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Demarcation CMA BW Inception Report Workshop| V2

Ministry of Land Management, Water and Sanitation Services (MLWS)
Department of Water and Sanitation (DWS)

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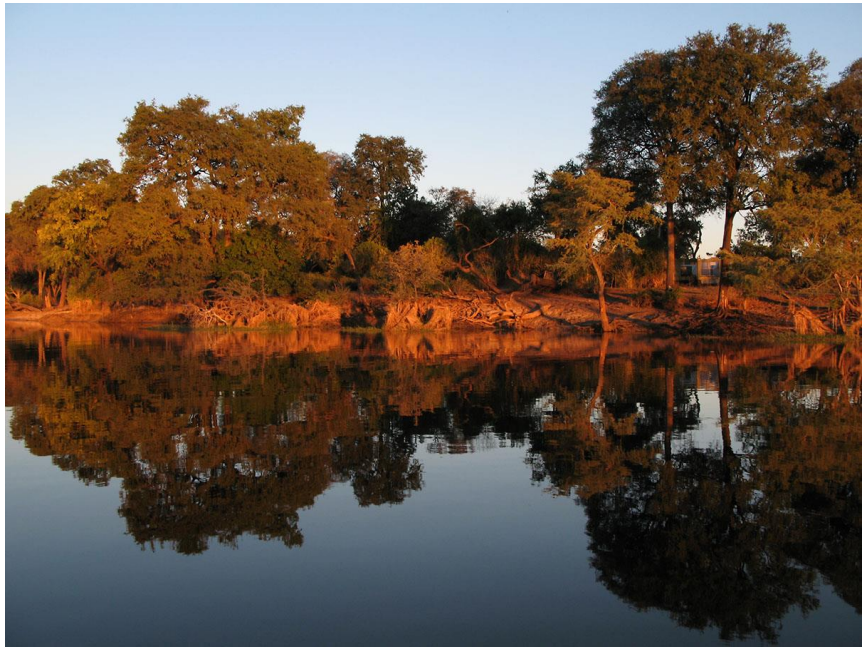
Study on Demarcation of Catchment Management Areas

Inception Report Workshop

Issues on the demarcation of Catchment Management Areas and set up of Catchment Management Committees



Gaborone, November 2019

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1. Objectives and scope of work
2. Information and data needs
3. Stakeholder engagement
4. Demarcation of Catchment Management Areas
5. Set up of Catchment Management Committees
6. Final considerations

1. OBJECTIVES AND SCOPE OF WORK

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GENERAL OBJECTIVES

1. Assess the best approach and feasibility of establishing catchment management areas (**CMAs**) in Botswana.

2. Establishing a legal and administrative framework for Catchment Management Committees (**CMCs**).

3. Develop a road map for catchment management areas and define priorities in basin planning and development strategies.

<u>Physical delineation will be done using mapping tools and consultation of the community and key stakeholders.</u>

SPECIFIC OBJECTIVES

1. Organize a forum to review formulated catchment area management approaches and identify the best option.

2. Review current village management institutions within each catchment and different decentralized institutions. Inform the roles played by these institutions in the forum.

3. Assess the feasibility of catchment management and propose the best way to implement it.

4. Establish a legal and administrative framework for Catchment Management Committees.

5. Develop a road map for establishing Catchment Management Areas.

SCOPE OF WORK

- The study will cover the entire country:
  - 582,000 km^2 of area
  - 16 administrative districts:
    - 10 rural districts
    - 6 urban districts
  - 2 cities districts
  - 4 town districts
- Wide community and stakeholder consultation.

(maps-botswana.com)

SCOPE OF WORK

- Criteria for demarcation of catchment areas:
  1. Alignment with river basins
  2. Relevance for National IWRM
  3. Suitability for water accounting
  4. Ease of governance

- Reference documents:
  - Botswana Integrated Water Resources Management & Water Efficiency (IWRM-WE) Plan (CAR and DWA, 2013)
  - Report “Options for Water Resource Management Areas for water accounting and water resource management in Botswana” (CAR, 2015)
  - Catchment Committees in Botswana - Discussion document to inform stakeholder consultation (SIWI, 2017)

SCOPE OF WORK

- Reference documents
  - Revised SADC Protocol on Shared Watercourses (SADC, 2000)
  - Botswana National Water Policy (Republic of Botswana, 2012)
  - National Water Master Plan Review (Republic of Botswana, 2006)
  - National Master Plan for Wastewater and Sanitation (Republic of Botswana, 2003)
  - Integrated Water Resources Management Plan for the Orange-Senqu River Basin (ORASECOM Council, 2014)
  - Integrated Water Resources Management Strategy and Implementation Plan for the Zambezi River Basin (Zambezi River Authority, 2008)
  - Okavango - Cubango River Basin Botswana National Action Plan 2011-2016 (OKACOM, 2011)
  - Joint Limpopo River Basin Study Scoping Phase (LIMCOM, 2010)

MAIN COMPONENTS

1. Mapping
Physical demarcation of the spatial extent of the catchment area.

2. Consultation
Community consultation on the:
- physical demarcation of the extent of the catchment area;
- the formation of catchment management committees.

3. Legal Issues
Draft legal and governance guiding principles proposal that will:
- control and implement the catchment management strategy;
- set up CMCs as statutory public bodies within the country's legislation.

4. Communication Strategy
Public education and stakeholder outreach on the established Catchment Management Areas;
Road map for establishing Catchment Management Areas.

