Key Drivers in Sustainable Community Water Projects: Lessons from Elgeyo-Marakwet County, Kenya

Michael Chesire[1], Joram Kareithi[2], Jamin Masinde[3]

[1,3]Department of Sociology & Psychology, School of Arts and Social Sciences, Moi University, Eldoret, Kenya
[2]Department of Anthropology, School of Arts and Social Sciences, Moi University, Eldoret, Kenya

Abstract— *Debate about sustainable development can be traced to the Rio Summit on environment and development where emphasis was placed on empowering local communities to take charge of their own development. Sustainable development advocates for inclusiveness of all in development especially the local community. Participation of stakeholders in any development endeavour guarantees delivery of project benefits to intended users. The recent transition from MDGs to SDGs with a focus on communities clearly demonstrates the relevance of community participation in projects. This paper assesses the significance of various drivers in community led water projects in Elgeyo-Marakwet County. The paper examines different drivers at play in a typical community led water project and assesses how such drivers contribute to project sustainability. The paper concludes that for successful water project implementation, key project drivers should be strengthened by all participating actors.*
Keywords— Community, Elgeyo-Marakwet, Key drivers, Sustainability, Water projects.

I. INTRODUCTION

Water resources are key to the socio-economic development of any nation. Over the years, states through their institutions managed this important resource on behalf of the citizens, exclusively making important decisions regarding water development. Given the huge costs involved in the development of water projects coupled with reforms in the water sector, many governments worldwide have shifted water resources management from the state to the public to enhance public participation and ensure sustainability. The focus on water resources development currently is on demand by the users thereby taking leading roles in decision making, implementation and sustainability. The provision of technical services has largely remained with central or regional governments.

The importance of the water sector in development can never be over-emphasized especially in developing countries. Shortage of water can prevent almost everything from being done. Water deficits are not only restricted to developing countries nor even Arid and Semi- Arid areas but to all human beings everywhere on the planet. Water management is crucial for development and requires the participation of communities especially in rural areas. The development of water resources in rural areas has been taken for granted in the development plans of many developing countries because of the partial implementation of such projects (Moraa and Otieno, 2012).

Participation of communities in water resources development is key in the growth of rural economies. Participation invokes notions of inclusion, of people's abilities to make decisions, and to voice their concerns which are heard (Agarwal 2001; Cooke and Kothari 2001). As such, participation is linked to notions of deliberative democracy (Hickey and Mohan 2004). Emphasis in participation focuses on the need to raise awareness amongst community members on their roles which should then be done by institutions responsible for water management. This would enable the public understand their roles in water resource development.

Professionals and researchers on community participation within the water sector argue that it is beyond governments of developing countries to provide water through national networks to rural communities, hence the call for community participation (Page, 2003). In addition, the advantage of relying on labour, cash and local raw materials provided by community members is cheaper when one compares the limited resources at the disposal of African governments leading to the reliance on community participation. Smith (2003) argues that governments all over the world have realized that the involvement of local people is essential and that bureaucracies are perhaps not the most appropriate structures for exclusively implementing

development projects, thus the need to involve the beneficiaries and other relevant stakeholders.

Water resource development requires the participation of all stakeholders to ensure successful implementation of planned projects. Whereas governments, communities and other players often devote enormous resources to such projects, their implementation sometimes is not achieved as envisaged due to the internal infrastructural and institutional dynamics of the implementation groups and agencies. This therefore necessitated the study to examine key drivers to successful implementation of rural water development projects in the study area which help to side step the difficulties encountered.

II.   LITERATURE REVIEW

3.1 Models and character of Community Participation in Water Management

Three points of view generally emerge in determining the best practice models for community participation in water projects which could be put in context for community driven development (Mukui et al, 2002). One model links community participation with political emancipation of the poor, where participation means giving priority to education and skills to use personal and community resources to identify their needs and to seek solutions together. This view recognizes the fact that poor communities have the economic resources to improve their living conditions but lack the organizational and institutional frameworks to exploit these opportunities (Singh, 2002). Subsequently, community components should stress the development of community problem-solving skills through a range of participatory techniques for inclusive planning and implementation (Mukui et al, 2002). A lot of time and resources get tied in learning processes in this model. Kenya's Water Act, 2002 and the formation of water groups would address the institutional issues raised by this model. Levels of public participation in water resources development is not however addressed by this model.

