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ADVANCING A **NEXUS APPROACH** TO THE SUSTAINABLE MANAGEMENT OF **WATER, SOIL** AND **WASTE**

INTERNATIONAL KICK-OFF WORKSHOP

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DRESDEN, GERMANY

ADVANCING A **NEXUS APPROACH** TO THE SUSTAINABLE MANAGEMENT OF **WATER, SOIL** AND **WASTE**

MINISTRY OF WATER
TANZANIA

WATER POINT MAPPING SYSTEM (WPMS) GOVERNANCE AND SERVICE DELIVERY: The Case of Rural Water Supply in Tanzania.

A Paper presented to International Kick-Off Workshop, Advancing a Nexus Approach to the Sustainable Management of Water, Soil and Waste, 11 – 12 November 2013, Dresden Germany.

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ADVANCING A **NEXUS APPROACH** TO THE SUSTAINABLE MANAGEMENT OF **WATER, SOIL** AND **WASTE**

Rural Water Supply, Tanzania

- The government has been the owner and operator of rural water supply systems for the past many years.
- This led to a lack of commitment by communities to sustain their facilities, overlap of roles, inadequate coordination, and lack of ownerships.
- The most critical bottleneck has been lack of data management systems.
- According to NAWAPO 2002, the role of the Ministry of Water is coordination.
- NAWAPO is implemented using the existing institutional and legal frameworks such as NWSDS (2006-2015), (WSDP 2006-2025), Water Resources Management Act No. 11, 2009 and Water Supply and Sanitation Act No. 12, 2009.

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Rural Water Supply, Tanzania

- In the current framework, Community Owned Water Supply Organizations (COWSOs) established under Act No. 12 of year 2009 are bodies legally constituted by community to own, manage, operate and maintain water supply systems on behalf of the community.
- Problem in the implementation of framework is absence of database that manage information from different sources
- To resolve the information Management challenges in this framework, Geo ICT tools has been considered.
- Therefore, Water Point mapping system is one such tool for the purpose agreed through WSDP dialogues in the year 2010.

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Water Point Mapping, Tanzania

Project Background

- The WPM initiative is an effort of the stakeholders through Water Sector Development Program (WSDP) based on the benefits obtained during the pilot project conducted from 2005 to 2009 by some of the stakeholders including WaterAid, SNV, Plan International, Concern Worldwide, ISF and AMREF.
- The implementation of the project was contracted to local consulting company in Tanzania in association with other companies namely Daraja (Tanzania), GAF & AHT (Germany).

Water Point Mapping, Tanzania

Meaning

- Water Point Mapping is considered as a planning and monitoring tool used to locate water infrastructure and collecting related information through any available technology and used in planning & decision making for different uses.

and

- On the other hand, water point mapping system is an integration of hardware, software, methodologies, data, processes and users to collect, store, process, and analyze information for public use in solving a diverse range of problems towards improving services delivery and governance issues.

Water Point Mapping, Tanzania

Purpose and Objective

- WPM in Tanzania intended (i) to inform the planning of investments to improve water supply coverage; (ii) to allocate resources to deliver basic services where for the most needed; (iii) to determine lost investments; (v) to measure progress and performance against strategies, projects and expenditures; and (vi) to address the equity issues in terms of resource allocations for services.
- The WPM Website offering different possibilities for public to view the water point data for the whole Tanzania and to execute little reports for some administrative units in a form of map, tables, graphs and photographs. It is an objective tool for registered users from the state water management that can allow for targeted planning of water scheme improvements.

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Water Point Mapping, Tanzania

Purpose and Objective

- Every public user has access to the general information about distribution of water points. There are some groups for registered users that use advanced functionalities of WPM web application, e.g. WPM System Administrators on national level, WPM data editors at division level, WPM data editors at LGA, WPM technical reporters at various regional levels, WPM summary reporters at national and/or basin level.
- Supports sector dialogues, transparency, accountability, citizen participation and technology innovations – Open Government Partnership.