2. INFORMATION AND DATA NEEDS

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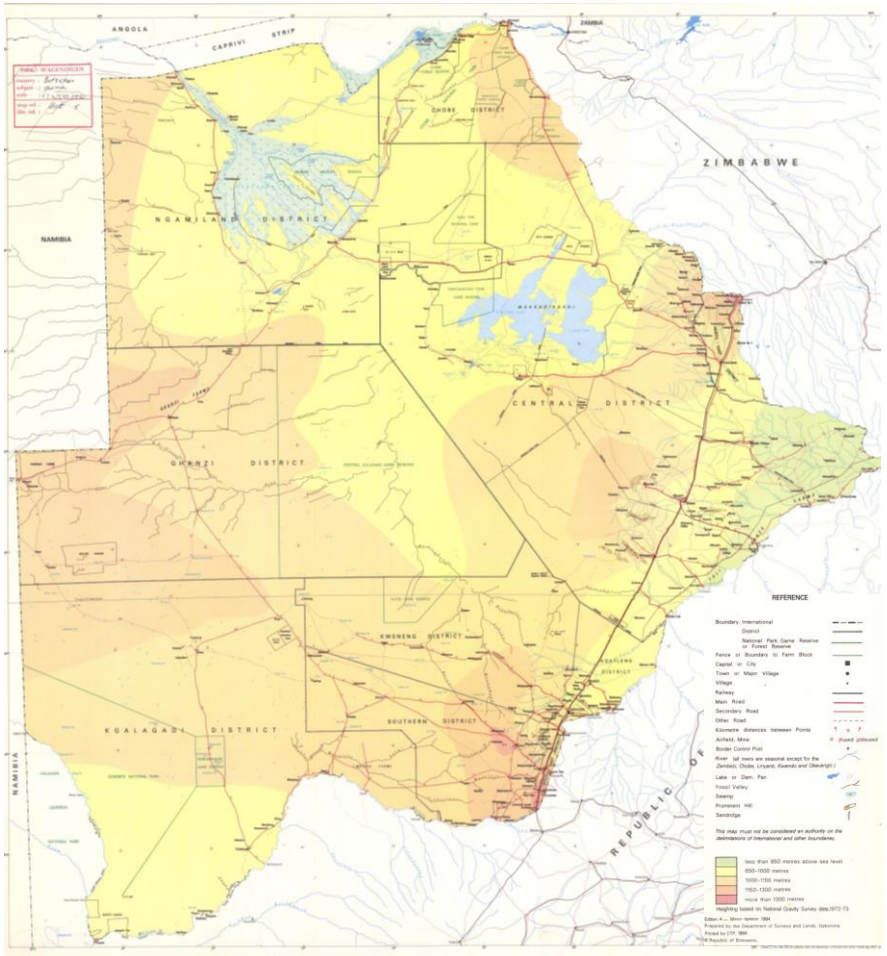
GEOREFERENCED INFORMATION REQUIRED

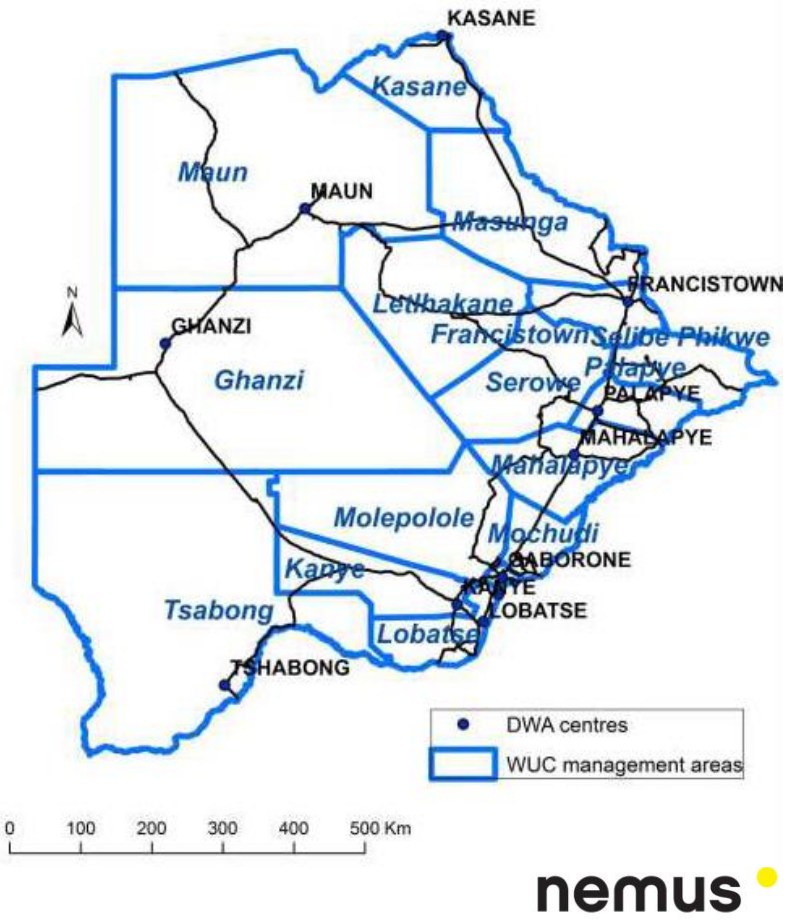
For mapping and creating overlays georeferenced recent data bases of the relevant variables are necessary

