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Cultural Resources as Sustainability Enablers: Towards a Community-Based Cultural Heritage Resources Management (COBACHREM) Model

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Abstract: People inhabit and change environments using socio-cultural and psycho-social behaviors and processes. People use their socio-cultural understanding of phenomena to interact with the environment. People are carriers of cultural heritage. These characteristics make cultural values ubiquitous in all people-accessed and people-inhabited geographic spaces of the world, making people readily available assets through which environmental sustainability can be implemented. Yet, people's conservation development is rarely planned using cultural resources. It is against this background that a Community-Based Cultural Heritage Resources Management (COBACHREM) model is initiated as a new approach that outlines the symbiosis between cultural heritage, environment and various stakeholders, with a view to create awareness about neglected conservation indicators inherent in cultural resources and better placed to complement already existing natural resources conservation indicators. The model constitutes a two-phased process with four (04) levels of operation, namely: level I (production); level II (reproduction); level III (consumption) that distinguish specific components of cultural heritage resources to be monitored at level IV for sustainability using identified cultural conservation indicators. Monitored indicators, which are limitless, constitute work in progress of the model and will be constantly reviewed, renewed and updated through time. Examples of monitoring provided in this article are the development of cultural competency-based training curriculum that will assist communities to transform cultural information into certifiable intellectual (educational) and culture-economic (tourism) assets. Another monitoring example is the mainstreaming of community cultural qualities into already existing environmental conservation frameworks such as eco-certification to infuse new layers of conservation indicators that enrich resource sustainability. The technical COBACHREM

model acknowledges existing academic frameworks of communal identity formation (e.g., indigeneity and autochthony) and is designed to add value onto these.

Keywords: sustainability; local communities; cultural conservation indicators; cultural competency; development; COBACHREM

1. Introduction

People inhabit and change environments using socio-cultural behaviors and processes. People use their socio-cultural understanding of phenomena to interact with the environment. People are carriers of cultural heritage. These characteristics make cultural values ubiquitous in inhabited geographic spaces of the world; therefore, readily available assets and enablers of environmental sustainability. However, almost three decades since the formulation of sustainable development (SD) principles [1,2], environmental conservation is still largely centered on environmental sustainability as a consequence of “natural” resources value, without consideration of “Environment as Cultural Heritage ...” [3]. Cultural resources are tangible and intangible remains of societies’ past activities on the biophysical environment which when re-visited, re-evaluated, re-used and re-constructed transform into various forms of cultural heritage. However, conservation indicators specific to resources of cultural and heritage nature that can enrich sustainable development ideals are currently lacking. In most parts of Sub-Saharan Africa, cultural heritage resources are key in devising coherent local land use planning [4]; influencing people’s attitudes to the environment; and recently, in redefining rural economic systems, such as community tourism development [5].

This article devises a Community-Based Cultural Heritage Resources Management (COBACHREM) model that merges the technical and academic approaches to illustrate a symbiosis between cultural and natural resources for sustainable resources conservation at community levels.

Cultural Heritage Management and Sustainability

Cultural resources are tangible and intangible remains of societies’ past activities on the biophysical environment which when re-visited, re-evaluated, re-used and re-constructed transform into various forms of cultural heritage. The specific link between cultural heritage management and sustainability is a neglected one. In most discussions it is assumed rather than illustrated through defined processes. Attempts to establish a direct focus on the link between the two is provided in my earlier publications where the general link between sustainable development and the field of cultural heritage management is explored [5,6]. The development of a Community-Based Cultural Heritage Resources Management (COBACHREM) model (Figures 1 and 2), in this article provides a specific (micro) approach where cultural and heritage conservation indicators are initiated at a communal level to effect existence of sustainable communities.

Although management of cultural heritage is now commonly associated with international conventions, particularly those of UNESCO 1972 and 2003 [7,8], local communities have long devised strategies through which they “managed” cultural resources using psycho-social behavior and

relationships as well as local indigenous knowledge systems. However, communities are currently challenged and driven by multiple modern needs that impact negatively on their relationships with their cultural and heritage resources, prompting initiatives of management models that can better guide communities to maintain the relevance of cultural and heritage resources within a transforming environment. The development of the COBACHREM model (Figures 1 and 2) is one such initiative.

