



## Strategies to Enhance Adherence to Participatory Village Land use Plans in Ulanga District in Tanzania

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### Authors' contributions

*This work was carried out in collaboration between both authors. Authors MNN and EFN conceptualised the study. MNN did the field work, data analysis and writing of drafts under the guidance of author EFN. Author EFN reviewed and edited the drafts. Both authors read and approved the final manuscript.*

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### ABSTRACT

Land use plans have been considered as a solution to land use problems. Effectiveness of implementation of land use plan relies on a number of factors including strategies that are used to enhance adherence to the land use plan. For the study area, current and potential strategies to enhance adherence to land use plans had previously not been assessed. Thus this study assessed current and potential strategies used to enhance adherence to participatory village land use plans in Ulanga District, Tanzania. Data were collected through household survey of 120 respondents from two villages, key informants interviews, focus group discussions, field observation, review of guidelines for land use planning, village and use plans, district land use framework, books and journals. Information from household survey and village records were descriptively analysed to obtain frequencies and percentages. Information from key informants and focus groups was analysed by content analysis. Current strategies used included by-laws, boundary demarcation,

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zoning, community action plan, and conflict resolution. The current strategies were ineffectively implemented and enforced due to inadequate awareness, inadequate fines and penalties, funding limitations, weak governance and inefficient coordination and monitoring. Potential strategies that should be implemented include education, awareness raising, capacity building and benefit sharing.

*Keywords: United Nations; sustainable development goals; good governance; conflict resolution.*

## 1. INTRODUCTION

Land is a basic natural resource that sustains livelihood and development throughout human existence [1–6]. Land is a delineable area of the earth's terrestrial surface encompassing all attributes of the biosphere immediately above or below this surface including those of the near surface, the soil and terrain forms, the surface hydrology (shallow lakes, rivers, marshes and swamps) [7]. The near surface sedimentary layers and associated ground water reserve the plant and animal population, the human population settlement pattern and physical result of past and present human activity [7]. Humans have always attached social, cultural, economic and spiritual values as they utilise land [8–12]. The utilisation of land amidst population growth, technological advancements and anthropogenic activities has throughout time manipulated land into various positive and negative outcomes at local and global scale [9].

In some cases with poor land management, land degradation, land use conflicts, encroachment and land pollution have rendered land unsustainable in social, economic and ecological aspects [13]. The United Nations established the World Commission on Environment and Development known as Brundtland's commission in order to recommend solutions to address some of the critical environmental and development problems across the international community [14]. The commission proposed for land use planning in Rio de Janeiro earth summit in Brazil in 1992 as an effective strategy to confront some of the environmental and development challenges [14]. Conservation of land is United Nations Sustainable Development Goal (UN-SDG) Number 15 [15].

Land use planning is a systematic assessment of physical, social and economic factors in such a way that will assist and encourage land users to select land use options that increase their productivity, sustainability and meet the needs of society [7]. Land use planning in Tanzania has undergone different phases. The first may be

traditional land use planning before colonial rule where traditional management and institutions were applied [16]. In 1889, the German colonialists imposed formal conditions to acquire and control land from rural areas [16]. In 1920s rural land use schemes were initiated and centrally implemented by British colonialists through formalizing of land ordinance against traditional (informal) management [16]. After independence, during the 1960s to 1970s, the government of Tanzania developed layout plans for village settlement schemes [17]. These settlement schemes emphasized communal land ownership (*Ujamaa*) [17].

Between 1980s and early 1990s village land use plans (VLUPs) were developed for 303 villages out of 8174 villages [18]. However, land use conflicts persisted among different livelihood groups specifically among the farmers, pastoralists, conservationists and the business community [16]. Land use conflicts were aggravated by increasing population and development activities as well as failure of top down land use planning approach [16,18]. This led to a paradigm shift from top-down to bottom-up approach in the form of participatory land use planning [16,18].

