Hydropolitical Situational Analysis: Social World Mapping

Second Order Water Scarcity In Southern Africa – R8158: Zambia case study

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Social World Mapping

This document details the results, steps and terms of the various stages of the social world mapping process. The first three sections detail the results from the mapping process. The first section gives the results of the second step of analysis, the sayables and thinakbles from the interviews conducted with the actors in the situation. The second section details the results of the third step of analysis, the composite concepts within the modes of resource appropriation. The third section shows the results of the fourth step of analysis, the components of each mode of appropriation.
The results section is followed by the sections detailing the steps of the mapping process. The document concludes with definitions of the terms used in the mapping.

Section 1

Site Level Analysis

Representation of self

Unable to provide service
Manager
Well expert
Global discourse
Propose projects
Seek funding
Link between LA and residents
Build protected wells
Resource poor
Address community complaints
Community leader
Community representative
Community sensitizer
Health worker
Retiree
No income source
Fortunate recipient
Verify community claims
Raw water supplier
End user
Self reliant
Recycle ground water
Bring policy to grass roots
Commercial entity
Water supplier
Routine monitor of supply
Community officer
Communicator
Community policy advisor
Frustrated by end users
Provide service
Provide poor with safe water source
Drill water points
Rehabilitate and re-equip old points
Focused on cost returns
Transformer of employee attitudes
Improve services
Develop and manage water resources
Install infrastructure
Allocate water rights
Technical support for Water Board
Project implementer
Help communities prioritise needs
Ensure project sustainability
Develop skills in community
Project facilitator
Unsatisfied with service
Water collector
Non bill payer
Prioritise projects and applications
Submit plans for financing
Partner
Beneficiary
Observe and experience changes in supply
Disgruntled community member
Consulted by committee
Headman
Collect revenues
Repair infrastructure
Monitor use of infrastructure
Sample water quality
Provide information on flows

Stakeholder
Share resources among districts
Ensure project implementation
Encourage community projects
Protect traditional water sources
Advise communities on uncontaminated water resources
Distribute chlorine
Government officer
Facilitator of planning process
Set standards for access
Provide technical advice for communities
Expansionist
Burdened with dilapidated infrastructure
Cash strapped
Educate communities
Ensure WASHE concept in projects
Set up committees in communities
Action oriented
Value people
Provide for neighbourhood in dry months
Christian based organisation
Supplement government limited efforts
Ensure domestic quantities are collected
Coordinate programmes
Provide software for projects
Capacity building
Paying client
Helping neighbours
No choice of safe source
Ensure revenue collection
Surface and ground water monitor
Capacity to handle large projects
Bureaucrat
Implement strategic plan
Encourage farmers to use water resources
Ensure stakeholder involvement
Collect revenue
Aid poverty alleviation
Provide African village experience for tourists
Village guide
Influenced by tourist behaviour
Introducing non tolerance
Spare parts supplier

Representation of user
Deprived communities
Lacking resources and facilities
Female
Child
People without access to enough boreholes
Privileged clients
Kiosk client
Enlightened
Subordinate partners
Backyard gardeners
Illegal livestock owners
Aware of health risks
Willing to pay for satisfactory service
Vulnerable
Aged
Orphans
Short term tenants
Retirees
Domestic
Neighbours
Urban residents
Peri-urban residents
High cost residents
Medium cost residents
Low cost residents
Low density residents
High density residents
Commercial farmers
Peasant farmers
Animals
Employees
Non payers
Exploiting political influence
Dependant on government subsidy
Participants
Passive users
Resist paying for services
Consumer
Need educating
Accustomed to subsidised services
Use more than billed amount
Manual labourers
Unemployed
Disadvantaged poor
Fishermen
Livestock owners

Government institutions
Rural residents
Punishable if allowing neighbours free access on fixed supply
Contributors to projects
Involved in various project stages
Not caring for infrastructure
Need educating on technology use
Provide own solutions
Beneficiaries
Downstream
Cooperative members
Institutions
Commercial
Partners
No trust in council
Queue for resources
Receive bad service
Destructive and ignorant
Selfish
Select crops
Settle disputes
Encroach on source
Bridge constructors
Responsive
Believe in free supply
Expensive to cater for
Sense of responsibility
Rarely reap benefits of projects
Expectations not met
Active
Claim not to receive supply
Suffer effects of non funding
Poor people waiting indefinitely for help
Maintain infrastructure
Feel water rates are high
Contribute towards water bill
Immune to impurities
Illegal connectors
Contribute to local traditional authority
Posses varying perceptions of development
Foreign investors
Hunters
Uncontrolled wildlife
Women
Skin diseased
Tourists
Young sport loving tourists
Not accepting of true cost of supply

Scalar
Project
Township
Household
Neighbourhood
District
Household shifting
Community subgroups
Periphery
Town expanding
Operational plant
Farm
Treatment plant
Town
Community
Irrigation scheme
Network distribution
Province
Village
Point users
Urban centre
Sub district
Compound
Health catchment
Section
Coffee estate
Rural area
Rural health centres
Downhill residents
Neglected remote rural areas
Zone
Area
Peri-urban areas
Scheme
Tourist centre
Catchment

Representation of water
Safe domestic supply
Basic needs
Sustainable livelihoods
Protected sources
Consumer good
Resource needing protection
Must be affordable
Dry taps

Low pressure
Erratic supply
Chlorinated
Unsure quality
Treated at source
Open access
Reliable source
Occasionally in short supply
Rarely tested
By product from mining
Commodity
Dirty sources
Generates income
Increases productivity
Needs conservation
Low available volumes
Meets calculated requirements
Intersector demand driven
Meets drinking water standards
Low rates of return on investment
High cost in supply
Supply driven
Ensure future supply
Rationed supply
Enough supply
Local sacred sites
Disrupted supply
Commercialisations brings no improvement
Limited intake point
Large quantities available naturally
Requires protected collection points
Limited collection points
Component of ADP
Lack of it hinders development
Threatened source
Bad smell and taste after rains
Integrated with health
It is life
Capital intensive
Linked to sanitation
Supplement using well water
Not treated at source
Not a priority for central government
Cost recovery in urban centres
Quality not bad
Secure source
Bad yields
Easy cost recovery
Component of WASHE
Cleaner from ground sources
Cleaner from natural spring
Poor quality during rainy season
High water table
Saline in some locations
Requires management
Common good
High iron content
Development tool
Controlled
Productivity tool
Drought
Heavy and intensive rains
Sporting sites
Scared areas
High evapotranspiration
Large storage required

Drivers of Change

Environmental policy
Commercialisation
Space at household
Prioritisation of pit latrine
Distance to safe source
Duration of tenancy
Funds
Cost
Funding cycles
Local election of representatives
Life cycle of latrines
Funding opportunities
Hand over from office bearers
Feedback to communities
Water pressure in taps
Council funding sources
Human behaviour
House ownership
Seasons
Supplier behaviour
Household size
Housing classification
Service standards
Pilot project status
Political term of office
Affordability
Palatability of water
Concessions
Topography of area
RDC involvement

Community involvement
MDGs and local targets
Local level support from International organisations
Unbundling of flats
Clients paying for services
Reducing leakages
Reducing vandalism
Organisation of CUs
Management of CUs
Rehabilitating infrastructure
Droughts
Metering supply
CU financial kick start
Crop diversity
Routine maintenance
External market for produce
Improved water management
Inter-group negotiations
Traditional land ownership
Economics
Witchcraft beliefs
Capacity for treatment of water
Increased storage capacity of water
Tariffs
Accountability of tap attendants
Government institutions paying bills
Electricity costs
Removal of subsidies
Partnership with donor agencies
Financially viable schemes
Changing mindset of employees
Tariff increasing after improving services
CU access to financial markets
Handover between MLGH and MEWD
Capacity building in LA and CUs
IWRM
Alternative fuel sources
Land management skills
Effective traditional leaders
Institutions paying bills
Ability to draw water from neighbour
MOU from council
New developments and constructions
Costs of projects
Proximity of alternative source
Council accountability
User behaviour
Water rights
Chief's verification and authorization
Reducing pollution
Power supply
National standards
NWP
Community sensitization
Water act revision
Increased tourism
Donor conditionalities
Different working cultures and approaches
Influence of local politicians
WRAP
Strong institutions
International waters and related agreements
Supply of spare parts
Ease of maintenance
Cholera prone areas
Transit town status
Accountability of decision makers
Limited government resources
Communities monitoring projects
Local inferiority complex
Dependants and transport for water collection
Depth of well
Communication
Timely responses
Release of budgeted funds
Ownership of infrastructure
Soil type
Accessibility to remote areas
Politicized water points
Disaster periods and areas
Availability of ground water
Opening of new mine
Legality of compound
Influence of previous tenant or land owner
Extension of services
Contractors
Corruption
Skilled manpower
Employee behaviour
Increased revenues
Improved billing system
Intermediate technology
Settling bad debts