A second view of participation stresses the role of external experts in defining relationships, using local information to make appropriate designs and making correct assumptions about what people want, and how they can work together as families and communities to meet their wants. An important consideration is how their traditions, customs and beliefs affect their efforts to transform resources into goods and services. Here participation occurs principally in the implementation and operation of schemes/projects rather than in their identification and preparation. Experience has shown that this approach tends to postpone the responsibility for operation, management and maintenance

by the communities till handing over. This model of participation may lead to lack of community ownership, and thus create dependency on external development agents.

A third approach to participation has been associated with the requirement that local

people should contribute towards the resources necessary to implement the project or desired service and participate in implementation activities. The philosophy behind this model is based on the assumption that people tend to attach higher value to things that they have paid for and are more inclined to care for them (Thwala, 2010). Community contributions to the cost of a project or service also reduce the cost to the partners addressing the community need. This approach has been popular among donors including NGOs. The concept of matching grants in projects finds an explanation in this model. A potential downside of this model is that people may value but not take an active role in implementation.

Lock (2013), points out that stakeholders are important partners in project work and greatly determine the success of a project. The range of stakeholders vary with the nature of the project and the kind of contributions they usually make to enable the project achieve its goal(s). Stakeholders include the beneficiary community, project sponsor, statutory bodies, regulatory authorities, contractors/subcontractors, suppliers, staff, artisans, labourers, lending institutions, environmental groups, project manager and local residents. Eskerod and Jepsen (2012) observe that of essence in project management is the ability of the project management team to identify and manage stakeholder roles and their contributions to overall project implementation and attainment of the intended benefits. Stakeholders contributions are varied and include finances, provision of materials and equipment, technical expertise, monitoring and evaluation, supervision, conflict resolution and capacity building. Romano (2017) agrees with Eskerod and Jespen adding that capacity building water committees is central to successful water development. This is similar to the Kenyan situation where CDF committees capacity build water project management committees (PMCs) to effectively undertake water project implementation. In a study of the contribution of integration services to the success of CDF projects in Eldoret North constituency (Rutto et al, 2011), a number of stakeholders were identified to include the community, the government, contractors, beneficiaries and suppliers. The identified stakeholders played different roles to ensure project success including joint project appraisals, risk analysis, provision of environmental services and provision of technical

specification services, all of which were listed as project integration services which enhanced project success.

A number of factors affect participation. Neysmith and Dent (2010) group these factors into four categories: socio-cultural, economic, situational, and developmental. They see socio-cultural factors as being important in determining an individual's willingness to participate. Socio-cultural factors such as class, ethnicity and gender can play a role in creating the power imbalances and prevent participation by certain groups. Individual or group financial ability, educational level or literacy level, technological know-how, support infrastructure could all affect the level of public participation in water resources development (Jones, 2011; Singh, 2008; Sultana, 2008).

In broad terms, stakeholders are individuals, organisations, public sector agencies and donors that are concerned with water resources and have an interest in their development (Le Moigne, 1994). Uphoff and Wijayaratna (2000), emphasize on analyzing the categories of stakeholders participating, the motivation to participate and how they participate including the effect of such participation. The Water Resources Group (2016) contends that stakeholders in water development should be facilitative in areas of awareness raising, enhancing communication, collaboration, outreach and governance. Fritsch (2017) notes that whereas effective participation at information and consultation stages are paramount, there is need to shift from one way communication to face-to-face discussions to enhance active involvement of all actors.

European Environment Agency (2014) notes that public participation allows for balancing of interests of diverse stakeholders which creates a safe environment for discussion of issues and makes all stakeholders feel confident that their core values will not be compromised in the process. In turn, balancing the interests of various groups of stakeholders generates social learning, i.e. learning by groups (authorities, stakeholders and experts) to handle issues in which all group members have a stake.

Dungumaro and Madulu, (2003) emphasize that community participation should be considered as mandatory in any development project and local communities should be viewed as equal development partners who should participate fully in the design, implementation and benefit sharing for any water related development project. Anokye (2013) adds that efforts should be made towards providing spaces for communities to take part in decision-making and not only for them to provide tangible inputs like labour. Such efforts could include capacity building of communities to enable them effectively take part both in planning and monitoring of water development projects. Sam (2016) observes that community participation in development should be characterized by voluntary participation, effective leadership and effective conflict resolution.

