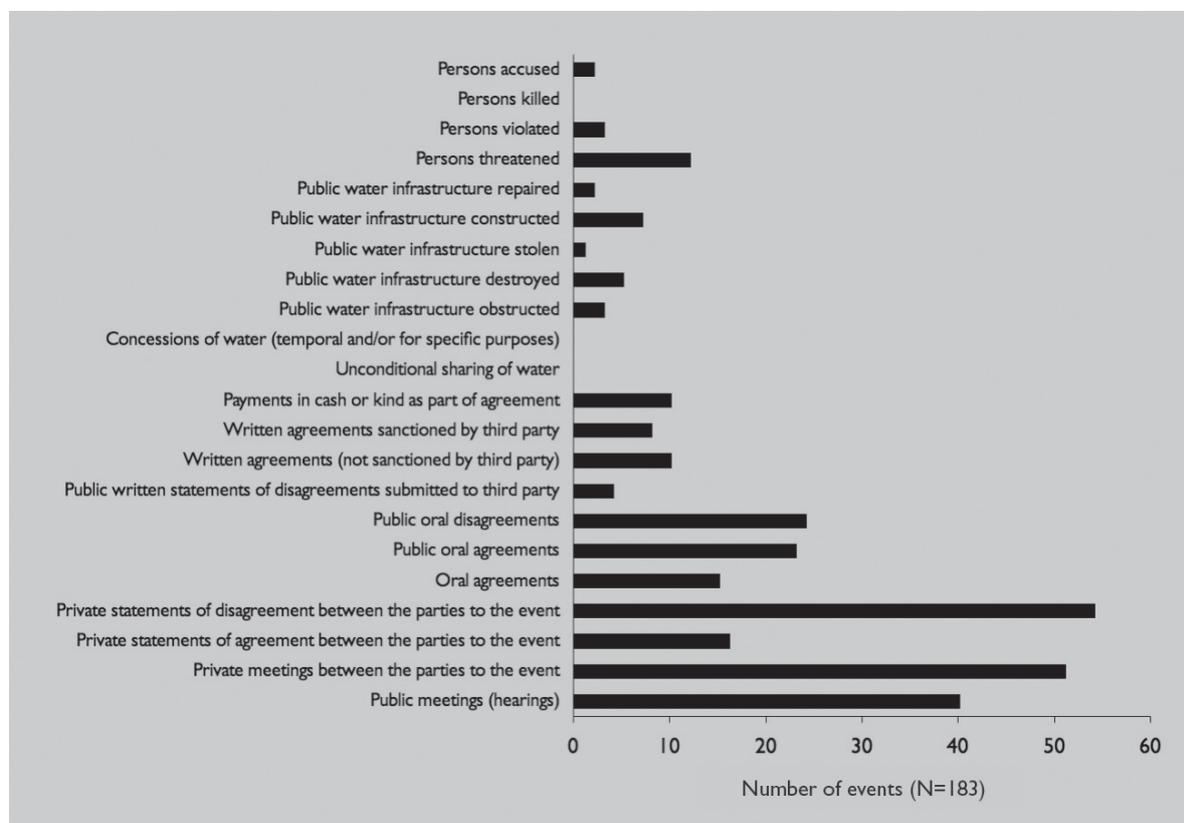
Other actions noted in the review of inventories for water events were oral agreements being made in 15 of the 183 events identified, public oral agreements being made in 23 events, public oral disagreement, being stated in 24 event and public written statements of disagreement submitted to third parties/external authorities (denouncements, etc.) being undertaken in four events. No records were revealed for actions of unconditional sharing of water and concession of water (temporal and/or for specific purposes).

In a number of events infrastructure was obstructed, stolen or destroyed or was repaired or constructed. The construction and destruction of water infrastructure was undertaken in respectively seven and five events. Construction of water infrastructures is undertaken to improve water availability for the communities in Namwala. However, even the constructions of infrastructures may bring about conflict in de-

Figure 26.

Actions taken as part of the event (more than one type of action may be taken in each event)

*Number of events*



ciding which areas are in dire need of water. Communities suffering from water-scarce situations compete for a limited number of government boreholes and wells to be sunk in their communities. Theft and repair of water infrastructures took place in respectively one and two events, while the obstruction of water infrastructure took place in three events.

Actions affected persons were also encountered in some of the events. In many countries people would not stop at anything to ensure that they achieve access to what they require. Cases of killings and violations have been reported in countries competing over power and resources (mineral, water, oil, etc.). Few reports

specify the actions people take to secure their access rights to water. However, our review of events of conflict and cooperation carried out in Namwala show actions taken by parties for/against others in the bid for water access. In 12 of the identified 183 events, threats against others had been made by one of the parties competing for water, in most cases to demean other parties in water events.