Water Point Mapping, Tanzania

Adopted Methodology

- Every improved community (public) water point in the areas covered was visited, and at each water point a questionnaire was administered to document a range of its characteristics including location, type and condition.
- A handheld Global Positioning System (GPS) device was used to record the precise location and height above sea level of all water points visited.
- A digital camera was also used to take digital photograph for each water point visited in order to present reality and physical appearance.

Water Point Mapping, Tanzania

Adopted Methodology

- Consultant with support of the LGA's staff.
- Country grouped into zones covering small regions.
- Standard government procedure was followed by reporting to the Council Director who designates to District Water Engineer's office (DWEs) as the coordinating officer at the council level.
- Local Government Authorities identified the first ward to be mapped and one member from DWE staff was identified to lead the consultant to the Ward Executive Offices (WEOs).

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Water Point Mapping, Tanzania

Technology Involved

- Computer
- GPS
- Camera
- Internet connection
- Base maps
- Survey Questionnaire

Water Point Mapping, Tanzania

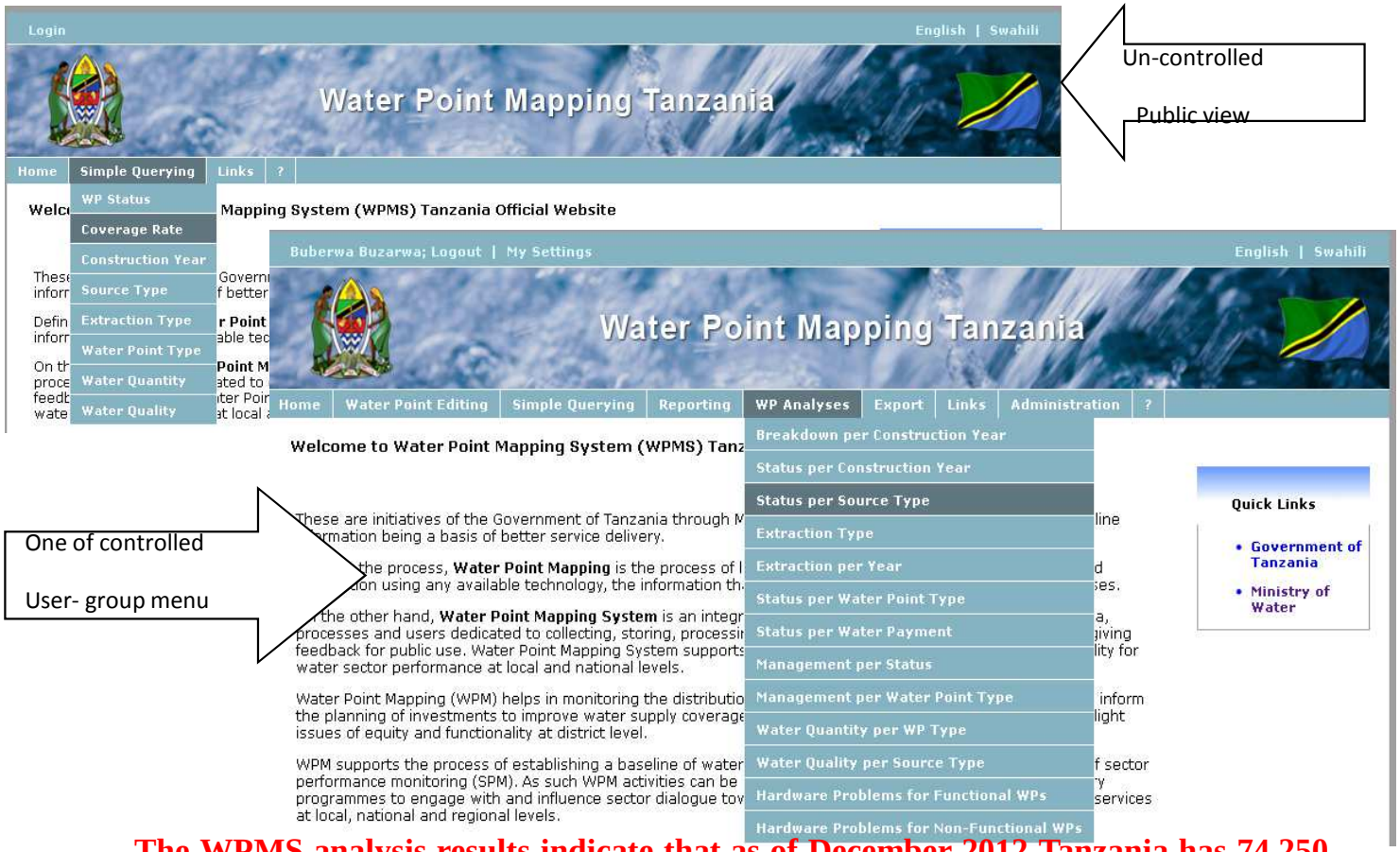
Implementation status

- Developed public rural water points in 132 LGAs in Tanzania Mainland completed by mapping and geo-tagging a total of **74,250** water point's national wide.
- The Water Point Mapping Web Site is operational and offering different possibilities for public to view the water point data for the whole Tanzania and to execute little reports for some administrative units in a form of map, tables, graphs and photographs. It is an objective tool for registered users from the state water management that can allow for targeted planning of water scheme improvements.

Water Point Mapping, Tanzania

Implementation Status

[How it works: https://wpm.maji.go.tz](https://wpm.maji.go.tz)



The WPMS analysis results indicate that as of December 2012 Tanzania has 74,250 improved community water points in rural areas. Out of these, 45,754 water points (about 62%) are functioning while 28,496 water points (about 38%) are not functioning.

Water Point Mapping, Tanzania

Target users of the WPM website