Overgrazing on dam walls
Moneterized economy

Water Use
Health campaigns
Domestic
Securing community projects
Protest for unsatisfactory service
Applying developed skills
Reaping benefits of personal investment
Neighbourhood harmony
Raising community funds
Abstraction
Discharge bodies
Cleaning
Irrigation
Safety in mining
Flood prevention
Development tool
Election campaigns
Exhibiting political power
Financing community activities
Sustaining operations
Promoting irrigation
Service to clients
Income generation
Ensure sustainability
Improving service delivery
Justifying payment for services
Department projects
Funding channel
Implementing international drives
Interaction between users
Dialogue between users
Drinking
Satisfying community needs
Daily life
Improving lives
Removing deficiencies
Bettering communities
Transferring responsibility to citizens
Free service
Building local capacity
Empowering communities to manage resources
Exploiting agricultural potential
Increasing yield
Improving drainage
Meeting organisational objectives
Growing profitable crops
Misrepresentation of needs
Fishing
Livestock
Sacrificial cooking
Rain making
Resting place for traditional leaders
Meeting targets

Access to decision making power
Prioritise projects
Recognition by donors
Recognition by LA
Elected by community
Committee responsibility
Role at interface
Communal well
Metered
Donor funds
Community mobilisation
Organisational power
Statistics
Reticulation
Neighbour
Water fee payment
Locking mechanism on tap
Township supply
Collecting revenues
Collecting fees
Licence
Mining firm
Political ruling party
Government mandate
Ability to disconnect services
Tokens
Limiting volumes
Knowledge
Experience
Organisational mandate
Data collected
Direct link with councillors
Inventory of water points
Company management
Verification of data
Allocation of funds
Payment for connection
Door to door sensitization
Links with funding organisations

Listing potential beneficiaries
Postgraduate qualifications
Self reliance
Capital
Standardization
Office held
Self belief
Links with grass roots
Providing acceptable standard of service
Monitoring consumption
Diplomacy and negotiations
Full cost recovery
Exposure to other locations with expertise
Water user group
Tourist village
Influential traditional leader
Appointed by chief
Cleansing practices
Guidelines in dam building

Technology
Tankers
Manhole covers
Africare pumps
Lakes
Hand dug wells
Shallow wells
Protected wells
Communal taps
Protected wells
Monopumps
Individual taps
Piping
VIP latrines
Pit latrines
Flushing toilets
Valves
Mains
Mine water works
Boreholes
Booster pumps
Pumps
Water treatment plants
Dam
Meter
Kiosks
Pipe network
Customer database
Transport
Stream
Gate valve
Canal
Engines
Low lift pumps
Screens
Sedimentation tank
Filter
Contact tank
Clear water tank
Chlorinator
Rising mains
Treadle pump
Submersive pump
Standpipes
Soak aways
India mark II pump
India mark III pump
Natural spring
River
Weir
Siphon
Scoop holes
Rings
Windlass
Hosepipes
Rig
Furrow
Storage tanks
Parallel pipes
Rapid sand filters
Burnt bricks
Cement
Apron
Bucket
Seasonal stream
Drip irrigation
Centre pivot
Collection chamber
Hydrological gauges
Hand pump
Galvanised pipes
Steel pipes
Water tower
Filters
Reservoir
Elevated tank
Asbestos pipes

Hard plastic pipes
Sprinklers
Hydrant
Points
Raw water harvesting
Conversion system
Multi-purpose points
Mud drilling
Gravel packs
Lagoon
Consolain pump
Blair pump
Jetted wells
Dambo

National level

Representation of self
Coordinator
Facilitator
Director
Advisor
Bridge or link
Technocrat
Install infrastructure
Capacity builder
Trainer
Advocate
Advisor for Ministry
Coordinate donor activity
Filling gaps
Sensitize communities
Demonstrate technology
Monitor water quality
Disinfect water sources
Provide water infrastructure
Encourage community
Exploit economic potential of resources
Advice and assist farmers
Generate electric power
Regulate domestic water
Monitor operations of CUs
Monitor water quality in natural bodies
Test drinking water quality
Set standards for drinking water
Government partner
Implement water sector initiatives
Bring government, private sector and civil sector together
Conduct needs assessment
Encourage council to legalise settlements
Supplement government efforts in service provision and extension
Control water pollution
Allocate licences for effluent discharge into water ways
Educate communities
Christian organisation
Empower people and give them knowledge
Control abstraction and impounding of water
Issue water rights
Government project
Establish a comprehensive legal and institutional framework for use, management and development of water resources
Champion IWRM campaign

Representation of user
Small scale farmers
Dependants
Lacking qualified manpower
Lacking resources
Donor dependant
Irrigation farmers
Domestic users
Consumers
Beneficiaries
Stakeholders
Poor
Contributors to project
Propose projects
Rural residents
Peri-urban residents
Participants
Suffers of pollicised environments
Non payers
Subjects to be taught and educated
Specific responsibility as users
Maintain infrastructure
Aim to please donor
Influential community members
Legal settlement residents
Discharge effluent into water ways
Relocated residents

Willing to do something about their situation
Primary users
Secondary users
Tertiary users
Partners
Commercial utilities
Water suppliers

Scalar
User group
Project
National
Provincial
Community
Multi scalar
Periphery
Central government
Village
Discourse
Settlement
Water ways
Zone
Catchment
River basin
Drinking water supply sub sector

Representation of water
Production tool
Need
Public good
Commodity
Demand driven
Safe sources
Component f community projects
Integrated with health or education
Livelihoods
Daily living necessity
Service
Quality requires monitoring
Need to ensure sustainability
Economic development tool
Needs conservation
Unsure of exact quantity and quality

Drivers of change
User behaviour
Available resources
Expansion of irrigation
Political will
Availability of funds
Classification of resources
Project proposals
Potential benefit from projects
Education
Demonstration
Prioritisation of projects
Funding structure
Project guidelines
Counterpart funding
Political systems
Subsidisation
Seasons
Disease outbreaks
Local water quality
Needs assessment
Community initiative
MDGs
Human capacity
Commercialisation
Variation of tariffs
Sustainability
Community ownership
Conversion from service focus to cost recovery
Revival of Water Resources Master plan
Financial stability of CUs
Institutionalisation of drives
Determination from national leadership
Engagement of various actors
Charges for water
Distance to safe water sources
Amended water act
Legalising settlements
Beneficiaries managing resources
Community incentives
Donor conditionalities

Water use
Providing livelihoods
Subject matter
Tool for testing approaches
Technical expertise
Improving standards of living
Poverty alleviation
Capacity building

Spreading best practice
Dialogue tool
Policy direction
Political power and control
Community harmony
Protest tool
Financing party activities
Preventing diseases
Force initiative
Fulfil responsibility
Implement policy
Advocacy
Public relations
Meeting community needs
Fulfilling organisational role
Service provision

Access to decision making
Information
Directives
Planning
Qualifications
Prior research or study
Government partnership
Technical cooperation
Finance
Data
Negotiation with line Ministries
Expertise in capacity building
Donor preference
Advocate of state centrality

Predetermined criteria
HIPC funds
Ministry responsibility
Policy
Needs assessment
Sourcing funds
Parliamentary act
Statutory law
Supporting NWP
Participatory appraisal
Training

Technology
Dams
Pipes
Drip irrigation
Pumps
Canals
Meters
Water points
Treatment plants
Boreholes
Windmills
Tanks
Solar pumps
Submerssive pumps
Taps
Pit latrines
Chlorine
Stands

Section 2

Composite Concepts for Site Level Social Worlds

Representation of self
Technocrat
Community worker
Expert
Bureaucrat
Resourceful
Broker
Implementer
Facilitator
Supplier
Manager
Employment
Recipient
Commercial
Client
Leader

Representation of user
Gender
Poverty
Social status
Legality of location or use
Density of residence
Commercial activity
Dependency levels
Payment methods and patterns

Institutional classification
Capacity possessed
Physical location
Organisational structure
Membership or affiliations
Activity or use
Expectations
Beliefs
Tenancy
Influence
Consumption levels
Benefits accrued
Cost of service
Health

Scalar
Physical boundaries
Interface
No boundaries
Abstract boundaries
Discourse boundaries
Mandate boundaries

Representation of water
Supply quantity
Supply quality
Volumes required
Use
Value
Availability
Treatment
Standards
Integrated
Seasons
Source
Control
Accessibility
Reliability
Scientific process

Drivers of Change
Policy
Discourse
Negotiations
Availability of funds
Technology
Skills
Participation
Ownership
Local politics and elections
Topography
Organisational structure
Attitudes of users
Attitudes within organisation
Seasons
Commercial model
Access to markets
Maintenance
Beliefs and customs
Expectations
Standards
Institutional
Accountability
Awareness
Availability of water resources
Economic activity
Legal
Tenancy (house and land)
Supply
Household (size and location)
Leadership
Productivity
Costs
Donor conditions and behaviour
Alternative sources
Power supply
Harmonising approaches
Diseases and health
Transport

Water Use
Health
Domestic
Projects
Relationships
Skills
Safety
Income generating
Meeting needs
Livelihoods
Fishing
Customs and traditions
Empowerment
Service
Productivity
Livestock

Protest tool
Influence
Operations
Meeting objectives

Membership
Influence
Payment
Self reliance
Standardization

Access to decision making power

Recognition
Election
Office responsibility
Relationship
Technology
Expertise
Funds (control)
Information held
Tradition and custom
Legal
Appointment

Technology

Natural water bodies
Transport
Industrial and domestic supply
Treatment
Irrigation
Sanitation
Storage
Billing
Monitoring levels and quality