#### ***7.1.7 Ways in Which Claims of Access are Supported***

Claims of access are increasingly becoming intense in competing situations. With an understanding that people's claims are varied and usually guided by certain criteria, the

review of an inventory of events identified the following ways in which claims were supported in water events:

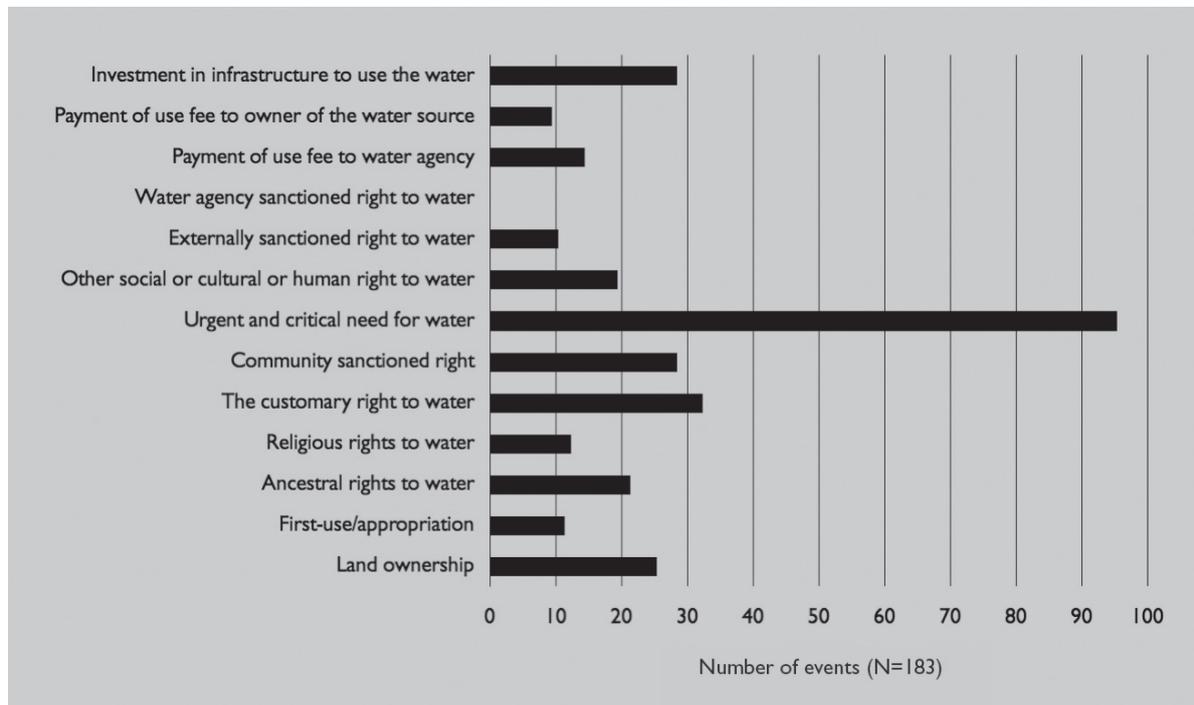
- land ownership
- first-use/appropriation
- ancestral rights to water
- religious rights to water
- the customary right to water
- community sanctioned right
- urgent and critical need for water
- other (than mentioned above) social or cultural or human right to water
- externally sanctioned right to water (municipal government, ministry, etc.)
- water agency sanctioned right to water
- payment of use fee to water agency
- payment of use fee to the ‘owner’ of the water source

- investment in infrastructure to use the water
- any other argument referred to by claimants.

The inventory revealed that most claims were supported by arguments of an urgent and critical need for water, applying to 95 of the 183 events identified in Namwala. Namwala District, just like many other areas has enough water resources (both ground and surface water) to meet all water demands (figure 27). The problem in accessing the water relates to insufficient infrastructure to facilitate easy water access. Infrastructural development in terms of wells and boreholes is lacking and consequently most rural people face water shortage. Similarly, people living on the banks of the main rivers are constrained in access-

Figure 27. Ways in which claims to water are supported (in each event, claims may be supported in more than one way)

*Number of events*



ing the water for purposes of irrigation and domestic uses because water abstraction using pipes is also lacking. These situations have caused water access not to be easily attainable, and hence people's perceptions are based on assumptions that there are inadequate water supplies to meet all their needs.

There were no records of claims being supported by a water-agencies sanctioned right to water.

Investment in water infrastructure and land ownership-based rights to water were used to support claims in 28 and 25 of the events, respectively. The referral to customary rights to water as a claim applied in 32 events. Claims of customary rights to water show a relatively high percentage because of the general belief in Namwala District that natural waters are not guided by any rules and access should not be restricted. Events of conflict were dominant because people seldom acknowledged the importance of guidelines in water access at boreholes, wells, streams and rivers. The notion was that water was a natural resource and owned by everyone and that accessing it required no restrictions or rules.