Topography, towns, villages, districts, main roads



(Department of Surveys and Lands, 1984)

DWS and WUC management areas



(VanderPost & Arntzen [CAR], 2015)

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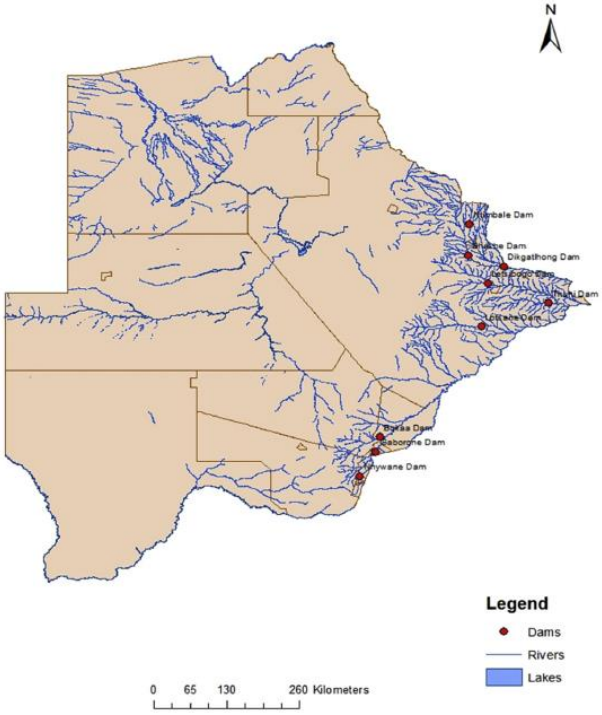
GEOREFERENCED INFORMATION REQUIRED

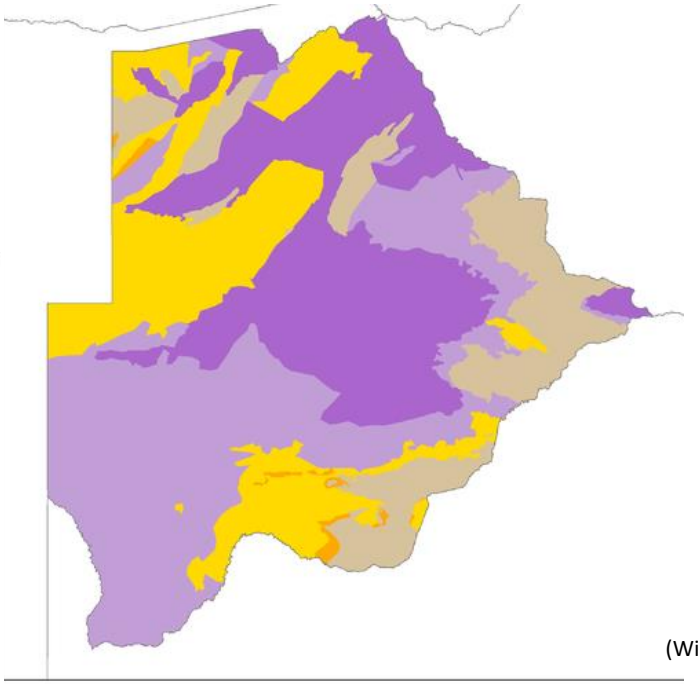
For mapping and creating overlays georeferenced recent data bases of the relevant variables are necessary

drainage networks
(e.g. rivers, laks, dams)



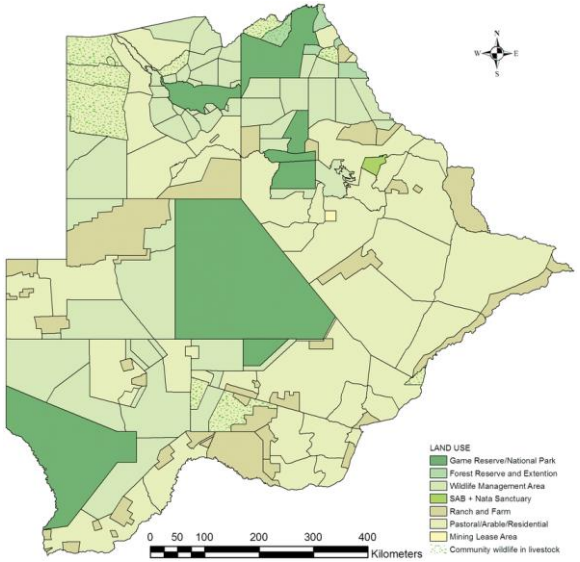
(DWA personnel, in Setlhogile *et al*., 2017)

Aquifers (type, yeld), wellfields, boreholes…



(British Geological Surveys, 2019)

land-use, land-cover, vegetation units, habitats distribution



(Winterbach, H.E.K., Winterbach, C.W. and Somers, M.J., 2014)

INFORMATION NEEDED FOR LEGAL AND ADMINISTRATIVE SET UP

To guide the demarcation of CMA and for establishing the CMCs
it's essential to know the country's legislation, policy, guidelines and other relevant frameworks

Water Sector:

- Revised SADC Protocol on Shared Watercourses;
- Botswana National Water Policy;
- National Water Master Plan Review;
- Transboundary river basins Management Plans;
- WUC systems operating rules, infrastructures and future developments;
- Other related documents;

Land Planning and Resources Management:

- 2002 Revised Rural Development Policy;
- Land-use Plans regarding agriculture;
- Protected Areas Management Plans;
- 2007 Community Based Natural Resource Management Policy;
- Other related document;

Additional National Policy and Management Plans relevant for the study.

