

Research Article

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A complimentary conjunction of approaches in environmental planning in the Zambezi Valley



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Abstract

Large swathes of land in the Zambezi Basin are strongholds of free ranging indigenous large mammals and fishes yet these areas are under threat from indigenous settlers who are faced with twin problems of expanding agriculture and venturing into wildlife community projects. The area has recently been cleared of tsetse fly making it freely available for agriculture. Photographs show the extraordinary place, fragile and magnificent and a changeable land surface. Integrated conservation planning using ecosystem-based management principles is still in its infancy but the goal is to secure public health and security concerns through adaptive management approaches, partnerships and a variety of business structures. A purposive sampling of community reaction to a fenced conservation project was conducted in order to incorporate local community opinion. The results show the need to do more to understand the local communities more in the region.

Introduction

The transition to sustainable rural and regional economies that combines land protection with social Enterprise offers unique place-based opportunities for the achievement of biodiversity protection [1,2] Debates about how best to make environmental friendly venture projects possible are occupying environmental planners and advice industries in many parts of the world (FAO, 2017). But in developing countries such as Zimbabwe it is worrying how muffled the debate is. The varying concerns about climate change and the rarefaction of natural resources open the era for effective environmental management [3]. In most rural communities people question development strategies obliging the local stakeholders to prove their fast reactivity. This reactivity requires constant consultation between all the economic, institutional and social partners of each community and the dedication of each individual community vision. It is thus necessary for the stakeholders of each community to engage in time of stocktaking and reflections in order to adjust and clarify the common vision [4]. In undertaking projects such as infrastructure projects, recreational facilities, wetland restoration projects and service facilities communities display new identities. The environmental and economic realities force the communities to question even more on the pertinence of a model of development of a new scheme. The various demands placed by individuals are sometimes in contradiction with each other. Anticipating crises, dialoguing more with each other has

become indispensable practices for the local stakeholders. Locals are always claiming more strongly their right to information and consultation [5]. Through pedagogy and education communities can become partners of a project and succeed in raising local identity. Detailed environmental protocols have been outlined by [6] in the pursuit of planning models for community ownership. Galiano Conservancy established development of more detailed plans that identify metrics for evaluation, for example for ecological restoration.

The paper investigates the potential effective role of local communities in biodiversity protection in the Zambezi Valley. The links between poverty and the environment in rural areas have been demonstrated by many including Birdlife International [7]. In 2009, Birdlife International identified over 2,345 globally important high biodiversity sites in the Americas using birds as indicators [8]. The majority of important bird protected areas (IBPAS) are located in rural areas. Bird Life found that 31% of IBAS are fully protected, 22% are partially protected and 37% are not protected. Key to their conservation are the local communities that live in and around these sites as their livelihoods depend on the natural resources these sites provide [8]. Insufficient consideration of social aspects can render such initiatives ineffective. By incorporating stakeholders' perceptions and values, and by involving stakeholders transparently in decision-making processes, conservation plans and efforts can better

achieve desired goals and targets [9]. The aim is to interrogate the capability of planning models in conservation. The models have changed from participatory biodiversity conservation [10] to adaptive and collaboration models.

Integrated conservation planning using ecosystem-based management principles is a natural evolution of land acquisition for environmental health. This transition to sustainable rural and regional economies that combines land protection with social enterprise offers unique place-based opportunities for the achievement of biodiversity and community economic development goals. As conservation and other organizations continue to provide models for integrated conservation planning and management, the importance of integrated conservation planning approach can be considered across the landscape as a contribution to regional biodiversity and community economic development.

Background to Study Area



Figure 1: Zambezi basin. (Photo credit Admire Ndlovu, 2013).



Figure 2: Location of the Sebungwe Region.

The Zambezi Basin has been aptly described by David Livingstone (19 March 1813 – 1 May 1873) in his travels and memoirs in Central Africa. The Biodiversity Four Corners Project and the Zambezi Society have subsequently lifted the profile of the Zambezi Basin. The much vouched Victoria Falls is found on the Zambezi River. Climate and human pressure on resources are significantly changing the environment in the Zambezi river basin, as illustrated in (Figures 1 & 2). This includes land

degradation, loss of forests, expansion of urban and mining areas as well as the spread of alien plant species. Despite the abundance of wildlife resources in the basin, the Atlas shows that there are pressures that are threatening the existence of animal species.