- Every public user has access to the general information about distribution of water points. There are some groups for registered users that use advanced functionalities of this web application, e.g. WPM System Administrators on national level, WPM data editors at National & Local levels, WPM technical reporters at various regional levels, WPM summary reporters at national and/or basin level.

Water Point Mapping, Tanzania

Implementation Challenges:

Limited Resource

- Problem of manpower in LGAs.
- Untimely releases of funds during project period.

Technology

- Digital divide & illiteracy in rural areas.
- Internet Bandwidth issues.
- There is no tested semi-automatic or full automatic updating mechanism through cellular network and system sensor technologies base on the local situation.

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WATER POINT MAPPING IN TANZANIA

WPM Implementation Challenges:

Outdated Shape-files

- Lack of updated shapefiles for administrative boundaries (villages, wards, districts, regions) due to regular establishment of new wards, districts and regions.
- Un-harmonized shape files for administrative boundaries from National Bureau of Statistics (NBS) and Ministry of Lands.

Water Point Mapping, Tanzania

WPM Implementation Challenges:

Updating Mechanisms

- Data updating By whom and With what incentive?.
  - ✓ *District Engineers ??? No trust but potential*
  - ✓ *COWSOs??? Seems potential but they are still very few. Also, COWSOs registration are uncoordinated and therefore no standards.*
  - ✓ *Real time??? Not technology available yet.*

Water Point Mapping, Tanzania

WPM Implementation Challenges:

VIP issues

- The issue of Validation and Inquiry Process (VIP) possess conflicting ideas or understanding by various stakeholders (government, CSOs, etc) and therefore they should both agree on the way VIP can be taken care in a more transparent manner.

Use of Maps

- In most cases, the potential of maps or spatial information remains underexploited in Tanzania and water sector in particular.

Water Point Mapping, Tanzania

Implementation Challenges:

Acceptance

- Acceptance of Water Point mapping system as a planning and monitoring tool is an envisaged challenge. Involves all stakeholders
- Resistance in streamlining the system within the planning process, updating, and sustainable usage. This will need enforcement by the government at all levels.
- Without acceptance the WPMS never be sustainable and may end once donor funding stops.