Section 3

Composite Concepts Deconstruction

Representation of Self

Technocrat

Civil servant
Project team
Repairs
Expansion
Machinery
Skills

Developing community skills
Monitor use
Experience
Qualification
Recognition
Benchmark data
Trend analysis

Community worker

Leaders
Representatoives
Sensitizer
Health worker
Policy implementer
Advisor
Service provider
Helper
Encourage
Set up committees
Educate
Coordinate
Build capacity

Bureaucrat

Verify information
Monitor
Community relations
Allocation of rights
Planner
Share resources
Civil servant
Promote concepts

Resourceful

Links
Potential influence
Prioritising
Ceremonial figurehead
Posses information
Past record
Planner

Expert

Well construction experience
Well rehabilitation experience

Action potential
Recognised leader

Broker
Discourse
Assist government
Assist communities
Aid poverty alleviation
Seek funding

Implementer
Propose projects
Hands on involvement
Middlemen
Strategic planners

Supplier
Adequate service
Inadequate service
Helper
Raw source
Treated source
Seasonal
Asset base limitations

Manager
Employee base
Services
Resources

Employment
Income
Level

Status

Recipient
Satisfaction
Fortune
Use
Role in household
Payment
Active
Passive
Choices available

Commercial
Supplier
Client
Discourse endorsed
Asset base (funds)

Leader
Company
Community
Appointed
Hereditary
Elected
Voluntary

Recognition
Self
Discourse
Donor (Financier)
Community (target group)
Government (Facilitator)
Implementer

Representation of user

Gender
Sex
Age
Traditional role
Allocated role
Household role

Poverty
Deprivation
Assets
Resource accessibility
Disadvantaged
Ignored

Attention give
Assistance required

Social status
Previledges
Available infrastructure
Employment
Vulnerability
Housing location

Legality of location or use
Public health
Connections (supplier determined)

Housing (Local authority)

Residence
Urban
Peri-urban
Rural
Cost of housing
Density

Commercial activity
Water use
Classification

Dependency levels
Government subsidy
Service subsidy
Source
Type

Payment methods and patterns
Willingness
Affordability

Institutional classification
Existence
Type

Capacity possessed
Knowledge
Capabilities
Partnership
Education
Technology
Responsibility
Contribution (potential)
Honesty
Finances

Physical location
Neighbourhood
Rural
In relation to natural resources
In relation to other users

Organisational structure
Employment
Skill level

Membership or affiliations
Cooperative
Community
Neighbourhood

Activity or use
Scale of use
Type of use
Participation
Passive
Contribution
Responsibility
Partnership
Project
Livelihood

Expectations
Service
Responsibility
Being met
Development view
Responsibility to meet them

Beliefs
Reputation of supplier
Personal behaviour
Customs
Traditions

Tenancy
Length
Nature

Influence
Political
Community

Consumption levels
Volumes
Supplier estimates
Supplier estimates

Benefits accrued
Target groups
Uneven capture

Cost of service

Health
Diseases
Immunity

Scalar

Physical boundaries
Township
Household
District
Treatment plant
Private land
Province
Zone

No boundaries
Periphery
Tourist area

Abstract boundaries
Village
Urban area
Compound
Scheme

Discourse boundaries
Catchment
Vulnerable
Urban poor
Remote areas

Mandate boundaries
Projects
Organisation

Representation of water

Supply quantity
Pressure
Disruption
Erratic
Rationing
Sufficient
Shortages

Supply quality
Trust
Taste
Comparative
Impurities

Volumes required
Storage

Use
Domestic
Basic needs
Livelihoods
Life
Essence
Development
Productivity
Sport
Tradition/ Custom

Value
Consumer good
Affordability
ROI
Commodity
Supply cost
Sacred
Commercial
Development
Priority
Common good

Availability
Volumes
Natural
Yields
Water table

Treatment
Chlorination
Point
Testing
Scale

Standards
Calculated requirements
Drinking water

Integrated
Demand driven
Health
Area Development Programme
Sanitation

Seasons

After effects of rains – taste and quality
Droughts
Rainfall intensity

Source
Protection
Sustainability
Intake
Potential threats
Long term security
Quality

Control

Drivers of Change
Policy
Environmental
Housing
Project
Health
Donor
Organisation

Discourse
MDGs
IWRM
International agreements

Negotiations
Internalisation
Inter group

Funds
Availability
Costs
Cycles
Opportunities
Sources
Pledges
Limitations
Budget release
Increasing revenues

Technology
Life cycle
Spare parts
Intermediate

Skills
Conservation
Management
Allocation

Accessibility
Access
Collection points

Reliability
Source

Scientific process
Evapotransipiration rates

Land management
Man power

Participation
Involvement
Community

Ownership
Monitoring projects
Infrastructure

Local politics
Elections
Office handover
Length of office
Local influence
Politicized points
Campaigns

Topography
Area

Organisational structure
Supplier
Commercial utility
Ministry roles

Attitudes
Individuals
Values
Willingness to pay
Organisations
Behaviour change
Users

Inferiority
Priorities
Open access
Employees

Seasons
Droughts
Rainfall
Cycle

Commercial model
Commercialisation of sector
Pilot projects
Consumer pays
Cost returns
Financial viability
Efficient billing
Cancelling debts

Markets
Access
Availability
Financial
Products

Maintenance
Leakages
Vandalism
Rehabilitation
Routine
Ease
Type
Responsibility
Timing

Beliefs and customs
Witchcraft

Expectations
Feedback
Service levels
Appropriate tariffs
Responses (timing)

Standards
Services
Regulator
Expectations

Institutional
Organisational management
Resource management
Capacity building
MOU
Strength
Corruption

Accountability
Revenue collectors
Local council
Decision makers
Targets
Office bearers

Awareness
Sensitization

Availability of water resources
Distance
Permission
Depth of water table
Ground water quality

Economic activity
Concessions
National scale
Local businesses
New developments (construction)
Tourism
Mining
Services
Monetorization

Legal
Acts
Compounds
Contractors

Tenancy (house and land)
Duration
Ownership
Traditional land
Influence of tenant

Supply
Pressure
Palatability
Metering
Treatment capacity

Household (size and location)
Size
Dependats
Internal hierarchy
Affordability
Income sources
Priorities

Leadership
Elected
Hereditary
Voluntary
Appointed

Productivity
Crop diversity
Soil type
Inputs
Land management
Power supply

Costs
Electricity
Subsidies
Projects

Donor conditions and behaviour
Partnerships
Conditions
Approaches
Models

Alternative sources
Fuel
Water
Payment

Power supply

Harmonising approaches
Development
Implementation

Diseases and health
Natural disasters
Endemic
Prone

Transport
Remote areas
Routes
Transit towns

Water Use

Health
Campaigns
Neighbourhood
Public

Domestic
Chores
Drinking

Projects
Sustainability
Department responsibility
Community implementation
Localisation

Relationships
Harmony
Dialogue
User

Skills
Developed
Application
Practice
Use

Safety
Mining
Flood

Income
Community
Generation
Justification
Channels

Meeting needs
Community
Individual
Daily
Deficiencies
Representation

Livelihoods
Improvement

Fishing

Customs and traditions
Sacrifice
Rain making
Resting place

Empowerment
Responsibility
Capacity
Community

Service
Clients
Delivery
Costs
Charges

Productivity
Irrigation
Development
Promotion
Potential
Yields

Livestock

Protest tool
Unsatisfactory service

Influence
Personal investment
Campaigns
Exhibition

Operations
Abstraction
Discharge
Sustainability

Meeting objectives
Organisational
Mandates
Targets

Access to decision making power

Recognition
Donors
Local authority
Organisation
Community

Election
Community

Office responsibility
Committee
Revenue collection
Organisation
Company
Mandate

Relationship

Technology
Reticulation
Locks
Disconnection of service

Expertise
Practical
Knowledge
Experience
Inferred
Exposure
Qualification

Funds (control)
Donors
Allocation
Capital

Information held
Relationship building
Statistics
Access
Data
Inventories
Links

Tradition and custom
Leader influence

Cleansing

Legal
Licence
Acts
Companies

Appointment
Traditional
Political
Government

Membership
Community
Township
User group
Voluntary
Hereditary
Boundaries
Participation
Payment
Acceptance

Influence
Mobilisation
Political
Local authority
Sensitization

Payment
Fees
Collection
Tokens
Connection

Self reliance
Belief
Capability
Resources

Standardization
Guidelines
National

Technology

Natural water bodies
Lakes
Streams
Springs
Rivers
Seasonal streams
Lagoons
Dambos

Transport
Vehicles
Pumps

Industrial and domestic supply
Pumps
Wells
Taps
Pipes
Boreholes
Meters
Valves
Distribution
Collection
Control
Monitoring
Protection

Treatment
Plants
Pumps
Screens
Filters
Tanks
Mains
Chambers
Towers

Irrigation
Canals
Pumps
Weirs
Siphons
Furrows
Buckets
Drip
Pivot
Sprinklers

Sanitation
Manhole covers
Latrines
Soak aways
Toilets

Storage
Dam
Tanks
Reservoir

Billing
Database

Monitoring levels and quality
Gauge

Social World Mapping Steps

The following sections detail the steps of analysis to create social world maps. They document the sources of raw materials and their methods of collections. They elaborate on the analysis steps and thought processes. They conclude with thoughts on visual versions of the maps and the multi scalar approach followed in this research.