At a broader sustainable development context, the COBACHREM model aims to provide a guide to sustainable use of cultural resources by applying a point of departure equivalent to the *precautionary principle* of sustainable development whereby resource conservation measures are developed prior to destruction of the resource [1]. In this particular instance, conservation indicators relating to production and consumption of cultural heritage resources using grassroots communities' cultural knowledge processes are first identified and isolated as a preliminary process to the second stage where operational parameters are isolated for long term impact monitoring. It is envisaged that new isolated operational parameters allow for creation of monitoring indicators that are specific to cultural and heritage resources at community level. The development of operational frameworks (phase 2 level IV in Figure 2), is a gradual and continuous process that will be constantly updated to enhance the model through time.

One example through which conservation indicator(s) will be developed for monitoring is the development of educational unit standards (or assessed units of learning registered as part of a qualification) using community cultural heritage knowledge (Table 1 example), that will be certified and credited to enable community members to become cultural-heritage service providers as tour guides, museum curators, interpreters and story-tellers, and other vocations. Through this process, community members will format their cultural-heritage knowledge (*i.e.*, document/inventory, safeguard, package, interpret and present), for future use to bargain and compete within both the intellectual and economic environments.

The policy impact of the COBACHREM model is to operationalize sections of international conventions such as Sustainable Development ideals that call for new initiatives aimed to enhance community participation. Also UNESCO 1972 [7] World Heritage Convention article 5 that looks:

“...to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programs” is one component that is targeted through the COBACHREM.

In addition, the UNESCO 2003 [8] Convention on the safeguarding of Intangible Cultural Heritage section III Articles 12–15 on measures for safeguarding intangible cultural heritage and inventorying cultural heritage, with a view towards “Participation of Communities, groups and individuals” in safeguarding intangible heritage, is also directly related to the COBACHREM model descriptions.

Furthermore, the UNESCO 1989 [9] Convention on Technical and Vocational Education will be operationalized by the model, in particular its focus on article 2 of the Convention in designing education within the framework of people’s “respective education systems” which is seen as enabling them “... to acquire the knowledge and know-how that are essential to economic and social development as well as to the personal and cultural fulfillment of the individual in society” which could be facilitated through a community-based cultural knowledge competency education (collection, documentation and dissemination). The COBACHREM model operates within a multi-agent landscape

made up of socio-spatial and geographic components that influence conceptualization of both community and community participation principles.

Table 1. Competency development framework for cultural heritage curriculum within the Community-Based Cultural Heritage Resources Management (COBACHREM) following Competency-Based Education and Training (CBET) guidelines [1,10].

Competency	Examples of possible titles for curriculum development within COBACHREM	Examples of possible outcomes for learner members of community
A. Core	<ul style="list-style-type: none"> • Identify local level communities' parameters • Identify heritage knowledge bearers (people) • Identify historical events • Categorize domains of cultural heritage • Extract heritage knowledge • Inventory/archive/package heritage knowledge • Select and format cultural knowledge suitable for interpretation in heritage tourism 	<ul style="list-style-type: none"> • Define local in geographic and communal contexts • Classify characteristics of heritage bearers • List domains of tangible and intangible cultural heritage • Establish and state communal histories • Demonstrate interview skills • Design a local inventory of communal cultural heritage • Produce and supply a brochure for heritage guiding • etc.
B. Support	<ul style="list-style-type: none"> • Heritage tourism service 	<ul style="list-style-type: none"> • Respond to tourists' questions
C. General	<ul style="list-style-type: none"> • Interpretation skills • Inventory/archiving skills • Presentation skills 	<ul style="list-style-type: none"> • Demonstrate interview skills • Respond to tourists' question • Develop a guide brochure • Organize site tour