The government of Tanzania instituted participatory village land use plans (VLUPs) through the Village Land Act No. 5 of 1999 and Land Use Planning Act No. 6 of 2007 [19]. Participatory village land use planning involves weighing land use opportunities against the problems involved, generation of a range of land use options, and making choices between these options [18]. There are mainly six steps followed when developing participatory Village Land Use Plans (VLUPs), which include preparations at district level, participatory rural appraisal, mapping existing village land uses, participatory village land use planning, implementation of village land use plans, enhancement of security of tenure and village land use management [18,19]. Land use plan implementation is a concrete measurable action towards practical effect [20].

The overall goal of land use plan implementation is to achieve sustainable land management, which enhances ecological functions whilst enabling the land users to maximise economic and social benefits [21]. Assessment of implementation of land use plan measures the likelihood of achieving the goals, objectives and policies which reflect the quality of the plan [22,23]. The quality of the plan is however, not a guarantee to the achievement of the intended goals, rather it is a theoretical presentation of expected outcomes [24,25]. Practically, the implementation of the plan as a means to an end may not result to the expected end due to several influential factors such as age, income, education level, security of land tenure and residential status at household level [9,15,26–28]. Other influential factors are at community level and may include corruption, lack of awareness, increased population and inadequate enforcement strategies [9,15,26–28].

Strategies developed to enforce adherence to VLUPs may include by-laws, penalties, and demarcation of boundaries. However, rigid and uncoordinated strategies may result in non-adherence to zones as planned [29]. Zoning approach provides enforcement strategies in which surfaces of land uses and adherence to VLUPs can easily be visualized [5]. The aim of the present study was to assess strategies that

are used to enhance adherence to participatory village land use plans in Ulanga district in Tanzania. Specifically, the study assessed: (1) Strengths and weaknesses of current strategies used to enhance adherence to participatory village land use plans, and (2) Potential strategies and their strengths and weaknesses in enhancing adherence to village land use plans.

## 2. METHODOLOGY

### 2.1 Description of Study Area

Ulanga District is located to the South West of Morogoro Municipality (35.4°- 38.0°E; 8.0°- 10.0°S). It is the largest district in Morogoro region, with total area of 10,688.89 km<sup>2</sup>. It comprised 21 wards' and 59 villages [30,31]. About 75% of the total area was covered by Selous Game Reserve, Kilombero Game Controlled Area, Wildlife Management Area and forest reserves [30,31].

Ulanga District was selected for this study because there were VLUPs but still there were reports of land use conflicts, which suggests among other issues both inappropriateness of the VLUPs and poor implementation strategies [32]. A total of 42 villages had land use plans by 2016 [31].