## **CHAPTER 8**

### **8.1 Third Party Involvement**

#### ***8.1.1 Formal Demands Submitted to External Authorities***

Namwala District like any other district in Zambia has institutions and structures that help resolve water issues in relation to conflicts and promote or ensure that continuity in cooperation is maintained. However, the understanding of many people is that issues affecting community development, including water management and access,

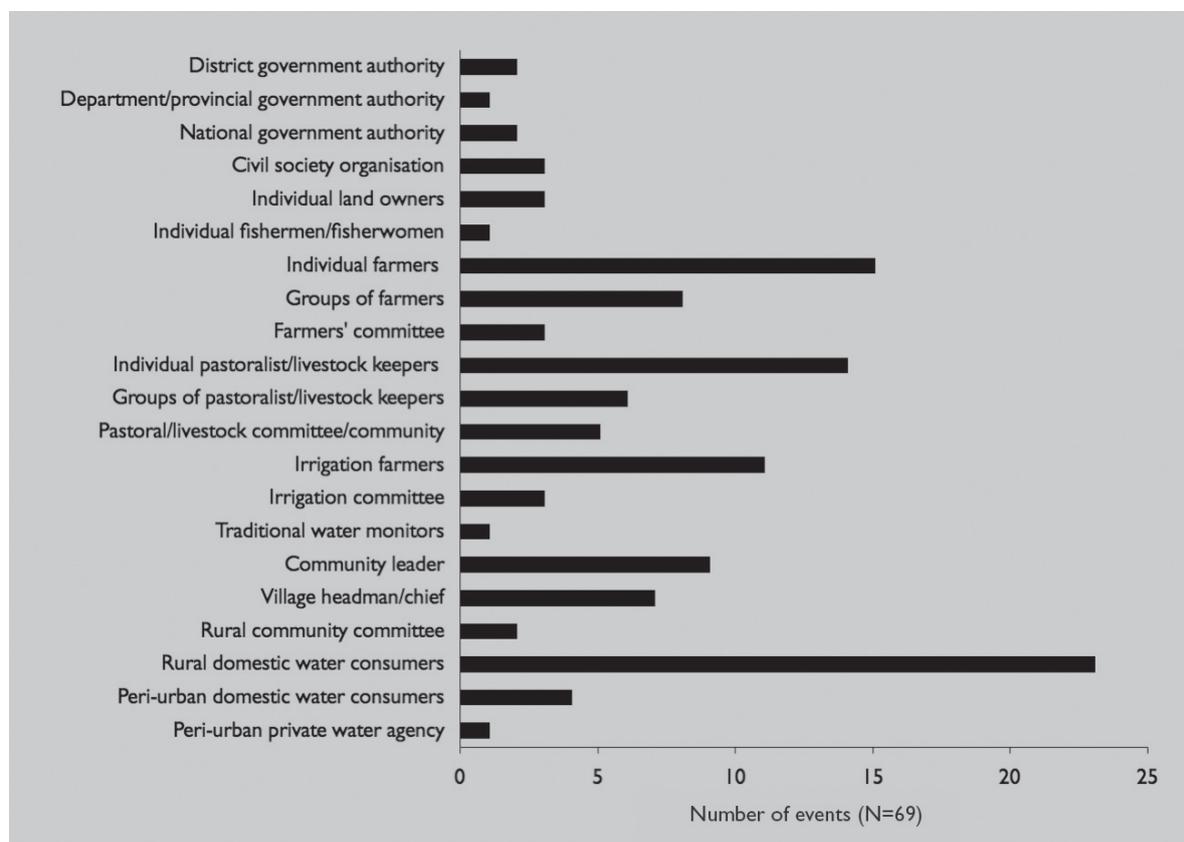
are best resolved locally. Experience shows that despite having effluent standards and legislations, external authorities that act as mediators are often ineffective in the way they address community issues because they lack the understanding of issues that matter most for the people affected. Hence, the belief that submitting formal demands to external authorities would not yield the desired responses makes people involved in water events hold back from making such submissions. The belief is that water events, whether conflictive or cooperative, are best managed where local pressure is exerted by those directly affected and where local-level organisations and people affected assume responsibility in handling such issues.

The inventory of events revealed that the submission of formal demands to external authorities was made in 59 out of the 183 events, corresponding to approximately one-third of the events. People have various reasons for not making formal submissions to external authorities when water-related events occur. Some believe that certain events are not of significant importance to be submitted to external authorities, while to others the distance from the community to the locations where external authorities are found seems too far.