Social worlds/ arena maps lay out the collective actors and their arenas of commitment framing meso-level interpretations of the situation. They offer meso-level interpretations of the situation, engaging collective action and its social organisation and institutional and discursive dimensions[1]. The interpretations may be personal to individual actors but influenced by the situation and negotiations they are involved in. The actors situate themselves in the arenas through their interpretations. The resultant maps are based on an identified arena, which may emerge from the raw results or be pre selected for the analysis. Allowing the arenas to emerge from the data presents some challenges in dealing with the separate stages of results. A messy step of the mapping process may result from the initial analysis, requiring the use of composite concepts for manageable further analysis and potential visual representation. This critical point of analysis is influenced by the interpretations of the researcher.

In this research the social world maps are based on the raw results collected during field visits. The social world mapping process can have a bottom up, top down or mixed approach. In the Zambian case study the selected approach started with the analysis of interview material from the sites visited.

Raw material

All the semi-structured interviews were accompanied by notes and recorded in some cases[2]. The notes included key phrases and words used by the interviewee. They provided a guideline for the transcribing processes. All interviews were conducted by the researcher, expediting the transcribing process from the notes[3]. The interviews were mostly transcribed on the day of the interview while the event and information

[1] Clarke, A. E. 2003. Situational Analyses: Grounded theory Mapping after the Postmodern Turn. Symbolic Interaction, Volume 26, Number 4, pp 553-576
[2] Recording all the interviews would be ideal and attempts should be made to ensure this is done where possible. Alternatively thorough note taking and clarification would suffice.
[3] If the interviewer and the transcribers are separate individuals the interviews would need to be recorded.

was still fresh in the researcher's mind. The semi-structured interviews allowed flexibility to seek clarification on particular issues raised and to follow the thought process of the interviewee. The interviewees were voluntary participants in the research representing themselves as individual water users or organisations in the Zambian water sector[4].

The interview transcripts were analysed in several stages both individually and in a team[5]. In the initial stage the researcher read through the transcript to recall the interview contents[6]. The second read over registered the sayables and thinkables in the situation[7]. The sayables and thinkables revealed the various individual and collective representations of the actors. They contain some of the key phrases and words recorded in the interview notes[8]. The researcher coded the emerging details according to modes of resource appropriation: representation, access modalities, use and allocation. Representation was further sub divided into representation of: self, water user, and water. This breakdown of analysis was initially used in the South African case study[9]. The modes of resource appropriation were broken down according to the questions below:

Representation of self
How does the actor represent himself in relation to water resources?
Representation of water user
How does the actor represent the water users they interact or relate with?
Scale
What scalar level do they think at?
Representation of water
How does the actor represent water resources?
Drivers of change
What factors does the actor perceive as important to cause changes at various scalar levels, whether they react or initiate them?
Water use
How does the actor use water resources to play their role or achieve their purpose?
Access to decision making
What are the key relations that empower the actor in decision making?
Technology
What technology does the actor identify or work with?

[4] Voluntary means they participated willingly even though in some organisations an individual was requested or assigned by the approached authority in the organisation.
[5] A team effort in the initial analysis stages keeps it on track and potentially ensures the it is focused from the start. The team decides on the objectives of the analysis and the questions used to interrogate the data
[6] This research had field work extending over several months. Thus the analysis was conducted several months after some of the interviews were transcribed.
[7] The situation refers to the space in which the actor is operating. It is dependent on the actor and their commitments, perceptions and interpretations. The research team decided to focus on the sayables and thinkables as perspectives of the actors
[8] Verbatim is possible in some cases while in others the researcher interpreted the material from the interview using the points of reference of the interviewee and recurring phrases and concepts throughout the interview.
[9] The research strategy varied slightly for the South African and Zambian case study. In the former the team conducting the interviews used the modes of resource appropriation as guidelines in the interview process. In the Zambian case the interviews were conducted without specific reference to the modes of appropriation.

The questions aid the collection of the same type of information from each interview and the comparison of the Zambian and South African cases using the same base line questions. The analysis at this stage produces a rather messy starting point version for the map. The composite concepts form the 3rd stage of analysis.

Composite concepts

A desired effect of the mapping process is to produce a set of results that can be represented visually. Composite concepts within the modes of appropriation are used to synthesise the emerging interpretations and refine the maps. They emerge from the sayables and thinkables and question the relationship to the modes of appropriation. The analytical step poses a set of questions that are illustrated below.

Representation of self
What reference points do the actors use to define their role?
Representation of water user
What terminology is used to identify the end user of the water resources?
Scale
What boundaries exist on the scale of thought?
Representation of water
What aspect of water resources does the actor identify or deal with?
Drivers of change
What are the issues that drive the changes based on?
Water use
What is the product or end use of the water resources?
Access to decision making
What channels and mechanisms are used to access and establish the decision making power?
Technology
What purpose does the technology used serve?

The composite concepts of the translations of the modes of resource appropriation point to specific arenas[10]. The translations existing within them deserve further analysis by deconstruction, the 4th step of analysis.

Deconstruction of composite concepts

The composite concepts can be deconstructed to reveal a layer of actor interactions and influences. Some of these translations may not have initially been expressed by the actors, which emphasises the value added by the analysis. Deconstruction is another analytical step that is dependent on the researcher's interpretations and understanding. It is done with a purpose in mind. In this research the purpose is to identify the emerging actors and how they shape the situation of analysis.

[10] The translations are individual modes of resource appropriation which can be grouped according to the classifications of: representation, access modalities, transfer of access modalities, allocation and use.

The deconstruction returns to the sayables and thinkables. Each composite concept is interrogated using the sayables and thinkables that it emerged from to produce a set of components. The analysis can be phrased as a question for each composite concept referring to the modes of resource appropriation. The questions are detailed below.

Representation of self
What is the actor's specific role in the arena?
Representation of water user
What are the actor's reference points and terms in this arena?
Scale
What are the actors identified scales in this area?
Representation of water
What aspects are identified or referred to by the actors in this arena?
Drivers of change
What features of the drivers are identified by the actors in this arena?
Water use
What are the actors identified locations and manifestations in this arena?
Access to decision making
What aspects determine the decision making in this arena?
Technology
What types of technology are identified by the actors in this arena?

The actors identified in the situational analysis can be located in the component maps to show their areas of influence and their signification. The level of influence is not necessarily shown in these maps. Further analysis is required to compare the dominant views and perceptions with the grass root maps.

Visualisation

Thoughts on the actual visual maps are still evolving. So far the components of each composite concept can be mapped to show the actor based areas of influence and basis of legitimacy. However, the actors include the targets for the influence, which were not separated during the analysis. This conflict is raised by the researcher's perception of what the map should show. If the objective is obtaining a measure of the influence particular actors have on others in the situation, then the groups should be separated during analysis. If it's to show the dominant perceptions from all grass root actors then separation is not necessary. The site interviewees include representatives of actors at the national level. The representatives consider themselves as part of the grass root actors and distinguish themselves from the national actors mostly based in Lusaka. They also consider themselves to be in a privileged position and possess knowledge from target groups and national actors. With this in mind several ideas emerge.

Option 1a: Using each representation of self that was identified within step 3, we return to the sayables and thinkables and bring out the other modes of resource appropriation. It is important to have the list of which sayables and thinkables constituted the composite concepts within each mode. The results at each stage are based on actors who create an ideal starting point for the map. The identities of the actors are blinded during the analysis i.e. no reference is made to a particular one.

This depiction allows us to extrapolate the potential influence of each composite group of actors. However the foreseeable challenge here is the fact that some actors belong to several composite groups[11].

Option 1b: For each access to decision making power composite concept, we position the actors to reveal the type of influence and the actors involved at various scales. Once again we need to return to the sayables to extract the thought of scale for each actor.

Option 1c and 1d: Repeat process of analysis using the representation of the user and representation of water composite concepts. Scale is unlikely to be important in option 1c but is useful in option 1d.

All options are two dimensional maps representing the interpreted influence and its potential scale of impact. The multi dimensional map can probably be created using the two dimensional maps and holding the scale constant. A process of elimination can be used to determine which maps add value.

Option 2: Using each composite concept in the modes of appropriation, place the identified actors in each component. Some components reveal the actors which should make the process easier. This option removes the concerns on actor locations and prevents generalisation to include all possibilities. However, each composite concept produces a separate level of information. Composite concept maps may be created using these layers.

Multi scalar approach

The steps of analysis were repeated for the national level. The actors were identified and interview raw results analysed. The analysis produced a separate set of composite concepts that can be interrogated using the site level analysis and international discourse. The international discourse provides a separate scale of analysis that primarily uses secondary sources. The levels included so far illustrate the multi scalar level of analysis followed throughout the project. The interrogation of the various maps allows us to illustrate some of the impact of official discourse at the grass roots and contrasts that may be occurring between the various levels.

[11] An organisation like an NGO is made up of separate teams including projects, finance, communications etc. The project teams can also be subdivided into various sections such as water and sanitation. Some teams can be classified as bureaucrats, others as community workers and others as technocrats.

Social World Terms

The following sections define the terms used in the different stages of the social world mapping processes. The results from each stage contain terms that in some cases require further definitions. These sections are arranged according to the steps followed in the mapping process and thus some terms may reappear in a later set of results. The definitions are kept constant unless the context of use changes. The list of terms is according to the results presented in the first three sections of this document.