From case studies by the American Water Resources Association (2012) concluded that there was need for public and stakeholder involvement in water resources management. Further the case studies from Yakima and Delaware (2012) river basins identified key elements for the successful implementation of water development which include; conflict management, information management and exchange, enhancement of public participation and clear definition of institutional roles of stakeholders representing a variety of interests.

In Ethiopia, besides government, the principal external actors intervening in water development in pastoral areas are NGOs and development agencies including USAID, European Commission and CARE. These provide construction and rehabilitation of water points, develop small-scale irrigation and work on capacity building and training (Nassef and Baleyhum, 2012).

Mutai, Wanyoike and Kihara (2016) in their contribution to the debate on project success factors in the water sector in Kenya identified communication, stakeholder support, top level management commitment and competence and a membership with high level education as key. KEWASNET (2017), in a study of CSO contribution to water resource development in Kenya pointed out capacity development of project committees, community awareness raising for active participation in decision making, institutional capacity development and reporting and learning as key components of project success.

Contributions from Das & Ngacho (2017) and UPGro (2017), echo the above project success factors adding that adequate project funds, active participation of the beneficiaries at the project planning phase as equally important success factors in water resource development in Kenya. Other key drivers include formal dispute resolution mechanisms, stakeholder collaboration, timely provision of labour and technical services and timely approvals whenever required.

III. METHODOLOGY

This paper is based on a study undertaken in Keiyo North sub-county of Elgeyo-Marakwet. The study sample population was drawn from fourty six registered water development groups funded by the constituencies development fund from 2009. From the target population of 46 groups, twenty three groups were randomly selected to participate in the study. Using purposive and simple random sampling, a total of 142 respondents were selected to

participate in the study. From each of the twenty three groups, three group officials, that is the chairman, secretary and treasurer were purposively selected while seventy three group members were randomly selected to take part in the study. Proportionate sampling was used to ensure fair representation. In addition, eight key informant interviews and three focused group discussions were conducted, one in each of the three agro-ecological zones. Secondary data obtained from reports, journals and development plans has also been used.

IV. RESULTS AND DISCUSSIONS

4.1 Community – Sponsor dynamics in Elgeyo-Marakwet water projects

Two perspectives of water resource development in the study area emerge from this study; firstly Government-Community and secondly, Community-NGO sponsored projects.

In the government – community sponsored projects, the government collaborates with the community in two ways in water resources development. Firstly, through the ministry of water and irrigation, government provides technical expertise at the initial stages of proposal development and later while drawing bills of quantities, implementation and evaluation. Secondly, through the national government constituency development fund committee (NG-CDFC), the government provides finances for the development of water projects and evaluation of the implemented projects.

The role of the community is to identify water projects of their choice, write proposals to NG-CDFC for funding and upon approval, make contributions in form of materials and labour to facilitate project implementation. Additionally, the community oversees the daily activities of the projects through their Project Management Committees which reports on a regular basis to the community. Further, the project management committees do monitoring of the projects to ensure the implementation is according to plan.

The community – NGO sponsored projects places emphasis on the role played by the community in project initiation and sustainability. The community identifies a water project, justifies the need for the same and writes a project proposal for support from NGOs operating in their areas. The government through CDF may also be approached for support by the community, but NGOs take the lead role during implementation. Upon receipt of the proposals, NGOs conduct feasibility studies and invites representatives of the community for discussions about the proposed projects. Once approved for funding, the community commits to contribute between 15-25% of the total project cost in form of cash, materials or labour. The justification for the contribution is to ensure project ownership and guarantee sustainability.

Water projects supported by NGOs take a relatively shorter duration to complete compared to projects entirely supported by government. Although NGOs depend on government technical services, they equally carry out capacity building of the water users and project management committees on implementation and sustainability. Upon project completion, the NGOs hand over the projects to beneficiaries for use. In the study area water projects supported by NGOs in collaboration with the community and government have been very successful, most of which have a sustainability component inbuilt in form of income generating activities for operation and maintenance. Text box 1 illustrates one such successful water project.