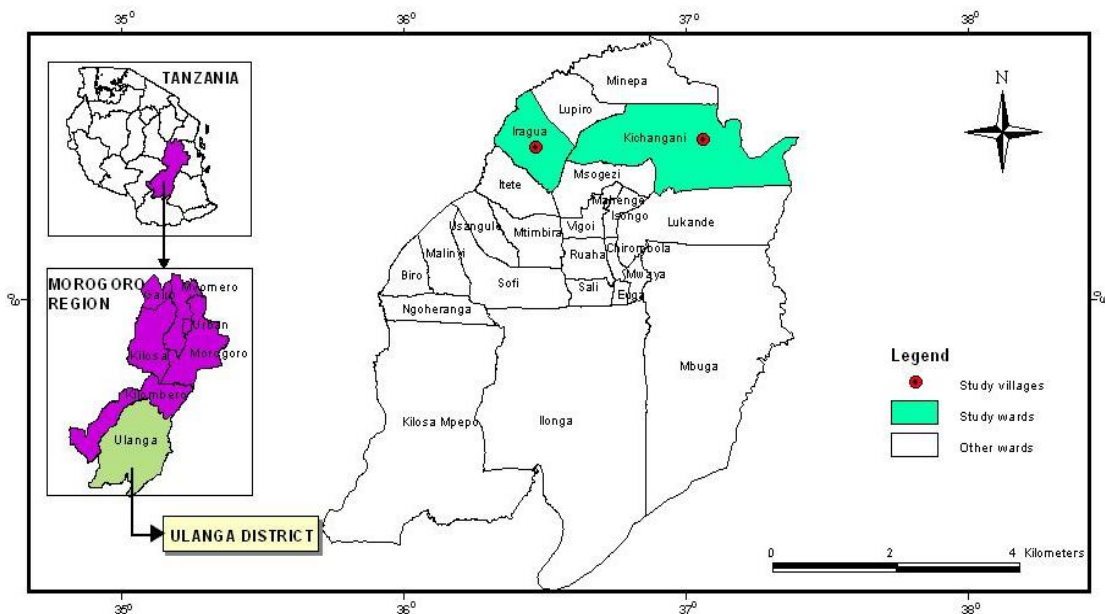


Fig. 1. Map of Ulanga District showing study villages

## 2.2 Methods

This study employed cross-sectional design whereby data collection was undertaken once due to limited time and budget constraints [33]. The study contains information which was collected between January and June 2016. The study also describes village land use implementation at household level with due consideration of socioeconomic, demographic and physical factors.

Ulanga District was purposively selected due to persistent incidence of land-based conflicts despite initiation of VLUPs. Initially, the district was purely occupied by farmers but in recent years there has been an influx of immigrants from agro pastoral communities who were attracted to the large arable land in the district suitable for grazing and farming. The impact of this immigration has affected the socioeconomic and ecological components in the district. There is increased reported land degradation caused by neighbouring villages adjacent to Kilombero Valley Ramsar Site which is shared between Ulanga and Kilombero Districts [32]. Furthermore, land use conflicts between farmers who are mostly natives and pastoralists who have emigrated from other districts have rendered land use unsustainable both within village land and outside village land [32]. This incidence has instigated government interventions including resettlement of agro pastoralists in 2012 to Lindi Region as well as establishment of land use plans. The implementation of the plans towards safeguarding natural resources and enhancing community livelihood is limitedly known as land use conflicts still prevail in the district.

Two villages were purposively selected from a list of villages with operational VLUP that was obtained from the district land office. The selection of these villages was also based on the major socioeconomic production system (farming and pastoralism) and VLUPs implemented for over three years of time when the community will have adjusted to the changes in planned land use. Other criteria for selection included a village adjacent to a communally managed wildlife conservation area while another not adjacent and accessibility of the villages by the research team.

At the village level, independent groups of female and male farmers as well as female and male pastoralists were drawn randomly from the updated village registers. Each group comprised

of at least eight individuals since this is a manageable size of group recommended for FGD [34]. Other groups for FGDs included Village Land Use Management Committee (VLUMC) while Participatory Land Use Management team (PLUM) were involved at district level.

Key informants were purposively selected from the district and village levels. At village level, the key informants comprised Ward Executive Officer, Village Councillor, Village Executive Officer, Village Chairman and Extension Officer.

A total of 120 households (60 from each village) as recommended constituted a representative sample for the study for the household questionnaire survey [33]. Farmers, pastoralists, male and female headed households were randomly obtained from updated household register of each village with facilitation from the Village Executive Officer. Household respondents were interviewed on the strategies to enforce adherence to VLUPs whereas FGDs and discussions with key informants were conducted in order to triangulate what was communicated.

The data and information collected covered strengths and weaknesses of current and potential strategies used to enhance adherence to village land use plans. Analysis of information from FGDs was done by the help of the participants (land use groups, VLUMC and (Participatory Land Use Management) PLUM team). Information from key informants was analysed manually by content analysis. This involved information recording, summarizing and categorizing into meaningful themes and issues within the themes. Data from household questionnaire survey were summarized into frequencies and percentages of respondents who stated or selected different issues or options using appropriate statistical software.

## 3. RESULTS AND DISCUSSION

### 3.1 Strengths and Weaknesses of Current Strategies Used to enhance Adherence to Participatory Village Land Use Plans

According to the PLUM team, the strategies used to enforce adherence to VLUPs included signboards and boundary demarcations, by-laws, zoning, community action plan and conflict resolution [19]. Respondents identified different

zones and whether there were clear demarcations between the different zones under VLUPs (Table 1). Most (70.00%) of the questionnaire survey respondents from Iragua village agreed that there were signs that were put up to demarcate the different zones under VLUPs though most of them had been vandalised to permit misuse of the allocated zone. However, at Kichangani village, majority (83.30%) of the respondents disagreed to have had signs erected in the different zones. When respondents were asked if the zones had been demarcated, most of the respondents (75%) said that the zones were not clearly enough demarcated.