During the mapping the details emerging from the interview material were coded according to modes of resource appropriation: representation, access modalities, use and allocation. Representation was further sub divided into representation of: self, water user, and water. This breakdown of analysis was initially used in the South African case study. To interrogate the data, each mode of appropriation was phrased as a question thus abstracting the same information from each interview analysed. The questions were as follows:

Representation of self
How does the actor represent himself in relation to water resources?
Representation of water user
How does the actor represent the water users they interact or relate with?
Scale
What scalar level do they think at?
Representation of water
How does the actor represent water resources?
Drivers of change
What factors does the actor perceive as important to cause changes at various scalar levels, whether they react or initiate them?
Water use
How does the actor use water resources to play their role or achieve their purpose?
Access to decision making
What are the key relations that empower the actor in decision making?
Technology
What technology does the actor identify or work with?

The answers for these questions are the sayables and thinkables from the interview transcripts. They form stage one of the analysis and social world mapping. The list contains some terms that require some definitions. The following section provides some brief definitions.

Representation of self
Manager
An actor making reference to controlling resources, people, data etc

Well expert
An actor claiming expertise, from past experience or knowledge, in building and/or rehabilitating protected wells. Protected wells are usually more than 6 meters deep and lined with cement or other casing materials.

Global discourse

An actor making reference to global debates and targets such as MDGs, IWRM, Cost recovery etc

Propose projects

An actor involved in proposing community projects that specifically relate to water supply and sanitation

Seek funding

An actor that submits projects to relevant authorities and organisations to secure funding for them

Link between LA and residents

An actor representing the community and is recognised by the Local Authority. The Local Authority manages a district or a city and is thus responsible for any planning, housing and economic development in the administrative boundary. The boundaries are defined by the Ministry of local government and housing. Zambia is divided into more than 90 districts. The districts vary in size and can be sub divided based on administrative capacity and population demands. Several districts make up a province. The provincial boundaries were mostly drawn up in the colonial era.

Resource poor

An actor that has limited financial resources, skills or capacities and their ability to access water resources or provide services to water users in their jurisdiction is hindered.

Fortunate recipient

An actor receiving water by virtue of their residential location or membership to a particular organisation, such as a village water scheme, benefiting from a community water project

Verify community claims

An actor working for a government department located in the community. They are able to collect data from the community and submit it to the government department. This data is used to verify proposals received from the community. The proposals contain details of community needs and potential beneficiaries of proposed projects.

Self reliant

An actor solely dependent on their own capabilities for ensuring access to water resources

Recycle ground water

An actor identifying the cycle of ground water used in agriculture

Routine monitor of supply

An actor working in a water supply organisation responsible for monitoring quantities treated and supplied to the end users

Community officer

An actor working within the community representing a local authority, government agency or other organisation such as an NGO

Communicator
An actor referring to their role of proposing and relaying ideas from the community and from other organisations working in the community

Community policy advisor
An actor working in the community representing local authority, government agency or other organisation such as an NGO making reference to implementing policies from their respective organisation in the community

Focused on cost returns
An actor working for a water supplier within a framework defined by the commercial model of the utilities and national water policy

Technical support for Water Board
An actor working for the government department that provides support such as assessing water consumption volumes and feasibility of abstracting or impounding water from a particular natural source.

Project facilitator
An actor that provides funding or allocates resources such as human capital or machinery to a project

Partner
An actor identifying other actors they work with in the community or in their specified role in the water sector

Beneficiary
An actor benefiting from a community project or planned development in a town or city

Headman
A hereditary or appointed traditional leader who manages the affairs of a village

Stakeholder
An actor with a perceived influential role in the water sector such as allocating licences, regulation etc

Protect traditional water sources
An actor concerned with maintaining the area surrounding hand dug wells and natural springs that are classified as traditional water resources

Facilitator of planning process
An actor that assists the community with prioritisation of their needs and relays them to the local authorities with the responsibility of town planning

Set standards for access

An actor concerned with meeting national standards for water access. The standards usually refer to the type of infrastructure in residential areas, ideal daily volumes per capita and number of users per water point in rural areas.

Expansionist
An actor concerned with planning of new developments in an urban area and potential client base from the developments.

Burdened with dilapidated infrastructure
An actor operating within a water supply organisation dealing with infrastructure limitations in addressing consumer demands for water

Ensure WASHE concept in projects
An actor working within the local authority or health department concerned with incorporating the Water and sanitation Health hygiene and education (WASHE) concept. WASHE is a campaign adopted in the early 1990s to address the outbreaks of cholera and other water borne diseases in various parts of Zambia. It is also part of an inter sector approach for water.

Set up committees in communities
An actor concerned with community managed of water resources using the model of creating identifiable individuals in a community that are given the responsibility to make decisions regarding the water points and maintenance of infrastructure in their locations.

Supplement government limited efforts
An actor identifying the gaps in meeting needs of citizens and relating them to the limited financial, human and organisational government resources. They feel able to fill some of these gaps

Coordinate programmes
An actor coordinating classified development programmes which include water projects at various scales e.g. community, district, provincial, national

Provide software for projects
An actor concerned with the use and management of infrastructure by the users once it has been installed and handed over to the appropriate authority managing it.

Capacity building
An actor referring to enabling the community to source funds for projects, propose them and meet the criterion for the project funding

Capacity to handle large projects
An actor with the machinery and human resources to install infrastructure for water supply in a community or town

Bureaucrat
An actor identifying himself as part of an organisation and defining their role as part of that specific organisation

Implement strategic plan
An actor with access to the national strategic plans for the water sector and with the responsibility to implement it at them local level. The plans are drawn up by the Ministry of Energy and Water Development, the Ministry of Local Government and Housing and other relevant Ministries and stakeholders.

Ensure stakeholder involvement
An actor identifying themselves as a coordinator of programmes and projects with influence to include other actors and promote dialogue

Collect revenue
An actor collecting revenue from a water point such as a tap attendant, household owner with a communal tap, a water supplier accounts clerk

Aid poverty alleviation
An actor referring to the role of water in poverty alleviation and their role of assisting communities to access clean ad safe water resources for domestic use

Village guide
An actor providing tourists with an insight into African village life by taking them round their village and explaining various aspects of their daily life and culture

Introducing non tolerance
An actor referring to the client paying for water resources and penalty of non payment of fees which is usually disconnection of the service

Spare parts supplier
An actor supplying spare parts for the water supply infrastructure in rural areas

Representation of user
Deprived communities
Communities whose needs are not met by any of the local authorities responsible for them

Lacking resources and facilities
The users that lack financial resources and safe water sources. They also lack proper sanitation facilities

Privileged clients
Users that benefit from treated water supply especially at a subsidised rate or pay less than the full cost of supplying their water for domestic use

Kiosk client
Users that draw water from Kiosks found in some peri-urban areas. The kiosks are a method of supplying limited volumes of water and customers pay on demand.

Enlightened
Users who are aware of the health and other related benefits of treated water or a safe source of domestic water and are willing to contribute to the cost of supply

Vulnerable
Members of a community that require assistance in various forms as they are disproportionately exposed to risk and changes in quality, sources and volumes of water supply

Neighbours
Physical neighbours that usually share a tap with a household they are located within close proximity to.

Peri-urban residents
Residents of areas surrounding urban areas. Peri-urban areas are usually densely populated with semi-permanent infrastructure. The usually depend on services provided in the urban areas that may be extended to them

High cost residents
Residents of highly affluent neighbourhoods, characterised by multiple taps within the household and large yards. The neighbourhoods are low density areas.

Medium cost residents
Residents of medium affluent neighbourhoods, characterised by a few taps within the household and backyards suitable for gardening. The neighbourhoods are average density areas.

Low cost residents
Residents of lowly affluent neighbourhoods, characterised by one tap within the household and a small yards. The neighbourhoods are high density areas.

Low density residents
See high cost residents

High density residents
See low cost residents

Exploiting political influence
Users that influence decisions based on their political office

Consumer
Users that pay for the water supplied to them whether in full or partially

Need educating
Education refers to the need to pay for water, use of technology and infrastructure, managing water resources, maintaining infrastructure

Government institutions
Government departments located in towns and districts. The departments usually have a budget to pay for services but allegedly resist payment until they are threatened with disconnection.

Contributors to projects
Communities that contribute to projects in their locations. The contribution is towards the projects costs and can be in material or labour form. It is a condition for project implementation and viewed as a commitment from the community

Provide own solutions
Project proposals are ideally demand driven with communities proposing their own projects to ensure sustainability and support for them. However the proposals are based on what the mandates of the project implementers and financiers. These groups determine which projects are funded, implemented and methods used.

Beneficiaries
Users that benefit from a community project or planned development in a town or city

Cooperative members
Members of a cooperative or an irrigation scheme. Irrigation schemes are community managed schemes set up to install irrigation infrastructure in a community. The schemes are ideally meant for improving food security at a local level and as channels of income generation

Responsive
Users that participate in community projects to ensure access to water resources

Expensive to cater for
Urban and peri-urban residents that receive piped water supply but pay less than the full cost of supplying their water

Sense of responsibility
Users that are passive recipients and believe water should be supplied to their household and it is their right as citizens. They are only prepared to pay a subsidised cost for the service. Their expectations cannot be met and they complain but take no action.

