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**ACCESS TO SANITATION AND SAFE WATER:  
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS**

## **Reflection of Dublin Principles in rural water supply approaches in Zambia**

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*Water resources management (WRM) is a broad sector that comprises various sub sectors including rural water supply and sanitation (RWSS). Attempts have been made to articulate WRM at global level culminating into the development of the Integrated Water Resources Management (IWRM) approach defined by the Dublin Principles. However, these principles still need to be reflected in local actions that are used to implement the RWSS interventions. Hence, this paper focuses on identifying the extent to which IWRM is reflected in the RWSS implementation approach in Zambia known as the WASHE concept. The results of this assessment show that only two out of the four Dublin principles are adequately reflected in the WASHE concept. It is concluded that there is a need to integrate ground water management in IWRM and adapt catchment management to existing administrative governance systems in Zambia, and that the WASHE concept be revised and expanded accordingly.*

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### **Introduction**

Despite significant limitations, there exists a common global understanding that has acknowledged Integrated Water Resources Management (IWRM) as the most appropriate concept and approach to manage water resources in the world today. IWRM has been defined by the Global Water Partnership, as “a process that promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2000).” The hallmark of this consensus was attained in January 1992 at a meeting held in Dublin for the International Conference on Water and Environment, which gave rise to four principles to articulate IWRM, thereafter forming the basis for much of the subsequent water sector reform. These principles are:

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
- Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water has an economic value in all its competing uses and should be recognised as an economic good.

However, one of the challenges faced in implementing the Dublin principles has been their actual articulation at the community level. In the analysis by Rahaman and Varis (2005) of the evolution of the concept of IWRM at International conferences over the past three decades, it was observed that water experts and decision makers from developing countries felt that there was a failure to indicate how the Dublin principles could be implemented in the context of complex water management scenarios in the developing countries. Henceforth, attempts have been made to address these concerns at later gatherings such as the second world water forum and the ministerial conference in 2000. But more importantly, the subsequent emergence of the school of thought that “WATSAN activities can be an appropriate entry point for area-based management initiatives, such as Integrated Catchment Management (ICM) and watershed development projects” (Butterworth J, et al., 2001), has given an opportunity to address the issue of articulating how the Dublin principles could be implemented in the various water management scenarios in developing countries among which community water management is most cardinal. Hence the objective of this paper is to highlight how global partnership ideas championing IWRM via the Dublin Principles are reflected in the local actions of community water resources management especially in the implementation of Rural Water Supply and Sanitation (RWSS) in Zambia.

## Comparative assessment

RWSS interventions in Zambia are implemented through projects that follow the principles of the Water and Sanitation Health/Hygiene Education (WASHE) concept. The WASHE concept is a people-orientated, inter-sectoral and integrated approach to planning, implementation and management of RWSS and hygiene initiatives. The main principles defining the WASHE concept are Partnership, Ownership, Responsibility, Transparency and Accountability (PORTA). To manifest these principles the WASHE concept focuses on development of integrated capacities of all actors through resource mobilization, devolution of management responsibilities to the lowest level, improvement of decision making, community participation, general capacity building and establishment of multi-sectoral District WASHE (DWASHE) committees and Village WASHE (VWASHE) committees.

A comparative assessment of IWRM with WASHE is made by firstly identifying the sustainability issues of all the Dublin principles. Thereafter, each sustainability issue characterising a principle is compared to a corresponding attribute of the WASHE concept stating a contrast or similarity. A summary of this assessment is shown in Table 1.

<b>IWRM (Dublin) Principles</b>	<b>Characteristics of IWRM Principles</b>	<b>Presence in WASHE Concept</b>
Environmental Principle	Environmental protection, catchment management and regulation of water usage.	None
Participatory Principle	Decentralisation, subsidiarity, stakeholder participation and capacity building	Fully present in operational frameworks
Gender Principle	Involvement of women in planning, decision making and use of water	Fully present in policy but only partially in practice
Economic Principle	Water supply tariff system meeting capital, replacement, and operations and maintenance costs	Partially present in operations and maintenance systems only