During FGD with VLUMC and interview with VEO at Kichangani village, it was revealed that the signboards were prepared during planning stage and were still left in the office since there had been no initiatives taken by the village to put up the signboards against the land use zones after the project phased out. Discussion with the different groups further revealed that the zones for different land uses were clearly demarcated at Iragua village while most zones for Kichangani village were not clearly demarcated. The only zone at Kichangani village that was clearly demarcated was the WMA zone, whereby roads and beacons were put up. Nambiga forest reserve, agriculture zone and the residential zone had clearly established roads in Iragua Village.

The findings (Table 2), revealed that majority (59.20%) of respondents were not aware of the by-laws, while most of the respondents (62.50%) were least involved in developing the by-laws. Low participation in the village assembly meeting further justified their least involvement in development and approval of the by-laws. Most of the respondents (84.20%), said that penalties

imposed were inadequate to enforce adherence to VLUPs. The key reason by most of respondents (35%) for inadequacy of penalty was due to weak enforcement of by-laws. Other reasons were, inadequate involvement of land users in developing by-laws (30.00%) and inadequate fines and penalties (30.00%). The low fines imposed failed to deter repetition of the offences committed. Fines should reflect on land use impact caused by non-adherers by costing the mitigation of impact caused by non-adherence activities [20]. Reference to VLUPs document and local government legislation, it was found that a fine not exceeding TZS 50,000.00 would be charged for any violation of land use plan at village level [35,36]. Additionally, weak enforcement of the by-laws by the village government was a reason given for the offences during a discussion with VLUMC committee whose roles ceased to continue after the planning stage. It was further reported that inadequate coordination among committees involved in enforcement of adherence at specific zones (Natural Resource Committee) or generally in all zones (VLUMC) paralysed effectiveness in enforcement of by-laws.

It was further disclosed that despite the fact that contraveners of by-laws were supposed to be prosecuted most of their cases were handled by village leaders. This typifies a fused power entity where laws are made, enforced and judged by a single body subjecting decisions to bias, corruption and unjust rulings [37]. The stipulated fine of TZS50,000.00 for non-adherence to VLUP in the study villages did not consider the magnitude of the offences. This provided a loophole for recurrent of incidences since, as discussion with VLUM Committee, “the fine of clearing acres of a forest is the same as the fine charged for a single tree.”

**Table 1. Presence of signs and clearly demarcated within the zones**

Category label	Iragua		Kichangani		Mean %
	n	%	n	%	
<b>Presence of signs at different zones</b>					
Yes	42	70.00	10	16.70	43.35
No	18	30.00	50	83.30	56.65
<b>Total</b>	<b>60</b>	<b>100.0</b>	<b>60</b>	<b>100.00</b>	
<b>Are all the land use zones clearly demarcated</b>					
Yes	46	23.30	16	26.70	25.00
No	14	76.70	44	73.30	75.00
<b>Total</b>	<b>60</b>	<b>100.0</b>	<b>60</b>	<b>100.0</b>	

**Table 2. Presence of by-laws for enforcing adherence to participatory village land use plans**

Category label	Frequency (n=120)	Percentage
<b>Awareness of by-laws</b>		
Yes	49	40.80
No	71	59.20
<b>Total</b>	<b>120</b>	<b>100.00</b>
<b>Involvement in developing by-laws</b>		
Yes	45	37.50
No	75	62.50
<b>Total</b>	<b>120</b>	<b>100.00</b>
<b>Adequacy of penalties</b>		
Yes	19	15.80
No	101	84.20
<b>Total</b>	<b>120</b>	<b>100.00</b>
<b>Reasons for non-adherence to village land use plans</b>		
Weak enforcement of by-laws	42	35.00
Inadequate involvement in developing by-laws	36	30.00
Inadequate fines and penalties	36	30.00
Corruption	3	2.50
Inadequate knowledge	3	2.50
<b>Total</b>	<b>120</b>	<b>100.00</b>