Active
See responsive

Suffer effects of none funding
Local authorities are unable to meet the demand for water from all their residents due to the lack of funding from central government for budgeted activities.

Maintain infrastructure
Residents that participate in the maintenance of the infrastructure installed during community water projects

Immune to impurities

Residents living in areas with no treated water sources. The residents are accustomed to the water qualities in their locations and suffer no adverse health effects from the water quality

Illegal connectors
Users with illegal connections to the water supply mains. They receive a piped water supply but are not included on the client register of the water supply and thus are not charged for the water they use

Contribute to local traditional authority
Users living in areas with strong traditional leadership. The traditional leaders are the custodians of the natural resources on behalf of their subjects. The subjects pay a fee to use the resources and this fee is partly used as a contribution to the coffers of the traditional authority.

Posses varying perceptions of development
Project implementers and facilitators have varying views of development that they impose on communities who also have their own perceptions. These sometimes non compatible views result in unsustainable projects.

Foreign investors
Investors from outside the particular location including international investors in the Zambian tourism industry

Uncontrolled wildlife
Wildlife found outside the demarcated game parks and nature reserves

Skin diseased
Users suffering from various skin diseases that are traditionally treated using cleansing rituals involving water resources.

Scalar
Project
A community water project in rural or peri-urban areas

Township
A residential section within a district usually referring to an urban or peri-urban area

Household
A confined residential location determined by the boundaries of the yard

Neighbourhood
A section of a township defined according to the actors in the situation

District
A level of national planning determined by the Ministry of Local Government and Housing and Ministry of Lands

Household shifting

A scale of thought going beyond the household but not necessarily affecting the neighbourhood or community

Community subgroups
Groups formed within a community of users for a variety of purposes
Periphery
An area including rural and peri-urban areas, anything outside the central urban location

Town expanding
The town represents a core urban section of the district. The boundaries are not clearly defined and are continuously shifting with the new developments I a town

Operational plant
A water treatment or industrial plant

Town
See town expanding

Community
A group of users using a specific water point or water body. Membership to the community is fluid and based on several factors such as individual choices and rules regulating access to a water point

Irrigation scheme
Community managed schemes set up by the Ministry of Agriculture and Cooperatives to install irrigation infrastructure in a community. The schemes are ideally meant for improving food security at a local level and as channels of income generation

Network distribution
Domestic water supply distribution network

Province
Administrative boundary, Zambia is made up of nine provinces

Village
A rural residential area headed by a headman or other traditional leader

Point users
Users of a specific water point

Compound
A residential settlement usually found in the peri-urban areas

Health catchment
An administrative boundary demarcated by the Ministry of Health

Section
A part of a township or settlement. It was used for administrative boundaries in political terms especially during the one party state era.

Downhill residents
Residents located at the bottom of a hill or at a lower level relative to a water treatment and distribution plant or other users

Zone
A part of a township or settlement usually used by NGOs to divide peri-urban areas for administrative purposes

Peri-urban areas
An area surrounding an urban area. They are usually densely populated with semi-permanent infrastructure. The residents usually depend on services provided in the urban areas that may be extended to them

Scheme
A community water project or irrigation project

Tourist centre
A place frequented by tourists or advertised as an area of potential interest for tourists

Catchment
An administrative boundary based on hydro geological information of a water body

Representation of water
Safe domestic supply
An actor referring to the quality of water supply, which is usually based on appearance, smell and taste. The safety aspect relates to any effects the water has on the health of the user.

Basic needs
An actor representing water according to the daily domestic needs and requirements such as washing, drinking and cleaning that they consider to be basic.

Sustainable livelihoods
An actor representing water according to the livelihoods concept that goes beyond basic needs to cover using water in income generating or food sufficiency practices like backyard gardening or small scale home based businesses.

Consumer good
An actor referring to the need to pay for water resources especially if the water supplied is treated.

Dry taps
An actor making reference to the fact that water taps are available in their neighbourhood but no water comes out of the points when opened.

Low pressure
An actor referring to the low water pressure at the taps

Unsure quality

An actor using a water source where they are unsure of the quality of water collected at the point. The point can be a tap, well or natural water body

Open access
An actor referring to a natural water body that is openly accessible to users in the vicinity

Rarely tested
A user referring to the quality of water received at a source which they believe is not tested by any authority

Commodity
An actor referring to the prices paid for water which they perceive to be rather low

Meets calculated requirements
An actor representing water using national standards set for drinking quality and daily required volumes

Inter-sector demand driven
An actor representing water as a resource that covers sectors such as education, health, tourism etc and recognises the demand driven approaches

Supply driven
An actor referring to the limitations of supply capacity usually linked to raw water volumes and treatment capacities

Rationed supply
A user referring to the set times during the day when they receive water from the point sources in their location. The time slots are determined by the water supplier

Limited intake point
An actor referring to competing water uses that affect the raw water source in their location

Component of ADP
An actor referring to the Area Development Programme approach adopted by some NGOs to ensure sustainability of their community projects

Threatened source
An actor referring to the perceived threats on water sources in their location attributed to competing water users

Capital intensive
An actor referring to water treatment and distribution systems for reticulation that are required in urban areas and their associated costs

Bad yields

An actor describing water according to the potential yields from ground water points such as wells and boreholes in their location

Component of WASHE
An actor referring to the Water and Sanitation Health hygiene Education concept used in community projects in Zambia. The concept promotes an inter-sector approach and was significantly promoted during the early 1990s after several outbreaks of cholera in Zambia. The outbreaks resulted in numerous fatalities in of over 500 some locations

Development tool
An actor referring g to the need for water resources to run and maintain schools, hospitals and the professionals to work in them. Having schools and hospitals is perceived as development in rural areas without these facilities

Controlled
An actor referring to their ability to control water resources through techniques such as artificial drainage and redirecting flows

Productivity tool
A user referring to the use of water in productive activities such as farming and fishing

Scared areas
An actor referring to the sites used in traditional ceremonies and practices including sites where past traditional leaders are believed to find their final resting place

Drivers of Change
Commercialisation
Creation of commercial utilities to supply water in urban and peri-urban areas and introduction of the commercial model in water supply in Zambian

Funding opportunities
Funding for community projects and extension of services to new developments and locations with no piped water supply in urban and some peri-urban areas

Hand over from office bearers
Community leadership office such as the RDC

Feedback to communities
Feedback after research activities are completed in a community or area

Council funding sources
Local councils in Zambia owned houses in urban areas until the late 1990s when houses were sold to sitting tenants. The sale meant a loss of revenue for the councils. Some resorted to using revenues from water, the only sure source of monthly income.

Supplier behaviour
Water suppliers meeting the expectations of their clients by providing an acceptable standard of service which most clients would be willing to pay for

Housing classification
Abandoning the classification of housing as high cost, low cost and medium cost especially that most housing developments are now privately built. The housing classification was based on the design of the house, size of the yard and the number of water taps include in the design.

Service standards
Improving the standards of water supply

Pilot project status
Pilot project such as Chipata Water and Sewerage receive extra funding and technical assistance that is not rolled out when other commercial utilities are created

Affordability
Of water supply especially in urban and peri-urban areas

RDC involvement
Resident Development Committees (RDCs) are community leaders elected by the community members. Their involvement in projects and decision making usually legitimises a community project

Community involvement
Communities' being involved in projects in their area has the potential of leading to sustainability

Unbundling of flats
Blocks of flats were supplied as one client and each flat charged a fixed monthly sum. The pattern of payments is similar to communal taps and free riders emerged. The supply could not be disconnected because some flats paid their bills. Unbundling involves ensuring separate connections for each flat

CU financial kick start
The financial kick start was pledged by the government to help CUs with their start ups especially reducing the work force and some rehabilitation of infrastructure

Economics
The economic situation of the country, if there are more resources and more affluent residents the commercial utilities would be able to provide a better service and smaller councils can be subsidised using public funds

Financially viable schemes
Community water schemes that are financially viable would attract investment from other sector improving water supply to more communities

CU access to financial markets
Access to financial markets is hindered by the ownership structure of the CUs. They are solely owned by Local Authorities. The finances would be invested in service improvements which is likely to be followed by tariff increases

Handover between MLGH and MEWD
The Ministry of Local Government and Housing (MLGH) is responsible for domestic water supply while the Ministry of Energy and Water Development (MEWD) is responsible for water resources management and development. Prior to the water sector reforms, MEWD was responsible for domestic water supply particularly in rural areas. Other overlaps existed. The handover of all domestic water supply responsibility has not been smooth

Capacity building in LA and CUs
Capacity refers to skills development for employees particularly in management as well as financial resources to perform their roles

Land management skills
Local residents with land management skills such as preventing soil erosion, preventing deforestation etc would appreciate the integrated water resource management approach

Ability to draw water from neighbour
Households with no tap or whose water supply has been disconnected are able to draw water from their neighbour, sometimes free of charge if the neighbour pays a fixed amount or at a reduced charge

MOU from council
The Memorandum of understanding provided by the council regards creation of a commercial utility from a council managed water supply department

Chief's verification and authorization
A chief authorizes plans submitted by headmen in villages within his jurisdiction. Usually the process takes several months, delaying action by the community

National standards
National standards for drinking water quality and daily volumes for various locations and residential settings

Different working cultures and approaches
Approaches and cultures of project teams coming from donor agencies and NGOs