Kabeei water project was started in 2008 in Kiptuilong location, Kipka sub-location in Tambach division by a small group of residents due to water shortages arising from the seasonality of streams in the sub-location. Kipka self help group comprising 25 members started the group in 2005 and embarked on income generating activities, mainly irrigation of crops and dairy farming. Due to water shortages, the performance of their projects was not appealing. This culminated in the group focusing on water development in 2008 to provide adequate water for their activities. The group applied for funds from Keiyo North CDF, World Vision and supplemented with community contributions of labour, supervision and materials. The ministry of water and irrigation provided technical expertise. The combination of effort from the four stakeholders saw the completion of the project in a record one year. The project serves 71 households and has reduced the walking distance to the nearest water point from 1kilometre to less than 300 metres. The role of change agents within the community and the active participation of the community members at each project stage were particularly instrumental in the faster completion of the project. Project maintenance is done by the community through monthly subscriptions of fifty shillings for routine patrols, repairs and maintenance.

(Fieldwork notes, 2014)

Text box.1: Successful water project

4.2. Key drivers to the success of Elgeyo-Marakwet community-based water projects

The study identified a number of project drivers which worked for the completion of water projects in the study area. Key among the factors identified was active group participation, capacity building of groups, timely disbursement of funds by some financing agencies alongside delivery of materials and equipment necessary to

facilitate water development. From interviews conducted, projects funded by stakeholders such as World Vision were completed within the stipulated time compared to those funded by CDF because they do not take long to disburse money for prioritized water projects. Figure 1 provides a summary of drivers of project success.

Driver	Prerequisite	Outcome
Timely disbursement of funds	Presentation of budget and work plans to funding agencies (CDF, government ministries, agencies or NGOs)	
Active group members participation	Group members education on their roles in the project implementation and management process	
Quick conflict resolution	Identification of conflict sources, types and assignment of roles to stakeholders to resolve the conflicts. There must be willingness of stakeholders to resolve conflicts identified.	Successful water projects
Regular stakeholder feedback meetings	Proper planning and information dissemination to stakeholders on proposed meetings including the agenda	
Stakeholder collaboration	Identification of stakeholder roles and seeking the support of each for project success	
Reliable and affordable labour	Provision of artisan based trainings to community members and the willingness of the trained members to provide labour at budgeted rates	
Capacity building of groups	Training institutions to provide training to group members on areas of interest to the members relevant to water projects	
Information sharing	Exchange of information between various stakeholders on project status, financial progress, human resource, procurement issues. This was done through sharing of reports, seminars, workshops, community meetings.	

Fig 1: Drivers of project success in Elgeyo - Marakwet

A key driver associated with project success in the study was group members active participation in project identification and implementation. The study found that there was group members active participation in the siting of water projects across all groups. Where proper sensitization was done, group members contributed materials such as sand, ballast and timber on a timely basis which aided in fast tracking project implementation. Other forms of participation of members during implementation included attending project meetings to deliberate on project activities. In such forums, decisions made were owned and implemented by all the group members with the aim of attaining project goals.

Quick conflict resolution was identified as a driver of success in water projects development. A number of conflicts ranging from leadership wrangles to delays in delivery of materials and completion of projects by contractors were identified as contributing to low levels of cohesion in groups. However, through internal mechanism

like having committees in charge of dispute resolution and inviting external stakeholders to train groups on conflict resolution mechanisms, many groups were able to resolve their differences and implement projects as planned. Organizations such as World Vision, Mercy Corps, Kenya Wildlife Service (KWS), department of social services and Constituencies Development Fund (CDF) were instrumental in providing the necessary trainings on conflict resolution. From the study findings, a number of conflict resolution methods are used to address the conflicts which include consensus, voting, sole decision making and leadership intervention. The groups established structures including the executive and the PMCs were found to be instrumental in conflict resolution. Financial and non-implementation of project work type of conflicts were given a lot of weight by groups. In instances of loss of funds for instance, affected members were required to pay back the lost funds while in cases where contractors were involved, the ministry of

water and irrigation and CDF were invited to arbitrate as was the case in Kipchukuku water project.

The study found out that the most commonly used method of conflict resolution was consensus through the established structures; this was common among 15 groups followed by voting on decisions, used by 5 groups. Sole decision making by the chairperson as a method of conflict resolution was only used by one group while two groups resolved conflicts through intervention by the group executive committee – composed of the chairperson, treasurer and secretary. It is therefore clear that conflicts in groups in the study area are internally addressed through consensus. This is key to group stability and implies that groups have internal mechanisms of resolving conflicts.