RELEVANT STUDIES, REPORTS AND DATA BASES

The delimitation of the catchment management areas spatial extent has to consider the available data on the physical and socioeconomic conditions

- Botswana National Atlas (2001);
- Water quantitative and qualitative monitoring data (water availability, consumption, quality, etc.);
- Groundwater studies (availability, natural potential, recharge areas, yelds, aquifer vulnerability, etc.);
- Wellfields database (location, depth, flow rate, etc.);
- Weather monitoring;
- Climate classification, models and forecasts;
- Water flow simulations;
- EIA reports of relevant dams, mines and others;
- Reports and studies about Botswana wildlife.

3. STAKEHOLDER ENGAGEMENT

STAKEHOLDER/COMMUNITY CONSULTATION

Consultation process to be conducted throughout different work phases

Phase	Type	Target	Number	Main objective
3	Surveys	Key stakeholders/ Institutions	Not limited	• Data collection
3	Meeting/ Interview	Key stakeholders	12 - 15	• Discuss initial processes for catchments demarcation • Review existing village level community structures • Review administrative capacity of the community structures to do catchment area management • Data collection
3	Meeting	Kglota	6	• Discuss initial proposes for catchments demarcation • Review existing village level community structures • Review administrative capacity of the community to do catchment area management
3	Forum	Stakeholders and community	2 - 4	• Discussion of formulated catchment area management approaches
5	National Workshop	Stakeholders	1	• Presentation and validation of the Draft report

KEY STAKEHOLDERS

GOVERNMENT INSTITUTIONS; NATIONAL

Office of the President

National Strategy Office;

Ministry of Finance and Economic Development

Development & Budget Division;
Economic & Finance Policy Division;
Public Private Partnerships Division;
Related Directorates.

Ministry of Land Management, Water & Sanitation Services (MLWS)

Department of Water & Sanitation;
Department of Town & Regional Planning;
Department of Surveys and Mapping.

Ministry of Investment, Trade and Industry (MITI)

House of Chiefs

Ministry of Mineral Resources, Green Technology and Energy Security

Department of Mines;
Department of Energy;
Mineral Affair Divisions;
Botswana Power Corporation.

Ministry of Local Government and Rural Development

Statistics Botswana

Ministry of Environment, Natural Resources Conservation and Tourism

Departments of:
Environmental Affair;
Forestry & Range Resources,
Waste Management &Pollution;
Meteorological Services;
Wildlife and National Parks .

Ministry of Agriculture Development and Food Security

Departments of:
Crop production;
Animal production.

KEY STAKEHOLDERS

GOVERNMENT INSTITUTIONS; REGIONAL/ LOCAL

Other provincial and district administrative authorities				
Kgalagadi Council	North West Council	North East Council	Ghanzi Council	Chobe Council
Kweneng Council	South East Council	Central Council	Southern Council	Kgatleng Council

Local authorities			
District Commissioner	District Councils	City and Town Councils	
		Sowa Town Council	Selibe Phikwe Town Council
		Gaborone City Council	City of Francistown
		Jwaneng Town Council	Lobatse Town council

KEY STAKEHOLDERS

REGULATORS

- Special Economic Zones (SEZ) Authority
- Botswana Energy Regulatory Authority (BERA)

WATER SECTOR

- Water Utilities Corporation (WUC)
- River Basin Organisations
- International Waters Unit
- Transboundary River Basin Management Committees
  - OKACOM
  - LIMCOM
  - ZAMCOM
  - ORASECOM

KEY STAKEHOLDERS

INDUSTRIES

- Botswana Chamber of Mines
- Southern African Power Pool (SAPP)
- Mining Industry Association of Southern Africa (MIASA)
- Mining Operators

ENERGY

- Botswana Power Corporation (BPC)
- Power Africa

LIVESTOCK AND AGRICULTURE

- Botswana Agricultural Union (BAU)
- Smallstock Breeders Association of Botswana (SSBABO)
- Botswana Agricultural Marketing Board
- Representatives from the agro-industry sector
- Southern African Confederation of Agricultural Unions (SACAU)
- Farmers and farmer associations' representatives

KEY STAKEHOLDERS

TRADITIONAL AUTHORITIES AND/OR COMMUNITY REPRESENTATIVES

Traditional authorities and other community representatives

Fishing communities – Okavango Fishermen Association (OFA)

Other entities involved in the governance of natural resources (e.g. CBOs)

BALA – Association of Local Authorities

KEY STAKEHOLDERS

CIVIL SOCIETY IN GENERAL, INCLUDING NON-GOVERNMENTAL ORGANISATIONS, ACADEMIC AND RESEARCH INSTITUTIONS

University of Botswana (UB)
(e.g. Department of Environmental Science, Bachelor in Mining Engineering)

Botswana University of Agriculture and Natural Resources:
Faculty of Agriculture
Faculty of Sciences
Faculty of Agri-Business Education and Extension
Faculty of Natural Resources

Botswana Institute of Development Policy Analysis (BIDPA)

Centre for Scientific Research, Indigenous Knowledge and Innovation (CesrIKi)

Center for Environment, Agricultural Research and Advocacy (CEARA)

Okavango Research Institute (ORI)