NWP
The National Water Policy, the strategic planning document for the Zambia water sector

WRAP
The Water Resources Action Programme based on the NWP focusing on creating and institutional and legal framework for the Zambian water sector

Local inferiority complex
Some residents are dependent on external intervention because they undermine their own ability to influence decision making in their locations

Dependants and transport for water collection

Members of the extended family living at a household are usually part of the domestic labour force that collects water for domestic use, the more they are the more water that can be collected at any particular time

Soil type
Type of soil affects the agricultural productivity

Opening of new mine
A new mine brings migrant workers and a potential increase in incomes in a location. It also implies more clients for a water company

Legality of compound
Illegal compounds and settlements do not receive services from local authority as a way of discouraging the practice and adhering to town planning procedures

Contractors
Contractors are sometimes not monitored by any authority in the locations where they work. If their work is below standard no retribution is expected

Corruption
Misuse of public funds intended for community projects by a various authorities

Intermediate technology
Technology used in small scale farming such as diesel and treadle pumps that are used in irrigation

Settling bad debts
Debts are accrued by previous tenants of a household

Water Use
Reaping benefits of personal investment
Participating in a community water project entitles the participant to use the water. The participation is a personal investment. Paying for a water connection is also a personal investment

Neighbourhood harmony
Allowing neighbours to access water from a household tap aids harmony just like household representatives participating in a community water project

Discharge bodies
Industries use water bodies to discharge the effluents from their operations. Licences for discharge are issued by the Environmental Council of Zambia

Election campaigns
Politicians use water as a basis of political campaigns in some locations especially peri-urban and rural areas

Exhibiting political power

Political party chairmen in some locations control access to water points and allocate plots of land

Financing community activities
Revenues from water points are used in community funds supporting activities proposed by members

Sustaining operations
Industrial firms require water for their operations

Service to clients
Water suppliers provide water as a service to their clients who then pay for it

Department projects
Most organisations have a water department that coordinates and water related activities

Funding channel
Community projects in some cases extend beyond community water supply to cover health facilities, educational facilities or waste management

Implementing international drives
Meeting MDGs is localised in term s of increasing water points or safe domestic water sources

Dialogue between users
Members of irrigation or community schemes interact and groups such as vegetable grower associations can be created within water user associations

Satisfying community needs
Communities prioritise their needs and submit proposals of community projects to NGOs or Local Authorities. These groups seek funds to satisfy the community needs through project implementation

Removing deficiencies
Deficiencies in water supply particularly in rural areas where more than the NGO prescribed 250 people are serviced by one well

Transferring responsibility to citizens
Convincing residents to pay for water is viewed as a step in behavioural change and may lead to them paying for other services

Building local capacity
Developing skills such a s maintenance of infrastructure and project proposal writing in communities

Misrepresentation of needs

Communities tend to propose projects that fit in with the mandate of the potential project financier as opposed to their ideal prioritised needs

Meeting targets
Internal targets for organisations and project teams are met through water supply projects

Access to decision making power
Role at interface
Interface between target groups and project teams

Metered
A client with a metered supply pays for water according to their consumption

Organisational power
Managers in recognised organisations

Statistics
Statistics of water access, social groupings etc are used as indicators and bases for decision making

Neighbour
Friendly neighbourly relations ensure access to a neighbours tap if the need arise

Locking mechanism on tap
Tap attendants hold the key for locks on communal taps to prevent unauthorized use of the tap

Township supply
A township is a particular residential; area in a district. Most townships have a uniform water supply system particularly if all the housing units were built at the same time

Tokens
Tokens are used as a monetary term at water Kiosk in peri-urban areas. Each token entitles the bearer to a specific volume of water determined by the water supplier

Verification of data
Field officers verify data supplied by community based organisations in their project proposals. Project funding agencies base their decisions of the verification

Allocation of funds
Project funds and funds for particular programmes at national and district level

Standardization
A uniform standard of service for residents of a particular residential setting

Links with grass roots
Recognition by communities legitimises the activities of a group targeting the community

Diplomacy and negotiations
Actors referring to their recognised roles as coordinators of dialogue between various interest groups

Water user group
A group of user using a particular water body or water point which usually operates according to regulations determined by the users

Tourist village
A village frequented by tourists and recognised as a tour site for them

Cleansing practices
Traditional rituals performed by authorized members of a tribe or cultural group

Guidelines in dam building
National guidelines on dam building specify the groups authorized to build dams of various sizes. The specification is based on the equipment and the skill base of the groups

Composite concepts

Composite concepts emerge from the list of sayables and thinkables. The list is analysed using a set of questions that relate the sayables and thinkables to the modes of resource appropriation. The composite concepts are a product of the analytical process and thus hinge on the researcher's interpretations and understanding or those of actors participating in the process. The questions asked and the terms used as composite concepts in this research are defined below.

Representation of self
What reference points do the actors use to define their role?
Representation of water user
What terminology is used to identify the end user of the water resources?
Scale
What boundaries exist on the scale of thought?
Representation of water
What aspect of water resources does the actor identify or deal with?
Drivers of change
What are the issues that drive the changes based on?
Water use
What is the product or end use of the water resources?
Access to decision making
What channels and mechanisms are used to access and establish the decision making power?
Technology
What purpose or who does the technology used serve?

Representation of self
Technocrat

Actors defining their role according to the technical skill and expertise they have developed and are able to impart or contribute. Specific reference to technology and need for training local populations to use it distinguished the expertise of this group.

Quote from Technocrat: "When I mention the technical co-operation, I mean technical in the broad sense. At the moment we are sinking boreholes in drought prone areas. We are working in the Southern Western and Central Province. We will also most likely be working in Northern and Luapula Province. In the latter two provinces the plans have reached an advanced stage. We do not play a role in the community management of projects that is usually done by another group. We contract or hire the services."

Community worker
Actors defining their role with reference to community projects, fieldwork and community relations. They differentiated themselves from other actors who do not visit the field frequently or for extended periods of time.

Quote from Community Worker: "In most areas where we work, we find it is crucial to give the community incentives to work even if the projects are for their own benefit. Voluntary participation is getting more difficult to find. As an organisation our policy is to empower people and give them knowledge plus the capacity to sustain themselves. We do not hand out food. Sometimes we do use the gifts that are given by our supporters and well wishers to help us along. Community sensitization is also essential and is more difficult in some places compared to others. The sensitization itself is an educational process and it needs time."

Expert
Actors whose roles are based on their claim of expertise. The expertise is based on recognition by other actors, past experience or skill and knowledge base. The expertise does not always relate to the use of technology it could be rehabilitating hand dug wells and lining them with locally sourced materials.

Quote from Expert: "We mainly work with communities with shallow wells. In some cases the wells are not actually shallow as the depth ranges from 7 to 18 meters. In some cases the wells are 20 meters deep. The wells can be newly constructed by the community with our expertise or some times we rehabilitate old wells. The rehabilitation involves lining with concrete rings or re-deepening. In all cases the community does the work and then they request our help in offering advice or the materials such as cement, pumps etc."

Bureaucrat
Actors identifying themselves as part of an organisation and defining their role as a part of that specific organisation. Some actors were interviewed as apart of an organisation but their points of reference was themselves and not their organisation.

Quote from Bureaucrat: "As a Senior Community Development Officer (SCDO) I am based here at the LCC offices. There are field officers whom I supervise who are based in the field even though at the moment there are only skeleton staffs. All projects from the communities are co-ordinated by the SCDO and so I have regular meetings with the field and projects officers working in the field. The city council

does not have the resources for the different competing community projects and needs. There is a central Zambia Small Investment Fund (ZAMSIF), which provides the main government funds for projects in community development. An appraisal has to be done before the funding can be released."

Resourceful
Actors defining their roles according to the resources available to them such as funding opportunities and channels, information they possess, mechanical tools etc. These actors identified with different groups, such as donors or project financiers, grass root populations etc. Some had a civilising mission which placed them in a position of inferred superiority.

Quote from a Resourceful actor: "Working with communities is difficult as people do not always agree with ideas that we as a council may have. Most of the times there is no agreement upfront. We ask the communities to make a contribution in the form of crushed stones or river sand. In some cases the communities feel this is too much other feel t is too little. As a council we deal with the councillors and the information on any intended activity is disseminated through the council meeting. We involve the community in the site selection for the water point. We give them 3 sites to choose from especially as the water may not be available at some of the sites. Before the contractor goes in a sensitization team I s sent out to clarify information and verify the figures given by the data collectors and the community. This is to ensure the community meets the criteria set by the Rural Water Supply Programme."

Broker
Actors whose roles are based on bridging gaps between target populations for projects and the project teams and financiers. The target population is not always for a project since brokers can also be found in any situation involving the channelling of resources from one group to another.

Quote from a broker: "We encourage a demand driven approach where the community passes on their request to the DWASHE team and we then forward it on to the donors. As a process the community identifies their needs and then approaches us for assistance to fulfil those needs. The goodness of the demand driven approach is it helps in the sustainability of projects. If the community request something then there is a higher chance of them taking ownership and also caring for that thing."

Implementer
Actors who implement community projects or local, regional and national development projects. They differ from the grass root actors in the sense that they make contract with the grass roots but only for specific projects or for specified tasks and objectives within a given time frame.