#### ***8.1.2 Calls upon Third Parties***

Apart from formal submissions made to external authorities, third parties were called upon to solicit for mediation and post-event actions. Third parties were called upon in 38% of the events, corresponding to 69 events.

We note that people's reactions to post-event occurrence are driven by whether they perceived that the event could significantly improve their well-being. Other people preferred keeping the events to themselves with-

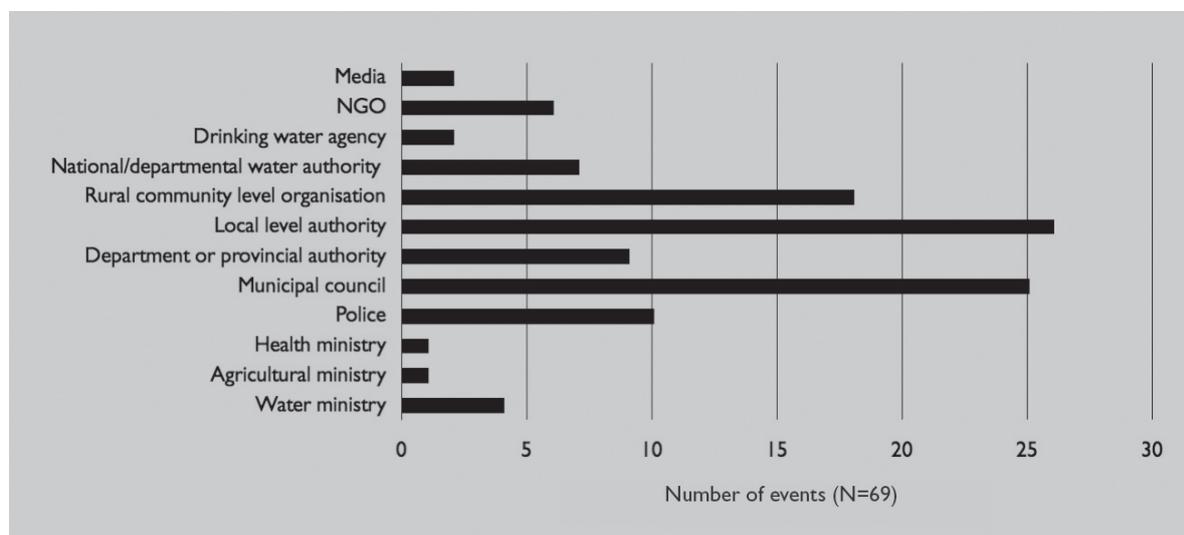
**Figure 28: Parties who called upon third parties***Number of events*

out wanting the events heard by third parties. Thus, some people interviewed stated that they did not call upon third parties because of not wanting to involve too many stakeholders. In many cases, rural people did not call upon external people for fear of being misunderstood and the local events becoming too public. In other cases, reports were not submitted to external authorities because of distrust among parties involved; that a party wishing to involve third parties would be perceived by others as biased. However, where intercession was deeply required and people felt that the local issues affecting them were beyond local-level intervention, third parties were called upon for intervention.

### 8.1.3 Stakeholders Calling upon Third Parties

Stakeholders calling upon third parties base their foundations on the understanding that third parties help resolve diverse social/cultural issues among people of different character and interest.

Results from inventories of water events showed that in 23 of the 69 events in which a third party had been called upon, the call had been made by rural domestic water consumers. Similarly, farmers and pastoral/livestock keepers were among those calling upon third parties. However, it is important to consider that for some users, water deficient situations become a way of life and hence, they rarely make submission to external authorities for intervention. In other cases, users prefer

**Figure 29. Third parties called upon***Number of events*

coming up with their own solutions to water problems, and third party involvement seems to be unnecessary.

#### **8.1.4 Types of Third Parties Called upon**

At critical levels of conflicts and cooperation in water access and management, government ministries were called upon as third parties with mediation roles.