Weak implementation of rules increased open access of forested zone in Silalek and Mai-Natao villages [38]. A similar case was reported in Lindi and Ruvuma regions [39]. Information from key informants also revealed that there was no strategy for motivating VLUMCs to facilitate in the implementation of the plan and as a result, most of the members opted for other opportunities to facilitate in sustaining their livelihood. Non-adherence to spatial plans was mainly triggered by lack of means to implement incentive and penalty schemes in the Moluccas [40].

Zoning is among the strategies mentioned during FGDs with PLUM and VLUMC. Discussion with PLUM team on the zoning criteria used to enforce adherence on the VLUP and review of the land use document disclosed that some zoning criteria were known to the respective sectorial expert (Table 3). At village level, though the VLUM team was involved in zoning activity, they had inadequate know-how on the criteria used to allocate the different zones. In the absence of transparent and participatory implementation strategies, the interests of the community were not represented, a finding which is also reported previously [41,42]. In this regard, sectorial-regulated and donor-influenced zones may limit adherence to allocated zones. For example at Kichangani Village where the land use supporting project was wildlife conservation

based, this influenced the allocation of the wildlife management zone which covered most of the village land. Limited adherence had been observed in some of the zoned areas due to insufficiently allocated land use zones [43].

Review of the land use documents [35,36] and interviews with District Land Officer, Village Executive Officers and Extension Officers (Table 4) revealed that Community Action Plan documented during planning where problems, implementation actions, timeframe and outcomes were identified for each land use zones. The implementation had not been effected to improve the proposed zones infrastructures since the planning process ended at the fourth step. The District Land Officer explained that it was a sectorial responsibility to advance each respective zone with infrastructure necessary to enforce adherence to VLUP. Discussion with PLUM team comprised of experts from the different land use sectors informed that land use plans which were developed during donor had limited sustainability after the projects phase out due to inadequate funding to support effective implementation of the VLUPs. During planning, resources for implementation of actions plans towards completion of planning steps should clearly be coordinated between government and donor's in order for VLUPs to be complete and implementable.

**Table 3. Strengths and weaknesses of current strategies used to enhance adherence to participatory village land use plans**

<b>Strategies</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Source: field work</b>
By-laws	1. Available for both villages	1. Inadequate involvement during development 2. low fines and 3. inadequate enforcement	Household survey, VLUMC, VEO
Build capacity at Village Level	1. VLUM were trained 2. Awareness was raised to villagers	1. Unclear roles 2. Inadequate capacity and remuneration 3. Inadequate awareness to land use groups	Household survey, VLUMC, VEO
Signboards	1. Available in both villages	1. Missing the sign boards in some zones due to vandalism in Iragua village 2. No signboards were in all zones rather they were kept in the village office	Household survey, FGD, VLUMC, VEO
Boundary demarcation	1. Clearly established in Reserved forest and wildlife management zones	1. Inadequate maintenance of boundaries 2. lack of beacons or clear demarcations in most zones	Household survey, FGD, VLUMC, VEO
Zoning	1. Both villages have land use zones as per the VLUP	2. The used standards are sectorial and donor influenced 3. Missed specific needs within the zones to harmonise land use 4. Limitedly known to most land users 5. Inadequate consideration of cultural values and behaviour	VLUMC, PLUM team
Community Action Plan	Documented within VLUP for each village	1. No implementation due to inadequate coordination and budgetary constraint	PLUM, VLUMC, VEO, Extension officers, District Land Officer
Land use Security	Customary rights of occupancy still exists	1. Non adherence to formal allocation of land 2. Lack of transparency 3. No formal rights of occupancy implemented	FGD, VLUMC
Conflict Resolution	Conducted by village leaders	1. Conflict of interest between village land council, VLUM and village government 2. inadequate capacity in resolving conflicts at village level	VEO, VLUMC

*VLUMC = Village Land Use Management Committee, VEO = village executive officer, PLUM= Participatory Land Use Management*

A plan is not a blueprint; it has to be flexible to accommodate changes. Conflict is an engine of change that has positive and negative repercussions. Conflict resolution therefore is among the important strategies which facilitate enforcement of adherence to VLUPs (Table 3). In both villages, the VLUM committee and the land use council said that they were least involved in resolving land use conflicts. Even when they were involved, their recommendations were least considered in the final decision/ruling by the village government.