Quote from an implementer: "The role of the DWA is the provision of water infrastructure. The infrastructure can be wells or boreholes. The maintenance of the infrastructure is the responsibility of the community. The DWA also builds dams but these are also maintained by the community. The water reforms brought in this realignment of the DWA and its responsibilities. The part of more responsibility being

placed into the communities hands is also part of the reforms. The government does not have the resources to keep putting into water projects over and over again. It all just slows down progress."

Facilitator
Actors who fund or source funds for community projects or local, regional and national development projects including international NGOs and donor agencies that process the application and proposals

Quote from a facilitator: "The council has an advisory and facilitator role in water schemes i.e. the council is the custodian of the infrastructure. The community only has symbolic ownership of the scheme. Lusaka water and sewerage provide the technical advisory role."

Supplier
Actors that supply water to clients, community members or neighbours

Manager
Actors that directs the affairs of water resources, people, information etc

Employment
Actors who define their roles according to their employment status and ability to pay for resources

Recipient
Actors that define their roles according to their end use of water

Commercial
Actors whose role definition is based on the commercial model of water resource management and supply

Leader
Actors who define their roles with reference to their subordinates

Quote from a leader: "The roles of the RDC are mainly dealing with development issues in the community. We are also involved in dispute settlement and ensure the payment of water fees by the scheme members. We are also responsible for community sensitization regarding the payment for water and ensuring the sustainability of the water scheme. We are also responsible for the security of the water infrastructure and preventing vandalism."

Representation of user
Gender
The user is identified by their age and sex

Poverty
The user is described according to their level of poverty. Poverty is not absolutely defined by any of the actors.

Social and economic status
The end user is identified according to the affluence of their area of residence, employment status and income levels, privileges enjoyed

Legality of location or use
The end user is described according to legally prescribed residential areas accompanied by water supply and public heath codes within the residences

Density of residence
The users are identified according to areas of residence, standards of water supply in them and associated patterns of payment for services

Commercial activity
The end user is described according to the economic benefit of the water use and associated rates of payment

Dependency levels
The user is defined according to their level of dependence on actors outside their immediate community

Payment methods and patterns
The user is described with reference to their willingness and ability to pay for services
Institutional classification

Capacity possessed
The user is defined according to their capacity as perceived by the actor. The capacity includes: knowledge, education, acquaintance with technology, honesty, financial base etc

Physical location
The end user is defined according to the national planning classification of their location or relative to other users and physical attributes such as hills that offer free gravitational flows.

Organisational structure
The user is described according to their position in an organisation or the level of skill they possess

Membership or affiliations
The end user is defined with reference to the groups they belong to which results in their access to resources

Activity or responsiveness
The user is defined according to their water use activity and level of participation in managing and maintaining water resources

Expectations
The user is described according to their levels of expectation and who is responsible for meeting them

Beliefs
The user is defined according to their personal perceptions, interpretations and traditional beliefs and practices

Tenancy
The user is described according to their tenancy at a household, piece land or ownership of them

Influence
The user is described with reference to the influence they have on a particular group or location

Consumption levels
The user is described with reference to their consumption volumes and related payments

Benefits accrued
The end user is defined according to the benefits perceived by the user and intervention groups

Cost of service
The user is defined in terms of the cost of supplying their water for domestic use

Health
The user is defined in relation to their health status and related water requirements

Scalar
Physical boundaries
Distinct boundaries determined by national planning regulation and land ownership classifications

No boundaries
A scale of thought with non distinguishable boundaries

Abstract boundaries
A scale of thought that is subjective and determined by the actor

Discourse boundaries
A scale confined by local, regional, national and international discourse

Mandate boundaries
A scale of thought confined by the operations of an organisation or entity such as donor agency or government agency

Representation of water
Supply quantity
Actors referring to the quantities of water they receive, supply or deal with

Supply quality
Actors referring to the quality of water they receive, supply or deal with

Use
Actors describing water according to their end use

Value
Actors referring to the value they attach to water and its symbolic nature to them

Availability
Actors describing water according to its availability

Treatment
Actors describing water according to the treatment processes

Standards
Actors describing water according to standards set by regulators, planners, policy makers and project teams

Integrated
Actors describing water as an integral part of a development programme or sector approaches

Seasons
Actors describing water with reference to seasonal effects on quality and quantity

Source
Actors concerned with the sources of water available and related issues of their management and protection

Control
Actors referring to the responsibility for the control of water resources

Accessibility
Actors concerned with the access to water resources and how it is ensured

Reliability
Actors describing water supply in terms of its reliability and long term sources

Scientific process
Actors referring to the scientific processes of the water cycle that impact on their situation

Drivers of Change
Skills
The skills of the practitioners and communities that manage water resources or use them in a productive way such as farmers and fishermen

Participation
Community participation in projects

Ownership
Community members owning projects and monitoring their implementation

Topography
The topography of an area determines the ease of access to ground water and other features such as ease of flow of water

Organisational structure
The commercial model of commercial utilities and management of the organisations

Attitudes of users
Attitudes include water conservation, paying for water supply, maintaining infrastructure, preventing vandalism etc

Attitudes within organisation
Employee attitudes in commercial utilities. The employees are seconded from Local Authorities and are not accustomed to working in purely commercial environments. Their work practices and skills usually fall short of expectations

Seasons
Seasons affect the volumes of water available at a particular time and water requirements for various uses

Commercial model
The commercial model used in urban water supply requires some adjustment to ensure it does not exclude more of the people it is targeted at serving and improving service delivery for

Access to markets
The markets cover farming produce markets and financial markets. Small scale farmers usually point out the lack of markets for their produce. Commercial Utilities usually point to the lack of access to financial markets as one of the reasons hindering their investment capabilities and hence the improvement of services

Maintenance
Maintenance of infrastructure for water treatment and supply particularly in urban locations.

Beliefs and customs
Beliefs in witchcraft and other practices that instil fear in community members and potentially hinder their ability to work together effectively

Expectations
Expectations of the water user particularly those in urban and peri-urban areas that desire a piped water supply but are not willing to pay for it. Expectations of users in rural areas relate to the dependency on outside intervention

Standards

Ensuring standards for domestic water supply and livelihoods are met in most parts of the country and not just focusing on the urban areas where consumers may have the means to pay
I

nstitutional
Drivers relating to the institutions in the Zambian water sector including health institutions, educational institutions, government institutions etc

Accountability
Accountability of the decision makers and actors in positions of power or influence. It also includes actors collecting revenues for water fees and service payments

Awareness
Drivers related to individual awareness of rights and entitlements and awareness by service providers and decision makers of expectations from their target groups

Economic activity
Drivers related to markets and strength of the Zambian economy

Supply
Drivers related to water supply in various locations

Leadership
Drivers related to community and traditional leadership

Productivity
Drivers related to the productive use of water such as farming

Costs
Drivers relating to cost of water supply and water related projects

Donor conditions and behaviour
Drivers relating to donor funding conditionalities and approaches to development

Alternative sources
Alternative sources for water and fuel supply affecting particularly residents of peri-urban and rural areas

Power supply
Electrical power supply required to run water pumps for distribution of water to consumers

Harmonising approaches
Approaches used in project implementation and development programmes

Water Use
Projects
Community water projects and development projects

Relationships
Building relationships between target groups and project teams, water users etc

Skills
Exhibition of skills developed or acquired through training such as water engineering, water management, food production, community development etc
Safety
Ensuring safety in mining operations

Meeting needs
Meeting the needs of a community that they are assisted in prioritising

Livelihoods
Subsistence farming and small scale businesses at the household level

Customs and traditions
Performing traditional ceremonies such as sacrificial cleansing and cooking, rain making

Empowerment
Developing skills in communities through implementation of community water projects

Service
Water supply is considered a service by some suppliers

Productivity
Economically productive activities such as commercial farming, fishing etc

Protest tool
The non payment of water fees is used by some residents to show non satisfaction

Influence
Some actors regulate access to water points and use this to exhibit their powers and influence

Operations
Industrials users use water in their operations

Meeting objectives
Some actors use water resources to meet objectives laid out in their plans such as Area Development Plans that include a water supply component

Access to decision making power
Recognition
Recognition by an appropriate body such as a community, donor agency or government agency places an actor in an advantageous position in decision making

Election
Elected representatives are endorsed by their subordinates giving them authority to make decisions

Office responsibility
Government officers and other officials are authorized to make decisions by virtue of the office they hold

Relationship
Established relationships with strategic actors provides access to decision making

Technology
The ability and knowledge to use technology places the holder of in a decision making position

Expertise
The claim of expertise through education, experience or skills

Funds (control)
The control of finances and or access to finances

Information held
Information such as social statistics and indicators are used in decision making, thus any actor possessing them is influential

Tradition and custom
Traditional leaders are particularly influential in rural areas

Legal
Legal acts and entities authorize specific activities and rights

Appointment
Appointments in office can be traditional rulers, political or organisational

Membership
Membership to a society, scheme, organisation or cooperative is accompanied by particular rights based on the group

Influence
Some actors are influential in their areas of residence based on the perceptions of the other members of their communities e.g. those suspected of witchcraft practicing

Payment
Payment for services entitles an actor to them

Self reliance
Independent actors such as a commercial farmer with an individual borehole is usually able to make decisions without any external considerations

Standardization
The standardisation of services implies all users receive the same standard of service thus those users where deficiencies exist are entitled to improvements