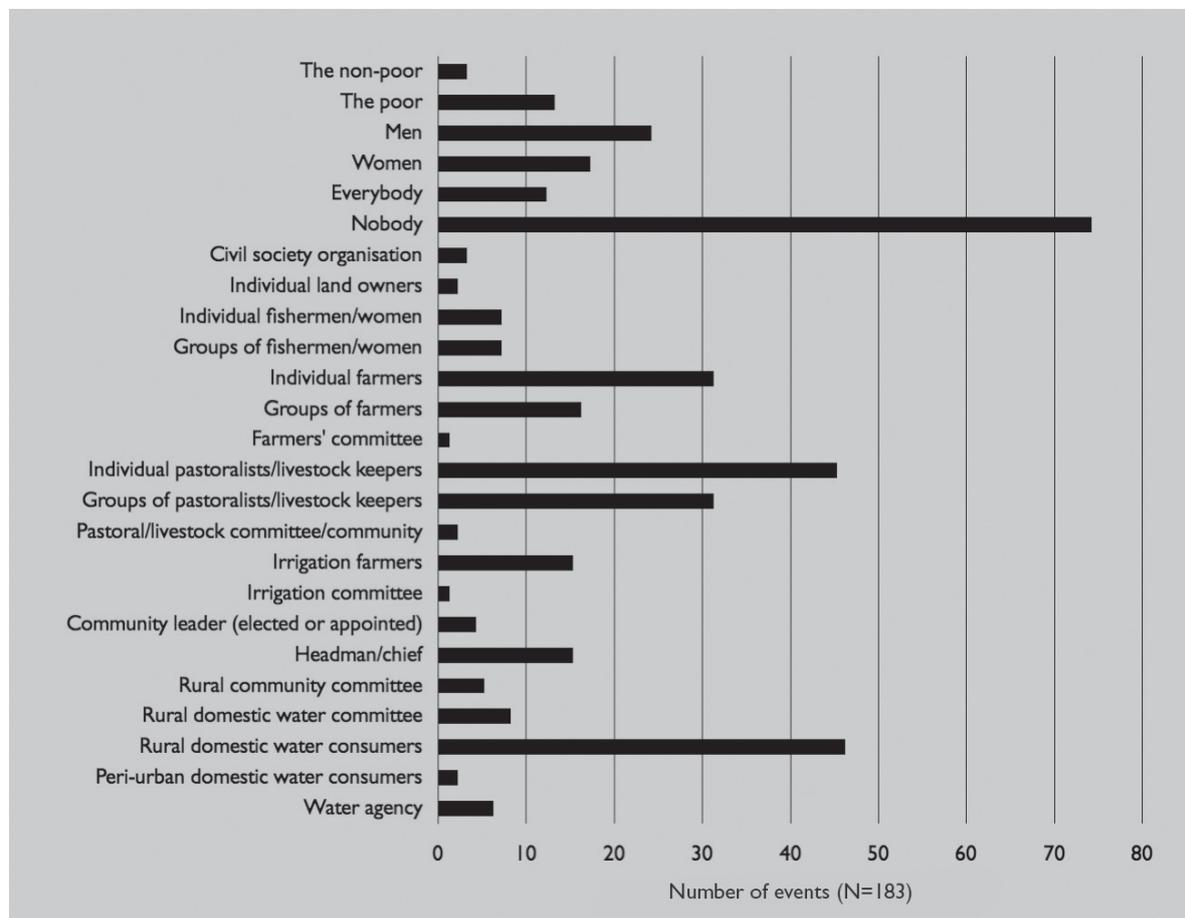
Results show (figure 29) that involvement of the water ministry as third party had a count of 4, while the ministry of home affairs, i.e. the police and courts, was at 10. The health ministry and the agricultural ministry both had a count of 1. No counts were observed for the fisheries, industry and environmental ministries in all events reviewed. The water and home affairs ministries had the highest counts of involvements as third parties, because the former had direct contact with the people in rural areas with the rural water supply programme, while the latter represented the courts and police responsible for conflict resolutions that could not be managed by the local leadership.

The district and municipal authorities were involved as third parties to the events reviewed. Parties called upon were departmental/provincial authorities in nine events and municipal authorities (municipal council, individual municipal council representatives and the municipal environmental council) in 25 events. Municipal councils have the responsibility to supply water and sanitation services to rural areas in collaboration with the department of water affairs. People frequently called upon them as third parties in events involving water access needs in communities.

Local level authorities, e.g. the headman or chief, community-based organizations etc., were called upon as third parties 26 events. Involvement of local leaders in water-related issues was based on the premise that they had a better understanding of issues affecting communities, because they lived among the people and were well able to mediate favourably for all parties involved. However, in other cases their involvement was seen by others as worsening the situations, especially

**Figure 30. Party assessed to gain in water-related event**  
(in each event, more than one party may be assessed to gain)

*Number of events*



in conflict-related events, if their mediations were biased towards favoured parties.

Further, the review sought to establish other stakeholders' involvement (outside government departments and municipal councils), such as the church, international organisations, non-governmental organisations and the media. Others were the local lawyers, attorney generals, environmental attorneys and drinking water agencies. Results from the review showed that only one NGO (WWF) and the media were called upon as third parties to the events, the former in six events and the latter in two events.

## CHAPTER 9

### 9.1 Event Outcomes

#### 9.1.1 Assessment of Who Gained in the Events

Wrangles over water access are a major cause of conflict in Namwala. In such wrangles, some parties benefit while others do not despite the efforts made to become part of the beneficiaries. The assessment of the conflictive and cooperative events in terms of who gained showed that most people did not gain from the events that occurred. In 74 of

the 183 events it was assessed that nobody gained.