Land use conflicts occur when land users do not adhere to allocated land use zones leading to disputes. Conflict resolution is among tasks of VLUMC stipulated in NLUPC (2013) guidelines. The discussion with VLUMC committee revealed that no training was imparted to appraise them with negotiation and mediation skills which are important to resolve non-adherence incidences among land users. Likewise, inadequate capacity to resolve conflicts among the environmental committee comprising of farmers and pastoralists was an important factor [44]. Inadequate coordination of different committees at village level as suggested by VLUMC team led to failure of effective enforcement of adherence to the land use plan. Moreover, conflict of interest among different committees also affected the implementation of VLUP.

### **3.2 Potential strategies and Their Strengths and Weaknesses in Enhancing Adherence to Village Land Use Plans**

Ownership of a plan by targeted users is vital to its implementation [20]. This study established that in order for the community to adhere to VLUPs they have to be involved in planning and implementation. As a result of inadequate involvement during planning, most plans do not receive the approval of the people and, therefore, their implementation is extremely difficult [16]. Only 18 and 142 household's representatives respectively attended the village assembly meeting to approve VLUPs at Kichangani and Iragua villages respectively. Awareness and education campaign had the highest percentage of potential strategies proposed during household survey (Table 3). This was due to inadequate involvement during planning process as further justified by the few number of households representatives from Kichangani (18) and Iragua (142) villages which were below the required quorum involved in developing the land

use plans for both villages [35,36]. The need for sustainable education programme was also suggested during FGD with the different land use groups who suggested the need to acquire knowledge on improved farming practices and livestock keeping, thereby avoiding practices that limit adherence to designated zones. Raising awareness and knowledge on village land use would, therefore, empower the community to enforce good governance as further suggested during FGD with land use groups.

Capacity building of VLUM committee was among potential strategies suggested (Table 3). Weak capacity to enforce adherence to VLUP was highlighted during discussions with VLUMC. This was because of inadequate knowledge and skills to enforce adherence as well as use of tools such as GPS to allocate land, and appropriate weapons to detain non-adherers. Often, due to weak capacity, some of them fell victims of violent attacks and were injured. Inadequate equipment, staff and limited technical know-how as key factors that limited enforcement of land use regulations for adherence have also been reported elsewhere [42].

Some of the zones required specific strategies to enforce adherence to VLUPs. Tangible benefits accrued from conserved zones are expected to promote socio-economic development while enhancing ecological conservation [45]. According to the VEOs, even with the large designated areas for forest and wildlife management zones, substantial tangible benefits which were expected to be reaped by the community had not yet been realised. The essence of a working WMA was to acquire a user rights which would enable the community to realise tangible benefit out of conservation. The desire of the district council towards realisation of a working WMA at Kichangani village through donor support had ever been realised before and after planning [46]. Even after developing the VLUP, the WMA zone was still not upgraded to allow user rights of wildlife resources. Farmers in Madagascar did not comply with regulations imposed to support conservation of forested zones due to inadequate incentives provided for conservation over agriculture [5]. As a result, illegal settlement, forest fragmentation and expansion of agriculture fields into zoned forest were observed. A similar situation is observed in this study where non adherence incidences of encroachment and invasion into conserved zones were observed though the magnitude of



**Table 4. Strengths and weaknesses of potential strategies used to enhance adherence to participatory village land use plans**