Another success factor was the frequent meetings organized by the project leadership to update members on progress made in project implementation. Three methods were used by group management to invite members to meetings, namely; announcements during meetings, invitation letters and telephone calls/text messages. Out of the three methods used, announcements during meetings was the most popular with 18 groups confirming its use, three groups used letters while only two groups used telephone calls/short text messages to invite members to proposed meetings.

This platform provided Project Management Committee (PMC) members an opportunity to share with group members information on all issues related to the project. Such issues included major results achieved so far, funds utilized to date, major milestones made, project challenges, expected contributions from members and other stakeholders and planned activities. Such a forum gave members a chance to ask PMC members pertinent questions about the project and give suggestions on how the project could be improved to attain the set results. In addition, the meetings acted as sessions to review work done so far against the set targets. In summary, they were forums for reporting monitoring and evaluation information to the members.

Collaboration between groups implementing water projects and other stakeholders was another success factor. This collaboration was seen right from proposal development through drawing of designs, plans and bills of quantities to actual disbursement of money, delivery of materials, and provision of technical expertise and constant monitoring and evaluation. Stakeholders who participated in project work were many and drawn from government ministries such as water and irrigation, agriculture, CDF, department of social services, KWS, Kerio Valley Development Authority (KVDA) as well as non-governmental organizations such as World Vision, Mercy Corps, Semi-

Arid Rural Development Programme (SARDEP) and a bilateral aid agency – Japanese International Co-operation Agency (JICA). Each of these stakeholders played a role in ensuring that projects were implemented as planned. The nature of collaboration varied from one stakeholder to another, though overall, collaboration centered on resource provision & utilization and capacity building with the aim of attaining set out project results. Similar results were found by Romano (2017) in Nicaragua, where democratic participation and inclusivity of all was embraced for positive outcomes to be realized in the water sector. In addition, capacity building of water committees improved their abilities to make informed decisions in water development.

Availability of affordable and reliable labour from the community was identified as a success factor. The unskilled and semi-skilled labour from the community was utilized for such works as digging trenches for pipe laying, removing debris from dam sites, clearing bushes to pave way for pipe laying and carrying construction materials. This labour was readily available from the community, the rates for such labour were affordable and therefore did not delay work within the study area. The youthful population (mainly men) of the community provided this labour.

Information sharing contributed to project success. Information remains an important component in project work for many reasons. Firstly, it updates stakeholders on the level of project implementation which can then be compared to the planned activities and depending on the stage of implementation, changes may be proposed and implemented to keep the project on track. Secondly, project information is important as it facilitates decision making by project management teams as well as stakeholders on important issues related to the project. Thirdly, information aids in assessing the levels of stakeholder contributions and their effects on project implementation, for instance disbursement of funds, delivery of materials and technical expertise to groups by stakeholders.

A variety of methods for information sharing were used by groups. These methods included; community meetings (*barazas*), also referred to as community learning forums (CLFs), group meetings, seminars and community workshops and reports. Community meetings and workshops were organized with the purpose of updating members of the community and group members on levels of project implementation, challenges encountered and soliciting their views on how best the project could be implemented successfully.

Group meetings were used to share information. This method is more specific to groups and involves presentation

of project implementation information to members by either the PMC or the top leadership of the group, that is the three group officials. In such meetings, members are updated on all issues of the project ranging from financial, physical progress, quality standards, specific milestones, performance of stakeholders, challenges encountered, membership issues and attainment of project results. Such meetings are very consultative and require members to actively participate by providing ideas on how to improve project implementation.

Seminars as an avenue for information sharing were mainly organized by other stakeholders, not the community groups. These seminars were convened with the purpose of enabling groups undertaking water projects and stakeholders to share information on pertinent issues. Items for discussion included financial accounting, contractor/supplier responsibilities, group roles, project changes and approval procedures and tracking results delivery. They also provided an opportunity to the community groups to share their challenges with stakeholders and how to handle them.