A vast Trans Frontier Conservation Area (TFCA), has been established in various parts of the basin to coordinate management of wildlife and other resources, including the Kavango-Zambezi (KAZA) TFCA that covers 287,000 square kilometers over five countries (Angola, Botswana, Namibia, Zimbabwe and Zambia). The Zambezi Valley faces various institutional arrangements and policy framework challenges that are underpinned by integrated conservation planning.

Methods

- a) [1,11] have described some methods pertinent to social ecological research.
- b) Structured interviews were conducted with respondents including Government employees, Council employees, Campfire, Safari Operators, and Traditional Leader including the Chiefs, Negande, Mola and Nebiri. Interviews are important in case study research because this type of research is about people and their activities.
- c) Focus Group Discussions were also used in the community to solicit group participation, opinions and experiences.
- d) Questionnaires were distributed to local community residents in the Omay communal lands to determine their knowledge and perceptions about the establishment of the Ume River Conservancy and its potential benefits to the local community and to conservation efforts in the Mola chieftainship area.
- e) Expert opinion and review of relevant literature was also used to gather more details on different subjects related to the planning and implementation of multi-stakeholder conservation projects such as community conservancies.
- f) Wildlife census data from the 2014 aerial surveys were also integrated with interview and questionnaire data in a Geographic Information System environment to examine the linkages between ecological patterns, socio- economic and political dimensions and their interactions as drivers of land use patterns in the Sebungwe Region of Zimbabwe.

Results

Collaborative planning models are best practices thought of lifting local community participation and awareness in effective environmental planning. Participatory biodiversity conservation makes use of indigenous knowledge systems and mapping systems. This helps identify conservation goals for the planning region with the participation of economists to

determine how to share benefits. In a study in the Sebungwe region (Figure 1) a variety of perceptions about acceptance of fence project for a proposed wildlife conservancy project were obtained [12]. 85% of the local community residents did not perceive any form of benefits from the establishment of a conservancy while 79% were not happy with the fence and the establishment of the conservancy [12]. Different reasons were cited by the respondents but the most common perceptions was that the erection of the fence was going to have a negative impact on their livelihoods through restricted access to resources like fishing grounds, firewood, grazing pastures and construction materials such as thatching grass and poles from the nearby woodlands. This was in contrast to the views expressed by the project proponents who showed greater awareness of the potential ecological and socio-economic benefits of fencing and establishing the conservancy in the area.

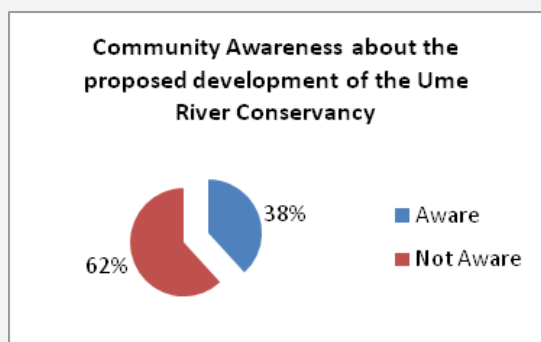


Figure 3: Community Knowledge about the Ume River Conservancy.

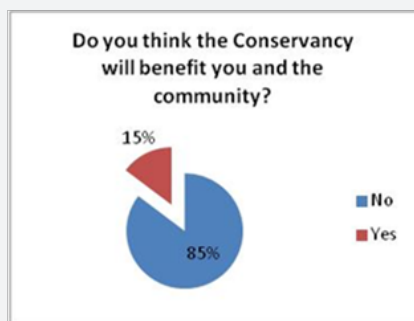


Figure 4: Community perceptions about the benefits of Ume River Conservancy.

The questionnaire survey revealed that most of the local community members were very disappointed with the benefits they have been deriving from wildlife through the CAMPFIRE program and were also not supportive of wildlife-related programs in their area. (Figures 3-6) show the feelings of respondents about the benefits received from wildlife and the proportion of respondents with negative attitudes towards different wildlife species. Most respondents highlighted crop raiding by elephants and livestock depredation by lions and

hyenas as the major reasons for the negative attitudes towards these species. There is also a general dissatisfaction with the benefits received from CAMPFIRE with most people having not benefitted from living in a CAMPFIRE area.

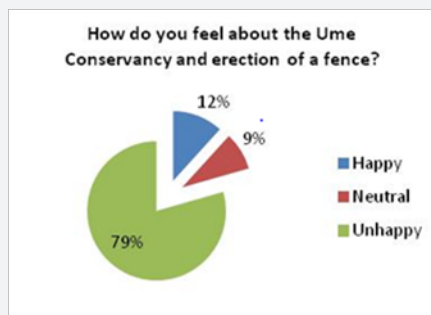


Figure 5: Community attitudes towards the proposed erection of a fence.