<b>Strategies</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Source: field work</b>
Education and awareness programme	1. knowledge and awareness of land use issues to reduce conflicts, enhance good governance and sustainable land management practices	1. No continuous education and awareness programme since planning 2. Weak implementation	FGD land use groups, VEO and VLUMC
Remuneration scheme	1. Motivate VLUM and to undertake their enforcement roles	1. No sustainable source of fund at village level 2. No resource mobilisation plan for supporting implementation of VLUP after planning process	District Land Officer, VLUMC, VEO
Monitoring and evaluation	Follow up on implementation and enhance adoption of the plan to the community	1. No monitoring and Evaluation plan 2. Weak implementation due to inadequate coordination between NLUMC, district and village leaders. 3. Inadequate capacity at village level	FGDs with land use groups, VLUMC, PLUM team
Benefit sharing scheme	Improved value for conservation of specific zones	1. No user rights provided in the Wildlife management zone 2. Under developed opportunities in conserved zones 3. Inadequate technical know-how developing opportunities at village. 4. Lack of transparency in income acquired from forest utilisation	District land Officer, FGD land use groups, VLUMC

*VLUMC = Village Land Use Management Committee, VEO = village executive officer, PLUM= Participatory Land Use Management*

the non-adherence was limited to the methodology employed in examining adherence to VLUPs.

Interview with the District Land Officer revealed that the alleged complete plans ended up at the fourth step of having an approved document of village land use plan. Missed out details included acquisition of land security of tenure (acquiring certificates of customary rights of occupancy) and this further advanced the zoned used by putting up the necessary infrastructures. This, according to the VEO and discussion with VLUM committee, had greatly influenced adherence to planned land use zones causing recurrent conflicts between farmers and pastoralists. It was also noted that acquisition of land was often informal and therefore land use conflicts were often inevitable. Discussion with land use groups and VEO on modality of acquiring land disclosed that a person cleared a bush and paid only TZS20,000.00 to the village for an acre of land.

Planning is considered a continuous process of interaction that will shape as well as be shaped by those affected by the plan. There is need to review zoning maps to accommodate recommendations, improve predictions and balance interests among users[47]. Monitoring VLUP implementation was another potential strategy suggested during FGDs (Table 3). This was proposed in order to assess adherence to VLUPs, accommodate changes and develop actions plans to enforce adherence.

A plan has to be flexible in order to accommodate changes and therefore it requires short term and long term reviews to adjust accordingly [24]. Sufficient allocation was highly recommended towards improved agriculture production and conservation instead of land sparing and sharing [48]. Instead of developing new plans the district should review existing plans to observe if they are adhered to [49]. Monitoring and evaluation of the plan was a potential strategy to enable implementation of the VLUPs through adjustment to prevailing situation and future situation in implementation of the VLUPs.

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

##### **4.1 Conclusions**

The strategies currently (i.e. by 2016) used to enforce adherence to VLUPs included sign

boards and boundary demarcations, by-laws, zoning, community action plan and conflict resolution. Most (70.00%) of the questionnaire survey respondents from Iragua village agreed that there were signs that were put up to demarcate the different zones under VLUPs though most of them had been vandalised to permit misuse of the allocated zone. However, at Kichangani village, majority (83.30%) of the respondents disagreed to have had signs erected in the different zones. When respondents were asked if the zones had been demarcated, most of the respondents (75%) said that the zones were not clearly enough demarcated. It was revealed that the signboards were prepared during planning stage and were still left in the office since there had been no initiatives taken by the village to put up the signboards against the land use zones after the project phased out. The only zone at Kichangani village that was clearly demarcated was the WMA zone, whereby roads and beacons were put up. Nambiga forest reserve, agriculture zone and the residential zone had clearly established roads in Iragua Village. The findings (Table 2), revealed that majority (59.20%) of respondents were not aware of the by-laws, while most of the respondents (62.50%) were least involved in developing the by-laws. Most of the respondents (84.20%), said that penalties imposed were inadequate to enforce adherence to VLUPs. The key reason by most of respondents (35%) for inadequacy of penalty was due to weak enforcement of by-laws. It was further disclosed that despite the fact that contraveners of by-laws were supposed to be prosecuted most of their cases were handled by village leaders. This typifies a fused power entity where laws are made, enforced and judged by a single body subjecting decisions to bias, corruption and unjust rulings. The stipulated fine of TZS 50,000.00 for non-adherence to VLUP in the study villages did not consider the magnitude of the offences. This provided a loophole for recurrent incidences since, "the fine of clearing acres of a forest is the same as the fine charged for a single tree." At village level, though the VLUM team was involved in zoning activity, they had inadequate know-how on the criteria used to allocate the different zones. In the absence of transparent and participatory implementation strategies, the interests of the community were not represented.