Pastoral/livestock keepers are, as earlier noted, those who use the largest quantities of water for watering their stocks. As shown in figure 30, groups of pastoralist were assessed to gain in 31 events, while individual pastoralists were assessed to gain in 45 of the identified water events. Group actions towards certain goals are minimal compared to individual actions, explaining the high occurrence of events for individual pastoralists as compared to groups of pastoralists. In addition, actions taken by few individuals, such as coming together to deepen dams in order to increase water retention for stock water, end up benefiting multitudes owning cattle, even when they did not participate in deepening the dams. This explains why individual pastoralists have gained more than groups of pastoralists put together.

Furthermore, results show that rural domestic consumers were assessed to gain in 46 events, while 'the poor' and 'the non-poor' were assessed to gain in 13 and 3 events, respectively.

Farmers' committees and irrigation committees were assessed to gain in one event each. However, the groups they represent, i.e. groups of and individual farmers and irrigation farmers, gained considerably with percentages of 31 and 15 events, respectively (figure 30).

Other parties who gained from water events include the commercial farmers. Some events involved both upstream and downstream people. Upstream people gained more because of the advantage they had in accessing cleaner waters of bigger volumes. Problems for people downstream came about when people upstream blocked water flows in small rivers and streams as conservative measures for stock water and domestic uses during dry

seasons. Such actions tend to harm people downstream because the quantities of water flowing downstream was reduced, hence denying them access to water even before rivers and streams dried out completely.

Notably, persons having relations to people in charge of water supplies and people in water community committees gained more than ordinary males or females in communities who had no one to defend their access interests. The poor were even more disadvantaged because in most cases their voices were not loud enough to be heard.

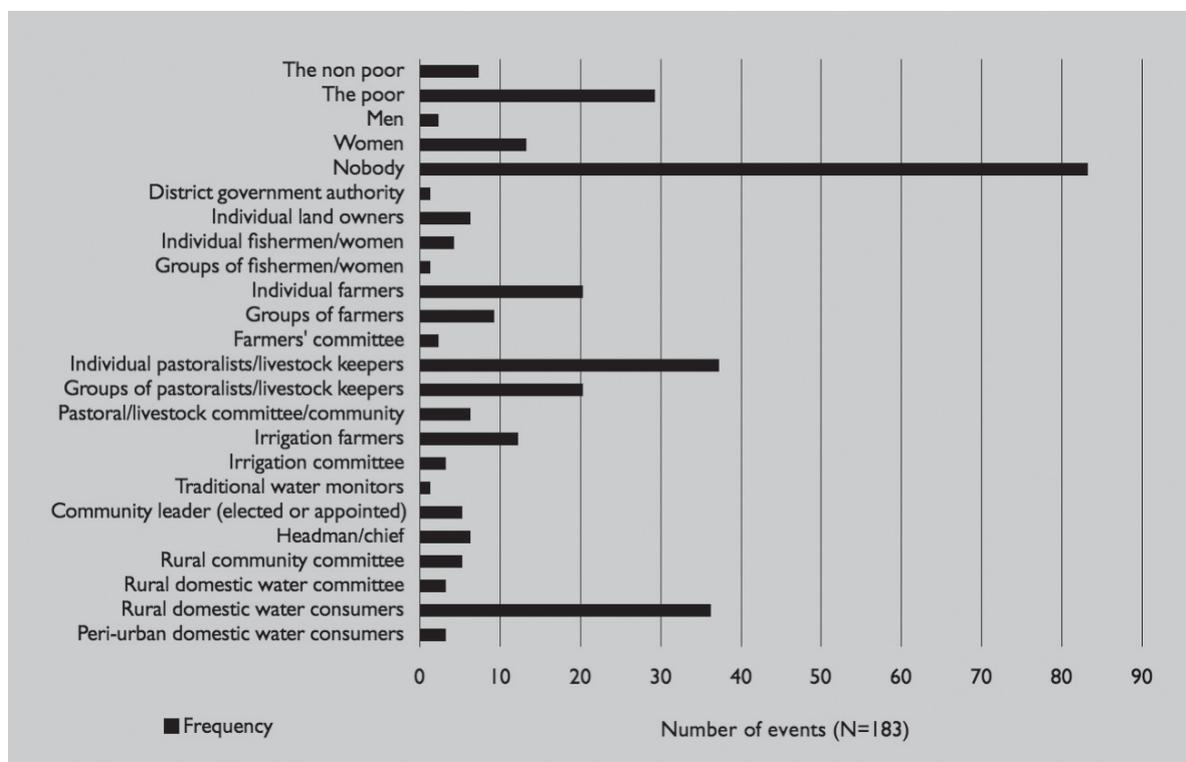
### 9.1.2 Assessment of Who Lost in Events

The Government of the Republic of Zambia has the overall objective of "Ensuring that Zambia's water resources are effectively developed to contribute to poverty reduction through increased access to safe water and sanitation and increased food security for low income rural and urban people".<sup>7</sup> The government's efforts are sufficient to enable the marginalised to have equal access to water in the same manner that the well-to-do persons have. However, disparities in access are inevitable within rural communities where social differences exist with some competing parties having more to gain while others lose.