### Environmental principle

The first Dublin principle focuses on ecological aspects of IWRM and states that fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment. The sustainability issues required in implementing the first Dublin Principle involve using a holistic approach to WRM, management of water resources on hydrological boundaries, coordination of all consumptive uses of water in a basin, mechanisms for water allocation to sectors/stakeholders and water source/catchment conservation and protection. In the WASHE concept, there is a holistic approach to implementing RWSS. In this case a holistic approach is regarded as a process linking social and economic development with protection of the natural system. WASHE concept focuses on sustaining life through its social development goals and also emphasises the sustainability of development by promoting community economic development. However, both these two development goals require increasing demand for water. Meanwhile, the WASHE concept does not adequately address the need to sustain the water resource itself and thereby protect the natural system. For example, in the siting of boreholes no cognisance is given to how many boreholes have already been drilled in a particular aquifer or the rate of abstraction at these. Neither are water resources managed on hydrological boundaries since aquifer boundaries are not known and do not necessarily coincide with surface water hydrological boundaries. Hence, management is based on individual water points as basic units and the administrative boundaries in which they reside. Furthermore, there is no coordination of primary, secondary or tertiary use of ground water since there is no legal permit system for its abstraction. Therefore, the issues of catchment conservation and protection are not considered adequately in the WASHE concept. One might argue that the WASHE approach includes conservation measures such as tree planting and anti-deforestation campaigns to safeguard both surface and ground water resources. But this action in isolation of a full scale ground water recharge programme may not fully address the desired end result of catchment restoration.

### Participatory principle

The second Dublin principle focuses on institutional aspects of IWRM and states that water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels. This principle is characterised by concepts of decentralization and participation, focussing on the

need to raise awareness of water issues among policy-makers and the general public (Mei Xie, 2006). Some of the sustainability issues required to implement the institutional aspects of the IWRM approach include delegation of water service provision to the lowest possible level (subsidiarity) with central government retaining regulatory and supportive roles, accountability of management institutions, full consultation and involvement of users in the planning and implementation of water projects, stakeholder coordination and collaboration, presence of a common platform for decision making and capacity building in water education and skills development. Participatory approaches and subsidiarity in the management of RWSS is fulfilled in the WASHE concept because information sharing and decision-making starts at community level where village water plans are compiled and submitted via the VWASHE committees to the District Council as part of the DWASHE plan. End users participate in planning, implementation (construction activities - mobilisation of building materials, etc.) and operation and maintenance (community contributions for water point maintenance and payment of water point minder). Other examples include stakeholder coordination which is addressed mainly by the District Council which coordinates stakeholders at district level through DWASHE Committee while stakeholders at village level are coordinated through the VWASHE committee. Furthermore, the regulatory and supportive role of central government is still fulfilled by MLGH that gives policy guidance to the sub sector actors and mobilises/allocates resources to districts who then re-allocate to villages in form of WSS hardware or software thus meeting the requirements of decentralisation and participation.

### **Gender principle**

The third Dublin principle focuses on equity inclining more towards gender issues. Here the IWRM approach emphasizes the important link between gender equity and sustainable water management which challenges the status quo where worldwide, women play a key role in the collection of water for domestic and agricultural use whilst still being excluded from water management decision making (Mei Xie, 2006). Hence, the IWRM concept emphasises on empowering women in participatory management and building their capacity. Therefore, to implement these gender issues, the IWRM approach requires that women be involved at planning, decision making and user levels for water management. This requirement is met in the WASHE concept as more women are involved in planning especially at the consultative level (site selection of water point and technological choices). Unfortunately, fewer women are members of VWASHE & DWASHE committees where the planning and decision making actually take place. Women's ability to influence decision making is further affected by the fact that even fewer numbers of women are Political councillors residing over the Local Authority Council or reign as traditional village leaders.

### **Economic principle**

The fourth Dublin principle is commonly referred to as the "instrument principle." It emphasizes the importance of economic tools in helping achieve efficient and equitable use of water resources (Mei Xie, 2006). The human right to access clean water and sanitation at affordable prices is also recognized in this principle with due regard to the cost of making water available to its users in a sustainable manner. To implement these ideals in reality, the IWRM approach has focussed on economic and financial sustainability thereby encouraging the development of a tariff system for different users i.e. block tariff, polluter pays & user pays principles. The prerequisites for implementing such a tariff system are that capital, operations and maintenance and replacement costs are met. Similarly, this is addressed in the WASHE concept where there is a tariff system where village communities elect a treasurer in the VWASHE committee to collect financial contributions for O&M costs remitted on a monthly, seasonal, annual or bi-annual basis. The amount and rate of which is decided by themselves with options of offering special waivers to vulnerable groups such as the elderly, sick, widows and orphaned children to meet the social needs of all the people in a community. On the other hand, this tariff system only barely meets the capital cost of water infrastructure development as each community contributes 10% of capital cost of investment towards WSS projects in the form of labour and provision of construction materials (fine and coarse aggregates). Furthermore, the tariff system is not designed to cover replacement costs though in a few isolated cases communities have been able to cover partial replacement costs e.g. purchasing of a new pump head set.