Department of Agricultural Research

4. DEMARCATION OF CATCHMENT MANAGEMENT AREAS (CMAs)

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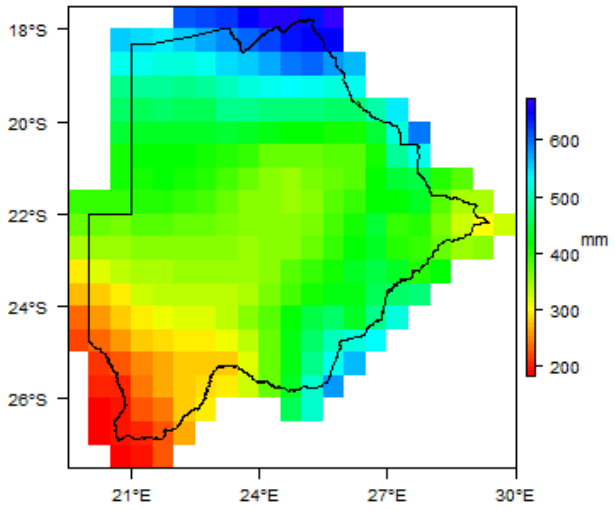
DEMARCATION OF CMAs

- There are no clearly set out river basin boundaries.
- The Makgadikgadi-Nata River basin is sometimes considered part of the Okavango River Basin.
- Central part of Botswana is not part of any river basin, it does not have any actively flowing rivers or tributaries.
- Different spatial extent (for e.g. Okavango river basin vs Linyanti-Chobe river basin).

(Kenabatho & Parida, 2013)

DEMARCATION OF CMAs

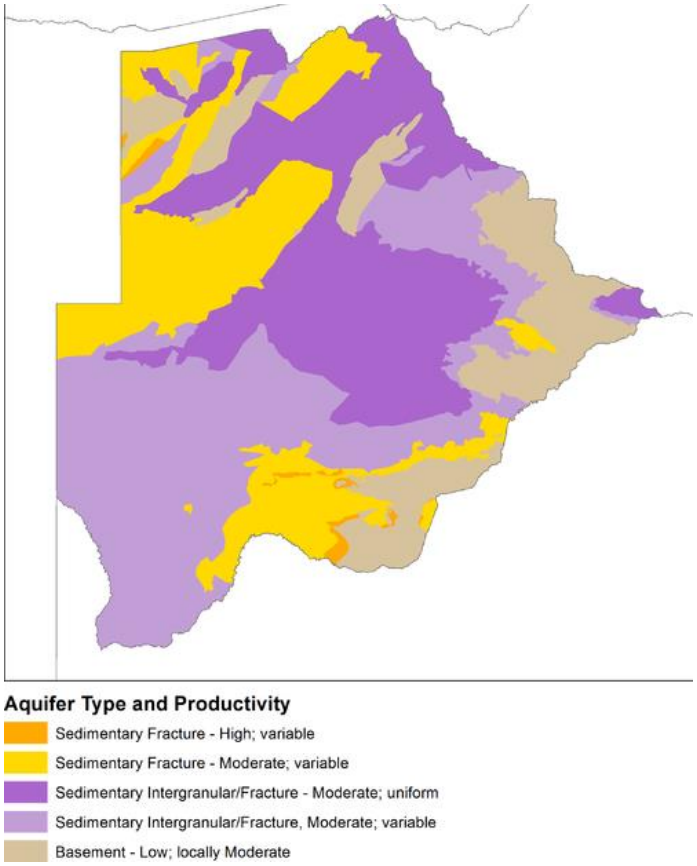
- Uneven distribution of water resources and demand:
  - Most water resources in the river basins on the North;
  - The Molopo/Nossop river experiences negligible flow while Limpopo is semi-perennial;
  - Higher population and economic activities concentration in the Limpopo basin;
- CMAs need to be suitable for water accounting.
- CMAs should be feasible for both local and regional management.
- Insufficient knowledge on the actual potential of groundwater.