No events were identified where government ministries and departments with regulatory and mediatory roles, including roles of water supply, or for the water agencies, the national and district government authorities, departmental or district government authorities, including the civil societies and international organisation were assessed to lose. In contrast, a number of events were identified in which leaders and institutions at local levels, involved in mediatory and water management issues, were assessed to lose. In five events, the rural community committee was assessed to lose, while in six events, the

Figure 31. Party assessed to gain in water-related event (in each event, more than one party may be assessed to gain)

*Number of events*



headmen/chiefs was assessed to lose. Community leaders were assessed to lose in five events and traditional water monitors were assessed to lose in one event. had. Irrigation committees and farmers’ committee were assessed to lose in three and two events, respectively. However, these types of actors who often act – in part – as regulators, are not as frequently assessed to lose as the direct water users (figure 31).

Domestic water consumers were divided into two categories, i.e. peri-urban and rural domestic water consumers. Peri-urban domestic water consumers were assessed to lose in three events, while rural domestic water consumers were assessed to lose in 36 events. These results represent the population distribution of persons in Namwala

District. The peri-urban area of the district occupies a small fraction of the estimated 10,000 km<sup>2</sup> total surface area of the district. Its population is only 5,532 persons out of the estimated 83,000 persons for the entire district<sup>8</sup>.

Further, results show that pastoral/livestock keepers also were assessed to lose in the water events. Groups of pastoralists/livestock keepers were assessed to lose in 20 events, while individual pastoralist/livestock keepers were assessed to lose in 37 events. We deduce from the results that benefits or losses mainly accrue to individuals because persons affected get the impacts as individuals and not as groups, hence the records showing higher percentages for individuals than for groups. The situation is similar for

farmers who lost in water events. Results show that groups of farmers were assessed to lose in nine water events, while individual farmers were assessed to lose in 20 water events.

In water-scarce situations, the poor are always the ones to be disadvantaged. Results show that ‘the poor’ were assessed to lose in 29 water events whereas ‘the non-poor’ were assessed to lose in seven events. No records were given for events that showed everybody losing out completely from events. However, results that showed in 83 events, nobody was assessed to have lost.

## CHAPTER 10

### 10.1 Situations and Events

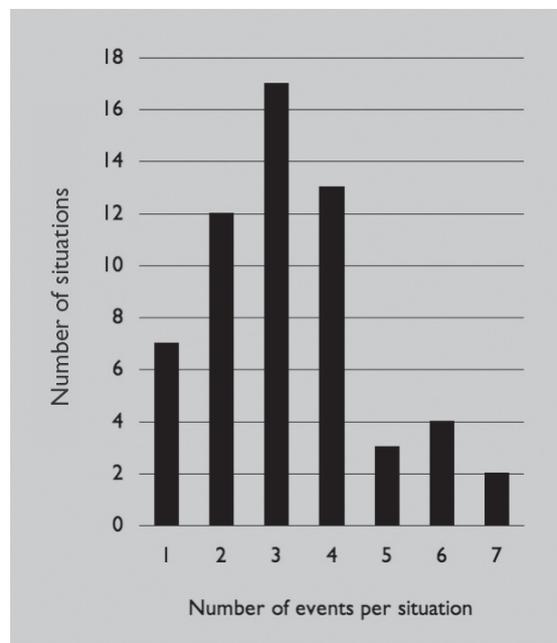
Water events occur in particular situations. Situations in this study have been defined essentially as cases in which different parties compete for access to the same water sources. However, competitions for water access and other actions taken in such situations were termed events. Results from the study showed that situations constituted a number of events. One situation had several events while a few were composed of only a single event.

Results from the study show that the highest number of events recorded for a single situation was seven, as shown in figure 32 below. However, only two situations recorded such a high number of events. Results also show that seven situations recorded the least number of events that formed part of each situation with the count of one. Twelve situations recorded two events while 13 situations recorded four events.

Three events per situation was the most dominant number of events recorded, applying to a total of 17 situations.