Water Point Mapping, Tanzania

Roles & Responsibilities

Governance issues:

- Important because it determines how government, individuals and a society manage, use and allocate resources and distribute rural water supply services as well as managing water points and data updates into the system.
- Key actors include MoW, PMORALG, RS, LGAs, BWOs, private sectors, DPs, beneficiaries, COWSOs, VEOs, Academic & Research Institutions.

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WATER POINT MAPPING IN TANZANIA

Governance issues:

Updating Mechanism

- Updating is a critical issue for efficiency, effectiveness, and reliability. This entails sustainability of the initiative.
- Several options still not concluded:-
  - Updating through mobile phone (change of mind-sent and illiteracy/digital divide)).
  - Updating through LGA staff/ DWEs office (no incentives, lack of trust, and capacity constraints).
  - Updating through Community Owned Water Supply Organizations (potential but capacity constraints).
  - Real time technology (not tested yet, capacity???).

Water Point Mapping, Tanzania

Governance issues:

Next Step

- Completion of user training at all levels.
- Enhancement and Up-scaling of the WPMS to incorporate water quality issues and BRN KPI (physical) including requirements for Open Government Partnership.
- Field testing of updating technology that can be used to map status of water points. Also, look into influences for **Lack of incentives to report and lack of trust in government agencies.**

Water Point Mapping, Tanzania

Governance issues:

Next Step

- Pilot testing available technologies (if any) for real time updating water point's functionality through sensor system technology either based on cellular coverage, telemetry, and many others.
- Start WPM updating through COWSO's, etc. But look onto governance issues under COWSOs and capacity building to COWSOs in terms of standards, guidelines and training on WPM & VIP issues.

Water Point Mapping, Tanzania

Governance issues:

Next Step

- Alternatively, perform field test "planning clinics" methodology that involves government, private IT companies and COWSO's to streamline methodology using Open Data Kit updating technology, etc.
- Shape file harmonization issues (NBS, Ministry of Lands, PMORALG, MoW).

Water Point Mapping, Tanzania

Governance issues:

Next Step

- Capacity building for the research on easy to use technology and policy issues related to Water Point mapping sustainability. This can be done through Academic Institutions such as WDMI of the Ministry of Water.
- Use WPM results for addressing governance issues for Rural water supply sub sector: by – immediate.
- Institutionalize WPMS as a monitoring tool for rural water supply projects (Prepare & putting into practice ‘’acceptance & change management strategy’’).

Water Point Mapping, Tanzania

Governance issues:

Nexus Approach

- The Ministry of Water has noted the potential of Geo-ICT as a tool for rural water supply towards enhanced accountability, transparency, participation, and improved services delivery to the poor. But how about **Sustainability** and **capacity**??
- In order to achieve this purpose, the use of Nexus approach in capacity building has been considered as a prerequisite at this stage.

Water Point Mapping, Tanzania

Governance issues:

Nexus Approach

- The economic incentives needed to foster nexus approach in WPM context include:
  - Strengthening the policy actor and capacity development institutions such as Water Development and Management Institute (WDMI) and disseminate knowledge and understanding to water beneficiaries or communities.
  - Connecting and disseminating knowledge through lessons learnt from Ministry of Water and other institutions as a collaborative approach to new innovations for water point's functionality through real time technologies like sensor systems.
  - Practicing an integrated approach towards WPMS sustainability for the beneficiaries (community).

Water Point Mapping, Tanzania

Governance issues:

Nexus Approach

- Technical & High level Workshop to address sustainability and governance issues: Jan, 2014. Proposed issues to address:
  - Improving accountability for water sector performance at local and national levels.
  - Water Point Mapping (WPM) sustainability and functionality issues.
  - Accountability through Validation and Inquiry Process (VIP).
  - Legal framework governing waterworks as per Act No. 12 of 2009.
  - MDGs (Actors and influence of WPMS).

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THANKS FOR YOUR ATTENTION

Example, an improved community Water Point