### **Conclusion and recommendations**

Only a few aspects of IWRM are reflected in the WASHE concept. The first Dublin principle is hardly addressed in the WASHE concept since rural water supply mainly from ground water resources is not managed on hydrological boundaries in Zambia, demand for ground water is not coordinated, and the issue of con-

ervation is not fully addressed. The second Dublin principle is adequately reflected in the WASHE concept because the RWSS institutional framework allows for stakeholder participation and is decentralised all the way to the community level. The third Dublin principle is addressed on paper but its application is poor as the representation of women in vital water management committees is still low. The fourth Dublin principle is partially reflected in the WASHE concept with a strong emphasis on communities covering full operation and maintenance costs (financial costs) but not full cost recovery. Based on these findings it is recommended to further harmonise IWRM principles into the WASHE concept by:

- integrating ground water resources management into the WASHE approach, and
- developing steps to integrate catchment and aquifer resource management with existing administrative local governance systems.

Finally, the strategy of establishing an institutional framework for rural water supply and sanitation development with a multi-stakeholder platform (WASHE Committee) at district, sub-district, community and water point levels, delegated with the authority to plan and manage interventions, provides an effective basis for localised IWRM which may be worth replicating in other countries.

### Additional tables in support of Table 1

Dublin Principle	Sustainability Issues of Implementing the IWRM Approach (Dublin Principles)	Corresponding implementation approach of the WASHE Concept
Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.	Holistic approach to WRM	No holistic approach
	Management of water resources on hydrological boundaries	Ground water aquifer boundaries not known so management is based on individual water points and the administrative boundaries in which they reside.
	Coordination of all human activities consuming water in a basin	No coordination of consumptive use of domestic water (no permits)
	Mechanisms for water allocation to sectors and stakeholders including the environment	Allocation at the water point is present but only for access to water point. No rationing of water is done.
	Water source and catchment conservation and protection	Water Point construction models cater for GW protection via the apron, drainage canal and soak away pit. Issues of conservation are minimal with some pumps being locked to control rate of usage only.

Dublin Principle	Sustainability Issues of Implementing the IWRM Approach (Dublin Principles)	Corresponding implementation approach of the WASHE Concept
Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels.(Decentralisation & Participation)	Subsidiarity (management at lowest possible level)	Decision are made at community where village water plans are compiled and submitted as VWASHE plans to the district Local Authority as part of the DWASE plan.
	Central government retaining regulatory & support roles	MLGH gives policy guidance to the sub sector actors and mobilises/allocates resources to districts who then re-allocate to villages in form of Hardware or software.
	Accountability of management institutions	All plans are reviewed from village to district level
	Full Consultation and involvement of users in the planning & implementation of water projects	End users participate in planning, construction (mobilise some building materials to sites) and O&M processes (community contributions for maintenance, payment of water point minder, presence of VWASHE committee to manage facility, etc).
	Stakeholder coordination and collaboration	LA coordinates stakeholders at district level through DWASHE and DDCC while VWASHE coordinates stakeholders at village level.
	Common platform for decision making	WASHE Committee meetings at Village, District and Provincial levels. And the LA meetings for DDCC which has the DWASHE as a sub committee.
	Education, skills development and capacity building	All DWASHE and VWASHE plans have capacity building components with budgeted activities that are reflected in the district plan for WSS

Dublin Principle	Sustainability Issues of Implementing the IWRM Approach (Dublin Principles)	Corresponding implementation approach of the WASHE Concept
Women play a central part in the provision, management and safeguarding of water.	Women are involved at planning level	Women are involved in planning more at a consultative level (site selection of water point and technological choices)
	Women are involved at decision-making level	Few women are members of VWASDE & DWASHE committees. And few women neither are Political councillors residing over the Local Authority Council nor are they traditional village leaders.
	Women are involved at user level	Most portable water for domestic and agricultural use is carried by women at water points

Dublin Principle	Sustainability Issues of Implementing the IWRM Approach (Dublin Principles)	Corresponding implementation approach of the WASHE Concept
Water has an economic value in all its competing uses and should be recognised as an economic good.	Encourages development of a tariff system for different users i.e. block tariff, polluter pays & user pays principles	Village communities elect a treasurer in the VWASHE committee who collects financial contributions for O&M costs. The amount and rate of payment is decided by themselves. Special waivers are made for vulnerable groups such as the elderly, sick, widows and orphaned children.
	Tariff system should meet Capital Costs	Community contributes 10% of capital cost of investment towards WSS projects in the form of labour and provision of construction materials (fine and coarse aggregates)
	Tariff system should meet O&M Costs	O&M Costs are borne completely by the communities (end users) using their community contributions (monthly, seasonal or annually)
	Tariff system should meet Replacement Costs	This is not compulsory and may apply to certain replacement costs such as the pump head set.

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