**Figure 32. Number of water events per situation**

*Number of situations*



## CONCLUSIONS

The review of water events in Namwala described the variability in water access needs and how events transcend to benefit and/or disadvantage the parties involved. A thorough understanding of issues pertaining to water access and management required the use of a number of approaches. The review gave definitions of conflictive, cooperative and neutral events to explain and define what the research sought to establish. Additionally, a ranking was made by an intensity scale of the events to show extents of the conflicts and cooperation of the events that had taken place over the 10 year period, for the unreported events focusing on 10 selected village communities of the district, while a review for the reported events was undertaken in the entire district with all water-relevant institu-

tions, media, and governments ministries and offices as importance resource centres/persons for information.

From the study, we conclude that effective approaches to handle conflicts are available from regulatory and mediatory persons and institutions. The importance of these approaches, however, lies in integrating them into water policies, laws and by-laws to be used as a measure to solicit for water that could benefit the rural communities so that conflict does not downplay the benefits of the poor.

Though water resources are generally ample, development of water infrastructure is lacking for the rural communities, giving the impression that water is in scarcity. The situations are perpetrated by mushrooming settlements that are unplanned for in infrastructural development. In addition, carelessness by water users at boreholes diminishes water access for various users in rural areas.

The inventory confirms that water access affects groups and individuals differently. The poor and non-poor, plus women and men also have differences in the ways that water access affects their livelihoods. Groups and the poor people's benefits from water access are tied to the overall benefits of the community, while individuals and the non-poor benefit at the individual level. Men are more actively involved in water events and issues to do with access and see to it that benefits directly accrue to them as individuals. Women on the other hand have a silent voice that is heard if issues are raised by their male counterparts. Benefits to women hence are also seen to be tied to overall community benefits.

On face value, the burdens of water inadequacies are seen to affect all persons living in communities with water-scarce situations. In reality, women are more affected than their male counterparts because of the tedious

tasks they engage in to secure water. While tasks taken up by men requiring water could be minimized if water is unavailable, women always have to scout for the resource to provide for their families.

Persons called upon as third parties to mediate in events are trusted to play their roles effectively. The importance lies in maintaining the trust people have in them. However, maintaining the trust is often breached because of the unwelcoming attitudes that third parties have towards the rural and poor people. Attitudes that are not pro-poor have kept people needing mediation away from authorities to avoid unpleasant situations as a result of involving parties that are not aware of actual prevailing village situations. People also fail to call upon third parties in events for fear of being misunderstood.

The intensity of dispute is minimal for most communities because of the preference common among rural people for aiming to contain situations within acceptable limits. This also applies to events of conflict, as evidenced by fact that the highest levels of conflicts, such as killings and engaging in organized collective violence, were not recorded in the water events reviewed. The highest intensities of cooperation are also seemingly unattainable because of the impossibility of including each individual access rights to water in all decisions made over water access. Where individuals are involved, complete benefits would only accrue to the few fortunate and those with the capacity to stand up for themselves. The poor always lose out if made to stand alone.

The understanding of situations that perpetrate events requires addressing such issues with certain criteria put in place for the benefit of the disadvantaged. It is recommended that future works suggest measures to the law-enforcing institutions to come up with

regulations that would narrow down the gaps along gender lines and also along social status in terms of water access and control over water and water rights. The move is important in addressing the dynamics that put the poor and women at a disadvantage to the well-to-do and male gender when water access issues are a bone of contention.

Importantly, continuous assessments of existing water sources and infrastructures need to be done, encompassing upcoming communities not formerly recognised, to provide sufficient data for actual prevailing situations on the ground and ensure water adequacies to people involved. This would massively reduce disputes at water sources frequented by competing parties.

Further assessment needs to be done on the hotspot issues that perpetrate conflict. The importance lies in addressing these issues to reduce the problematic aspects and see how conflict can bring people together in cooperation over water access and management.

To address problems of water inadequacies, it is recommended that people affected see the need to formally file in reports to responsible authorities. This move would enable quick responses from people responsible for water supply services.

## NOTES

- <sup>1</sup> Ministry of Energy; Report on Water Sector Programme Support – Component 3 of the support to Integrated Water Resources Management.
- <sup>2</sup> This estimate is based on a unit water requirement of 40.7 liters per day (National Water Resources Master Plan – 1995)
- <sup>3</sup> Such as in Mapanza District.
- <sup>4</sup> Village authority structures include chiefs, headmen and area committee members.
- <sup>5</sup> Zambia Integrated Water Resources Management and Water Efficiency Implementation Plan.
- <sup>6</sup> Only happens among communities with a sense of belonging and recognize the importance of water sharing.
- <sup>7</sup> The National Water Policy.
- <sup>8</sup> Namwala District Development Plan 2006 -2010.

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