The last form of sharing information was reports. Groups prepared different types of reports containing varied information to be shared with specific stakeholders. The reports included; general progress reports, financial reports, quarterly reports and problem specific reports. Whereas general progress reports contained all areas of a project and informed both the members and stakeholders of the general progress made so far in project implementation, financial reports were used to share income and expenditure information with the funding agencies. Quarterly reports were prepared to share information with members and obtain their inputs on how to improve results delivery. Problem specific reports were prepared by committees constituted by the group on specific problems identified as threats to the project. Such problems included theft of project materials, poor quality materials, delays in project implementation by the contractors, delays in disbursement of funds by project financiers and delays in delivery of materials by members. These reports contained proposed solutions to the identified problems. Information in the reports was presented to members and their contributions informed the way forward as far as finding workable solution to the problems is concerned.

The last driver of success identified was capacity building of group members on their roles in water resource development and the importance of the resource in economic development. Many stakeholders participated in sensitizing groups on what they ought to do to develop their water resources. These included the ministry of water and irrigation and that of agriculture, CDF, the former county council of Keiyo, KVDA, World Vision, JICA and SARDEP. Locational development committees in collaboration with CDF particularly played key roles in education of community members on how to write proposals on water development and submit them to CDF for possible funding. The ministry of water provided technical expertise in areas of conducting feasibility studies and advising groups on project viability, drawing plans and designs for groups.

V.   CONCLUSIONS

Water project completion is a factor of group size, balanced gender composition, educated members, effective leadership, good communication and quick resolution of conflicts which are instrumental in facilitating successful completion of water projects. In addition, the bottom up approach to water resource development enhances participation and positively contributes to faster implementation of projects, contributing to project ownership and sustainability by the beneficiaries.

Effective public participation in water development projects right from project conception to evaluation improves the chances of successfully implementing water projects. However, participation is affected by the level of education of group members, the more educated members are, the higher the quality of participation, subsequently leading to successful completion of water projects. Public participation significantly contributes to reduced costs in project implementation and allows timely resolution of problems that would potentially delay the process. Group contribution of affordable labour, local materials such as sand, timber and stones or bricks acts as a motivator to participate in project work and provides a measure of the enthusiasm of the project to the community.

The successful interaction of both government – community and community – NGO projects is critical in water resource development in rural areas. In the latter however, water projects completion is done within stipulated timelines as it is devoid of bureaucracies.

The need to incorporate government agencies in designing sustainability strategies for groups is paramount to the success of group-based water projects. Given the low levels of education by group members, expert inputs especially from the ministries of water and irrigation and agriculture is critical. This can be through community workshops, seminars where key speakers on enterprise development and sustainability issues are invited to make presentations on best practices for illustration.

REFERENCES

[1] B. Agarwal. Participatory exclusions, community forestry, and gender: an analysis for South Asia and a conceptual framework. *World Development 29 1623–48.*2001.

[2] American Water Resources Association. *Case Studies in Integrated Water Resources Management: From Local Stewardship to National Vision*. AWRA. Middleburg. 2012.

[3] N.A. Anokye. *Stakeholder participation in water resources management: the case of Densu basin in Ghana*. Unpublished PhD thesis. Vrije University, Amsterdam, Netherlands. 2013.

[4] R. Clarke. *Water: The International Crisis*. Earthsacn Publications. London.1993

[5] B. Cooke and U. Kothari eds (2001) *Participation: the new tyranny?* Zed Books, London. 2001.

[6] D.Das & C. Ngacho. Critical success factors influencing the performance of development projects: An empirical study of CDF projects in Kenya. *IIMB Management Review. Vol. 29, Issue 4*. Pp 276-293. 2017.

[7] E.W.Dungumaro and N.F. Madulu. Public participation in integrated water resources management: the case of Tanzania. *Physics and Chemistry of the Earth 28 pp. 1009–1014*. 2003.

[8] European Environment Agency. *Public participation: contributing to better water management: Experiences from eight case studies across Europe*. EEA, Luxembourg.*pp18-30;38-49.2014.*

[9] P.Eskerod and A. L. Jepsen. *Project Stakeholder Management*. Farnham. Gower.2012.

[10] O.Fritsch.Integrated and adaptive water resources management: exploring public participation in the UK. *Regional Environmental Change, 17 (7). pp. 1933-1944.*2017

[11] S.Hickey. and G. Mohan. Eds. *Participation: from tyranny to transformation? Exploring new approaches to participation in development*. Zed Books, London. 2004.