Potential strategies that could be used to enhance adherence to VLUPS included education and awareness programmes, capacity building, benefit sharing and, review and

evaluation of VLUP. This study established that in order for the community to adhere to VLUPs they have to be involved in planning and implementation. Awareness and education campaign had the highest percentage of potential strategies proposed during household survey. This was due to inadequate involvement during planning process as further justified by the few number of households representatives from Kichangani (18) and Iragua (142) villages which were below the required quorum involved in developing the land use plans for both villages. The need for sustainable education programme was also suggested as a way to acquire knowledge on improved farming practices and livestock keeping, thereby avoiding practices that limit adherence to designated zones. Raising awareness and knowledge on village land use would, therefore, empower the community to enforce good governance. Capacity building of VLUM committee was among potential strategies suggested. Weak capacity to enforce adherence to VLUP was highlighted during discussions with VLUMC. This was because of inadequate knowledge and skills to enforce adherence as well as use of tools such as GPS to allocate land, and appropriate weapons to detain non-adherers. Often, due to weak capacity, some of them fell victims of violent attacks and were injured. Some of the zones required specific strategies to enforce adherence to VLUPs. With the large designated areas for forest and wildlife management zones, substantial tangible benefits which were expected to be reaped by the community had not yet been realised. The essence of a working WMA was to acquire a user rights which would enable the community to realise tangible benefit out of conservation. Even after developing the VLUP, the WMA zone was still not upgraded to allow user rights of wildlife resources. It was revealed that the alleged complete plans ended up at the fourth step of having an approved document of village land use plan instead of going to the sixth step. Missed out details included acquisition of land security of tenure (acquiring certificates of customary rights of occupancy) and putting up the necessary infrastructure. It was also noted that acquisition of land was often informal, which contributed to land use conflicts. Planning is considered a continuous process of interaction that will shape as well as be shaped by those affected by the plan. There is need to review zoning maps to accommodate recommendations, improve predictions and balance interests among users. Monitoring VLUP implementation was another potential strategy suggested.

## **4.2 Recommendations**

Based on the findings and conclusions, this study makes the following recommendations:

- a) The NLUPC should consider developing implementation strategies during planning that are flexible to accommodate different circumstances within the community. Specific zones may require specific strategies which will allow adherence to the plan. These strategies have to be developed at local level to ensure that they are achievable.
- b) Continuous education and capacity building should be part of implementation strategy to increase awareness and knowledge among land users on sustainable land use management practices, conflict resolution, land use legal procedures and rights.
- c) This study recommends that the Ministry of Natural resources and Tourism facilitate in establishment of direct tangible benefits as a strategy to enhance conserved zones(WMA or forest zone). This can be through exploiting opportunities for bee keeping projects, tourism as well as payment for ecosystem services. A global approach of payment for carbon storage in forest plantation and reserves through Reduction of Emission from Deforestation and Degradation (REDD) Programme under the United Nations Framework Convention on Climate should be adopted. Once this is implemented, the land users will benefit from economic opportunity from the conserved zones hence promote sustainable land use practices in conserved zones.
- d) There is need for coordination not only during planning but also in implementation of the plan between the organization hierarchy vertically from the central, district, ward and village level and horizontally across sector officials, village organs and committees.
- e) The government should privatise ownership of grazing land to replace the existing communal zoning to limit the number of herds kept within the carrying capacity of individuals/private land holding. Alternatively, the government may empower the community to manage the grazing land by establishing a communal grazing management plan to ensure

sustainable utilisation of resources in this zone and hence adherence to the plan.

- f) There's need for resource mobilisation strategy to support implementation of village land use plans. Integrated implementation approach may be considered and coordinated from ministerial, district to village level.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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