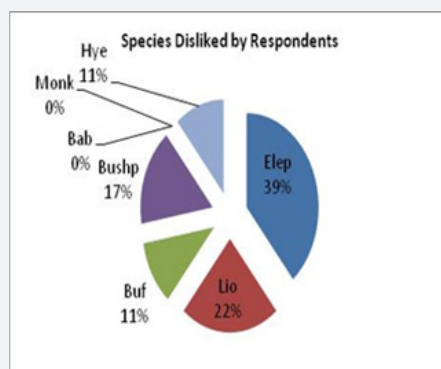


Figure 6: Proportion of respondents with negative attitudes towards different wildlife species.

Discussion

The debate on a suitable form of community engagement soon moved swiftly to stakeholder's perspective on ecological modeling in environmental risk. [13] Suggested payment for environmental services (PES) as a healing and benefiting platform as compensation for livelihood losses. This has seen districts endowed with wildlife stampeding for access to PES. There is a high proportion of respondents with a negative attitude to wildlife in the study area. The debate on a suitable form of community engagement soon moved swiftly to stakeholder's perspective on ecological modeling in environmental risk. This is closely linked to the role of mechanistic effect models which still left gaps in understanding. In order to conveniently understand ways of local community participation application of game models for stakeholder management in conservation has been attempted by [14]. This realistic model for stakeholder management in construction has considered ecological corridors [14]. English (2010) considered the appropriateness of centrally involving stakeholders in different types of ecosystems such as wetlands, ecological "bioresources," park and endangered species' habitats.

Other special stakeholder-centered models of environmental decision making have been holding promise in resolving conflicts and ecosystem services. The full development of ecological knowledge in social processes and socio-cultural systems has been inadequate in achieving a holistic understanding. The need to consider conservation planning, which includes characterizing local biodiversity has been involved in estimating model organism for conservation issues. It has been attempted in salmon modeling. In most cases, disputes exist among different stakeholders due to models considered in a simplistic three-fold manner the stakeholders involved [15]. The Zambezi Valley rural communities have a low awareness to the value of biodiversity and this associated with high levels of unsustainable extraction rates. Social-ecological systems are inherently complex, having a variety of interacting actors with different types of ecological knowledge, interests, and values and this may impede progress in sustainable management of environmental projects. Different participatory tools or approaches are appropriate for various and specific contexts and objectives. Determining and integrating the various types of knowledge and values of different actors can contribute to a more comprehensive understanding of social-ecological systems [9].

Using a different approach, [16] used Multi-stakeholder collaboration in Russian and Swedish Model Forest and concluded fulfill, now and in the future, relevant ecological, economic, and social functions at local scales. Stakeholder's perspectives on ecological modeling in environmental risk are of vital importance. The debate closely examines the role of mechanistic effect models. The critique is that models often presented similar perspectives and concerns about modeling thereby reducing understanding of thorny issues [17]. Suggested a jump to model building steps in which landscape stakeholders selected the sectors and their elements, sectors were then linked to run the complete model [18]. Organization theorists have introduced a stakeholder model of the firm and of other organizations in the hope of identifying what really works in environmental management. In relation to a specific organization, in an attempt to understand how local communities should run environmental projects [19]. Observed that models can be predictive, or used to compare proposed management plans. Stakeholders subsequently move forward with concerted efforts to address a burning ecological problem. There is merit in effort based on our experience in integrating dynamic spatial models to solve tricky environmental problems and crises [20]. Studied stakeholders' perspective on ecological modeling in environmental risk assessment of pesticides and observed challenges and opportunities and suggests that, although the needs of stakeholders often overlapped, subtle differences and lack of trust hinder the process of introducing mechanistic effect models. There is need for consensus in what really works in environmental management.

Local communities may be described as victims, beneficiaries and losers in the struggle for ecosystem benefit flows if community voice is weak. But to make progress in stewardship of environmental management a guide using calibrated metrics (weak benefits; strong benefits and very strong benefits) may be employed [21]. Metrics determine sustainability of community initiatives. Harmonization in rules, procedures and metrics across communities may not be an easy process and may be established on the basis of aspired benefits, which may not be realistic. Community voices empower local communities to put their money where their mouth is. From the study in the Sebungwe region it can be surmised that engagement of stakeholders is a difficult process that has been made easier through Galiano Conservancy Association and other workers [22-24]. There are many such projects in Zimbabwe [25] and elsewhere in the world [26,27] as witnessed in the Sebungwe that experience similar problems and fate [28].

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