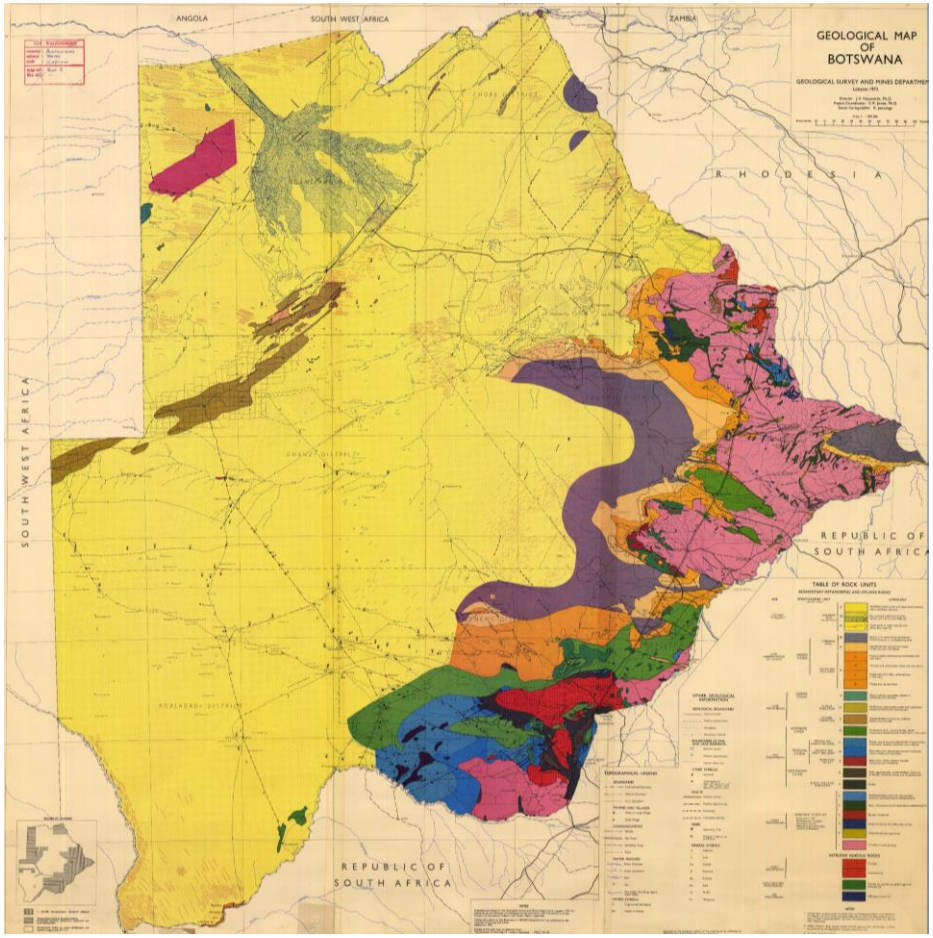
Source: British Geological Survey

DEMARCATION OF CMAs

- Assessment of groundwater resources and integration with surface water



(British Geological Surveys, 2019)



(Jones, C.R., Hepworth, J.V., 1973 [EUSASM Maps])

POSSIBLE OPTIONS (CAR, 2015)

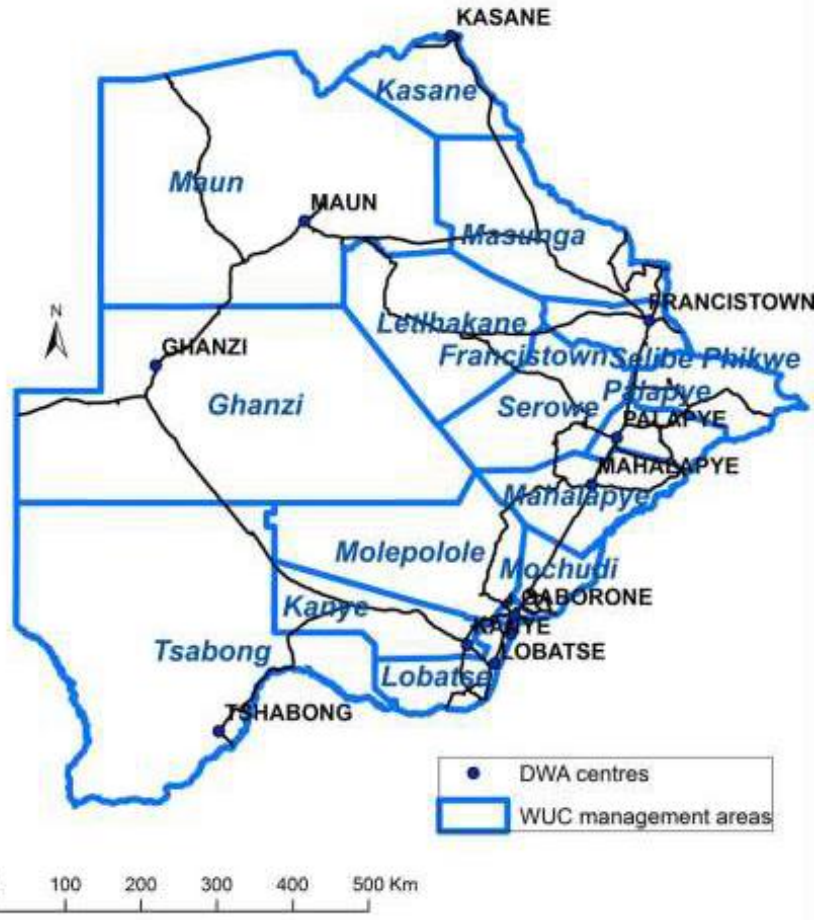
1. Leave DWS and WUC current zones as they are;
2. Merge DWS with WUC zones and align them with administrative districts;
3. Align DWS with river basin regions, but leave WUC zones as they are;
4. Align both DWS and WUC zones with river basin regions;
5. Align river basin regions with administrative regions and align DWS regions;

Source: Nations Online Project

OPTION 1 - CURRENT ZONES

Leave DWS and WUC current zones as they are

- Might work with appropriate coordination
- Difficult for integrated water management
- Few linkages with river basin
- Complicates data analyse

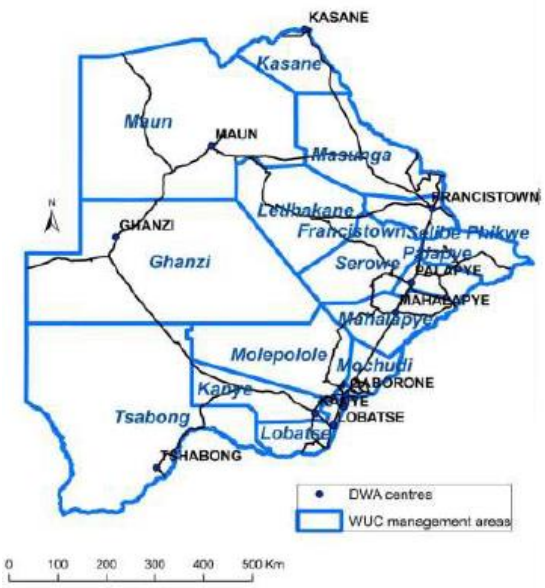


(VanderPost & Arntzen [CAR], 2015)