[12] S. Jones. Participation as citizenship or payment? A case study of rural drinking water governance in Mali. *Water Alternatives*, 4 (1) pp. 54-71. 2011.

[13] KEWASNET. CSO Annual water and sanitation performance report. KWASNET. Nairobi. 2017.

[14] G. LeMoigne. A *Guide to the Formulation of Water Resources Strategy.* World Bank Technical Paper No. 263. World Bank, Washington. 1994.

[15] D. Lock. *Project management*. 10th ed. Farnham. Gower. 2013.

[16] H. Moraa. and A. Otieno. *Water governance in Kenya: Ensuring Accessibility, service delivery and citizen participation*. iHub Research. Nairobi. 2012.

[17] J.T.Mukui, K.K. Munguti and W. Mungai. *Kenya Community Driven Development: Challenges and Opportunities*. The World Bank. Nairobi. 2012.

[18] J.Mutai, D.M. Wanyoike. and C.M. Kihara. Project success factors in the water sector in Kenya: A case of Rift Valley Water Services Board. *International Journal of Economics, Commerce and Management, United Kingdom. Vol. 4, Issue 5*. Pp 425-453. 2016.

[19] M. Nassef. and M. Belayhun. *Water Development in Ethiopia's Pastoral Areas: A synthesis of existing knowledge and experience*. Save the Children USA and Overseas Development Institute. Addis Ababa, Ethiopia. 2012.

[20] J. Neysmith. and M. Dent. Non-statutory barriers and incentives to stakeholder participation in reducing water pollution: A South African case study. *Water SA*, 36 (5), pp. 577-587. 2010.

[21] B. Page. "Communities as the Agents of Commodification: The Kumbo Water Authority in Northwest Cameroon". *Geoforum* 34: 483-498. 2003.

[22] S.T.Romano. Transforming Participation in Water Governance: The Multisectoral Alliances of Rural Water Committees and NGOs in Nicaragua. *International Journal of Water Resources Development. pp 1-16.* https://doi.org/10.1080/07900627.2017.1363722. 2017.

[23] R. Rutto, D.M. Kungu. and M. Chesire. Project Integration Services and their Contribution to Successful Implementation of Projects for the Realization of Millennium Development Goals: A Survey of On-Going CDF Projects in Eldoret North Constituency. *International Journal of Current Research. Vol. 3, Issue, 11, pp.076-081, November, 2011.*

[24] J.M.O. Sam. What community characteristics lead to the successful outcome of rural water projects? Unpublished PhD thesis. University of Alaska. 2016.

[25] A. Singh. Poverty alleviation and Social Development Through Integrated Watershed Management Approach- a Case Study, In: 12th Stockholm Water Symposium, Abstract Volume, Balancing Competing Water Uses- Present Status and New Prospects, Stockholm International Water Institute, Stockholm, pp: 46-48. 2002.

[26] N. Singh. Equitable gender participation in local water governance: An insight into institutional paradoxes.

Water Resources Management, 22 (7), pp. 925-942. 2008.

[27] G. Smith. *Deliberative democracy and the environment*. London. Routledge. 2003.

[28] F. Sultana. Community and participation in water resources management: Gendering and nurturing development debates from Bangladesh. *Royal Geographical Society. Pp 347-363.*2008.

[29] W.D.Thwala. Community participation is a necessity for project success: A case study of rural water supply project in Jeppes Reefs, South Africa. *African Journal of Agricultural Research Vol. 5(10), pp. 970-979.* 2010.

[30] UpGro. Risk factors associated with rural water supply: A 30 year retrospective study of handpumps on the Southcoast of Kenya. https://upgro. org/tag/Kenya/ Accessed 22/2/2018. 2017.

[31] N.Uphoff and C.M. Wijayaratna. Demonstrated benefits from social capital: the productivity of farmer organizations in Gal Oya, Sri Lanka. *World Development* , 28(11): 1890–2000. 2000.

[32] Water Resources Group. *Annual Report 2016: Partnerships for Transformation: Water Security Partnerships for People, Growth and the Environment.* 2030 Water Resources Group. www.2030wrg.org. Accessed 20/04/2017. 2016.