OPTION 2 – MERGE DWS/WUC/ADMNISTRATIVE REGIONS

Merge DWS with WUC zones and align them with administrative districts

- Facilitates data collection
- Improves cooperation between districts



(VanderPost & Arntzen [CAR], 2015)

(maps-botswana.com)

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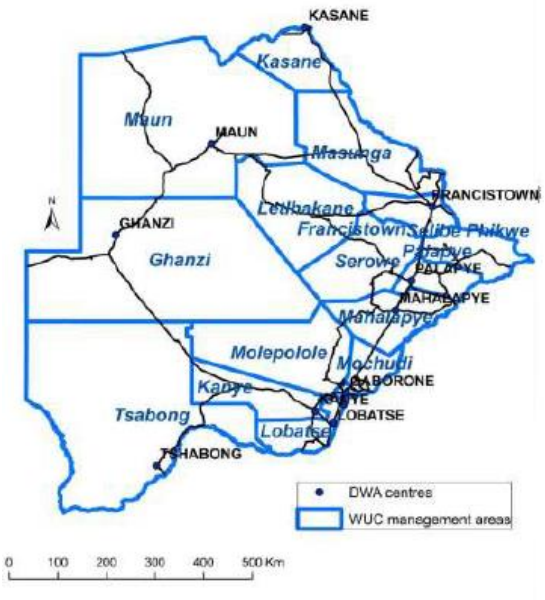
OPTION 3 – MERGE DWS/RIVER BASINS

Align DWS with river basin regions, but leave WUC zones as they are

- Consideration of river basins improves integrated water resources management
- DWS restructuring implies administrative adversities, namely for staff
- Water accounting at WUC level might be compromised
- Groundwater inclusion might be difficult



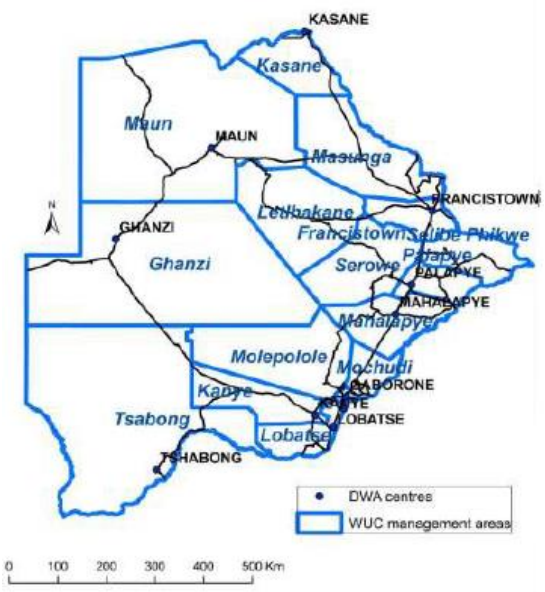
(VanderPost & Arntzen [CAR], 2015)

(Kenabatho & Parida, 2013)

OPTION 4 – MERGE DWS/WUC/RIVER BASINS

Align both DWS and WUC zones with river basin regions

- Consideration of river basins improves integrated water resources management
- Facilitates water accounting for WUC
- Restructuring both DWS and WUC brings additional difficulties, namely for the WUC clients' base management
- Groundwater and aquifers boundaries adds constrains



(VanderPost & Arntzen [CAR], 2015)

(Kenabatho & Parida, 2013)

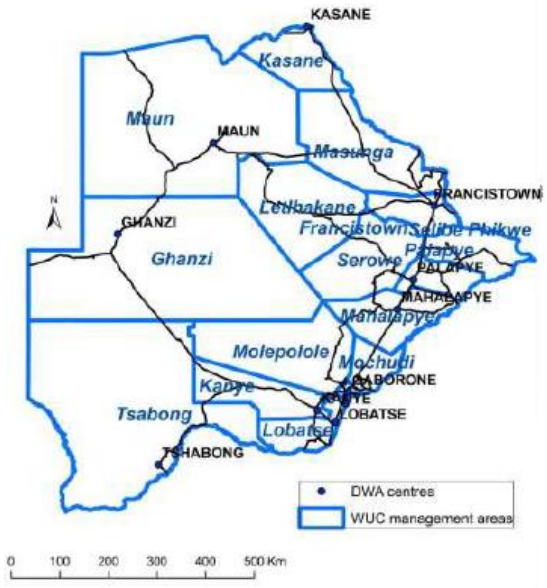
OPTION 5 –
MERGE RIVER BASIN/ADMINISTRATIVE REGIONS/DWS

Align river basin regions with administrative regions and then align DWS regions

- Integrated water resources management is improved by being based on river basins
- Easy participation by administrative districts
- Might result in more CMAs than necessary
- Groundwater inclusion might require complex arrangements

(Kenabatho & Parida, 2013)

(maps-botswana.com)



(VanderPost & Arntzen [CAR], 2015)

5. SET UP OF CATCHMENT MANAGEMENT COMMITTEES (CMCs)

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OBJECTIVE OF CATCHMENT MANAGEMENT COMMITTEES (CMCs)

- CMCs are to be decentralized entities.
- IWRM-WE 2013 Plan states that CMCs should:
  - Be based on existing community-based organizations (CBOs) for natural resources;
  - Where CBOs don't exist, be sub-committees of Village Development Committees;
  - Be responsible for local-level planning;
  - Control and monitor use of water;
- Contribute to a more efficient catchment management.

CMCs ESTABLISHMENT

- Define a legal and administrative framework for CMCs, including the definition of appropriate functions on issues of:
  - basin level planning and development strategies;
  - economic and financial management;
  - water allocation and pricing;
  - pollution, monitoring, data collection and information management;
  - infrastructure management.
- Review of different decentralized water related institutions and village level community structures.
- Set up catchment management committees as statutory public bodies within the country's legislation .

6. FINAL CONSIDERATIONS

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WORK PLAN PHASES

	Phase 1	Phase 2	Phase 3
Objective	Planning and data collection	Mapping	Discussion of catchment areas management approaches
Duration	6 weeks after contract signing	5 weeks	7 months
Milestones	kick-off meeting	(M1) Meeting 1 – upon submission of the Inception Report (2nd month) Client approval of the IR	Meetings/interviews (3th month) (M2) Meeting 2 – presentation of catchment management approaches and website; preparation of the forum (4th month) Forum (5th month)
Deliverables (and delivery dates)	(**D-1**) **Inception Report** (6 weeks) Monthly progress report	(**D-2**) **Overlaying of maps** (month 2) (**D-3**) **Stakeholder survey templates** (month 2) Monthly progress report	(**D-4**) **Consultations report** (month 9) Monthly progress reports

WORK PLAN PHASES

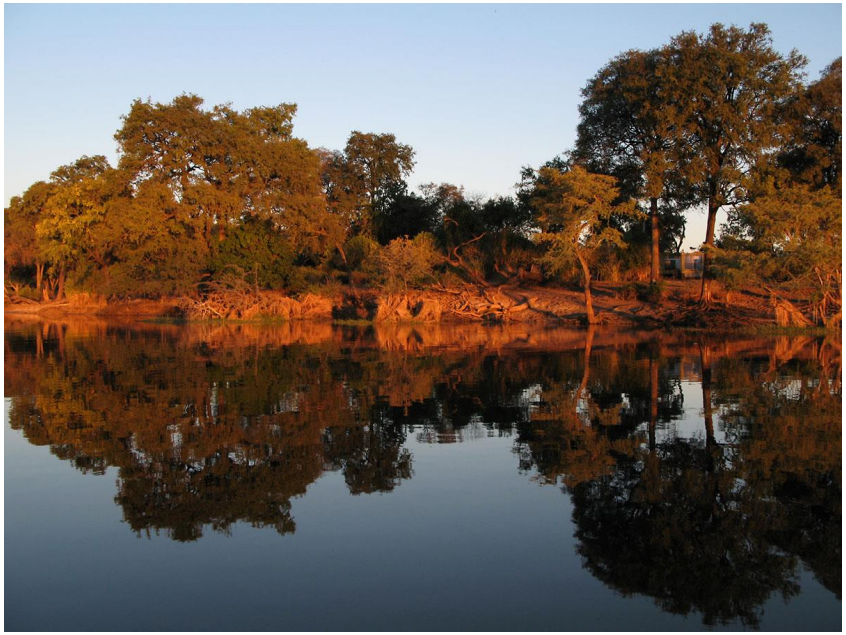
	Phase 4	Phase 5
Objective	Consolidated catchment management strategy	Strategy presentation and validation
Duration	Four (4) months	Three (3) months
Milestones	(M3) Meeting 3 – presentation of: final spatial extent of the catchments; make-up of the catchment management committees; legislative and institutional settings for the catchment management strategy; communication strategy (7^{h} month)	(M4) Meeting 4 – upon submission of the Draft Final Report; preparation of the national workshop (10th month) Workshop for presentation of the Draft Report to selected key stakeholders (10th month) (M5) Meeting 5 – upon submission of the Final Report (12th month)
Deliverables (and delivery dates)	(**D-5**) **Draft Final Report** (month 9) Monthly progress reports	(**D-6**) **Final Report** (month 12) Monthly progress reports

WORK PLAN SCHEDULE

N.º	Deliverables	12 Months
D-1	Deliverable 1: Inception Report	
D-2	Deliverable 2: Mapping	
D-3	Deliverable 3: Stakeholder survey templates	
D-4	Deliverable 4: Consultations report	
D-5	Deliverable 5: Draft final report	
D-6	Deliverable 6: Final report	
MR	Monthly Reports	
	Flyers and memorabilia distribution	
	Capacity building for DWS officers	

CONCLUDING REMARKS

- Data collection requires stakeholders' collaboration, including for giving additional information they might consider relevant.
- Integration of surface water and groundwater resources will be a challenge. A significant amount of data will be necessary.
- Stakeholders active participation is essential for next steps, namely for discussing the demarcation of CMAs and for the set up of CMCs.



Thank you

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ACRONYMS

CBO	Community-Based Organizations
CMA	Catchment Management Area
DWS	Department of Water and Sanitation
IWRM-WE	Integrated Water Resources Management and Water Efficiency
MLWS	Ministry of Land Management, Water and Sanitation Services
WUC	Water Utilities Corporation