2. Conceptualizing Community Participation: Social Agency as a Cultural Reproduction Process

In contrast with natural resources, cultural heritage resources management approaches are yet to develop clean-cut procedures and processes with conservation indicators for cultural resource use monitoring and as such, cultural and heritage resources are rarely prioritized as dominant enablers in sustainable development initiatives. However, the situation does not mean cultural resources are insignificant in enhancing resource conservation initiatives, but rather that cultural heritage experts are faced with a monumental task of developing conservation indicators to create a systematic conservation process. The ubiquity of cultural heritage resources in world environments [3,6] advocates for an initiative that considers them as more significant drivers that have potential to diversify the sustainable development ideal at community structures where people are social agents and carriers of cultural heritage.

Psychologists and behavioral scientists have long observed that cultural agency in particular is constituted within social processes carried out by individuals involved in cultural construction. However, cultural heritage management as a relatively new field of study is yet to situate its discourses within psychology and/or behavioral science. Once such links are profoundly established in future, the concepts of "community" and "community participation" will undoubtedly be extended to psychologists' discourses of "group" [11], and "social and cultural agency" [12,13] influencing

cultural and heritage resources management discourses and approaches. Until then the field of cultural heritage conservation can be said to borrow obviously from psychologists and sociologists' discourses on social agency as a "social habitus" that is constituted within a group-collective (community) guided by both individual and social conceptions [12,13]. In particular, reference to the communal nature of agency, Ratner [13] posits that:

"Social intentionality is necessary if social life is to occur. Agency must adapt to and promulgate social patterns. Otherwise, there would be no common, stable, or predictable social life. Qualitative social change is possible, however only if individuals are socially oriented to cooperate in mass movements to transform the social organization of activities and associated cultural concepts ..." emphasizing the relevance of a collective community (community participation) in cultural production and reproduction.

Within international cultural heritage resources management, a collective community (or community participation) is recognized by among others, the local community participation principle in sustainable development [5]; and within Article 5(a) of the World Heritage Convention as well as chapter III of the UNESCO 2003 [8] convention on intangible cultural heritage.

While most psychologists recognize agency as situated within a society or a majority community, Orfali [12] illustrates situations where agency becomes active within a minority, when the latter moves away from conformity with majority, towards action that creates conflict strong enough to cause socio-cultural change and subsequently re-shape heritage identities. Examples from Botswana cultural contexts where "active minorities" theory is manifested in this manner include the long-standing issue surrounding cultures such as those of the San/Basarwa/Bushmen of Botswana [10] and Wayei community in the north-west part of the country [14]. In both instances the minorities' activeness has created a space for their cultural heritage to be acknowledged, identified, and catapulted to not only government where constitution amendment becomes necessary, but also at an international level invoking international conventions such as the ILO Convention [15]. The Botswana case studies cited above evolve around existing academic concepts of community identity formation existent in most cultural contexts and discussed in the section that follows.

While the concept of community participation may have entered sustainable development process through a rather political context, largely spearheaded through indigenous communities' rights movement [5,16]; with time there has been a shift towards resources conservation inclusive of other groups although only within natural resources [17]. The phrase "community-based" has become synonymous with development, prompting formulation of community-based approaches such as COBACHREM model that are tailor-made for cultural and heritage resources conservation to provide a formula that plans geographical existence, ownership structures, and sharing processes surrounding cultural and heritage resources towards a sustainable conservation strategy. Given this background, conceptualization of community participation within the COBACHREM model inevitably departs from the concept of community.

The model processes are technical in nature, but its various operations are rooted in existing academic scholarship, situating the model within both the academic scholarship and technical/practical contexts. The academic acknowledges, but is not bound by concepts of identity formation; while the

technical/practical (Figures 1 and 2 below) follows planning processes in steps 1-IV of the COBACHREM model (Figure 1).

Figure 1. Showing phases 1 and 2 of the Community-Based Cultural Heritage Resources Management (COBACHREM) model with indicators of production (level 1), reproduction (level II) and consumption (level III) and monitoring (IV) are constituted in the four levels of the model.

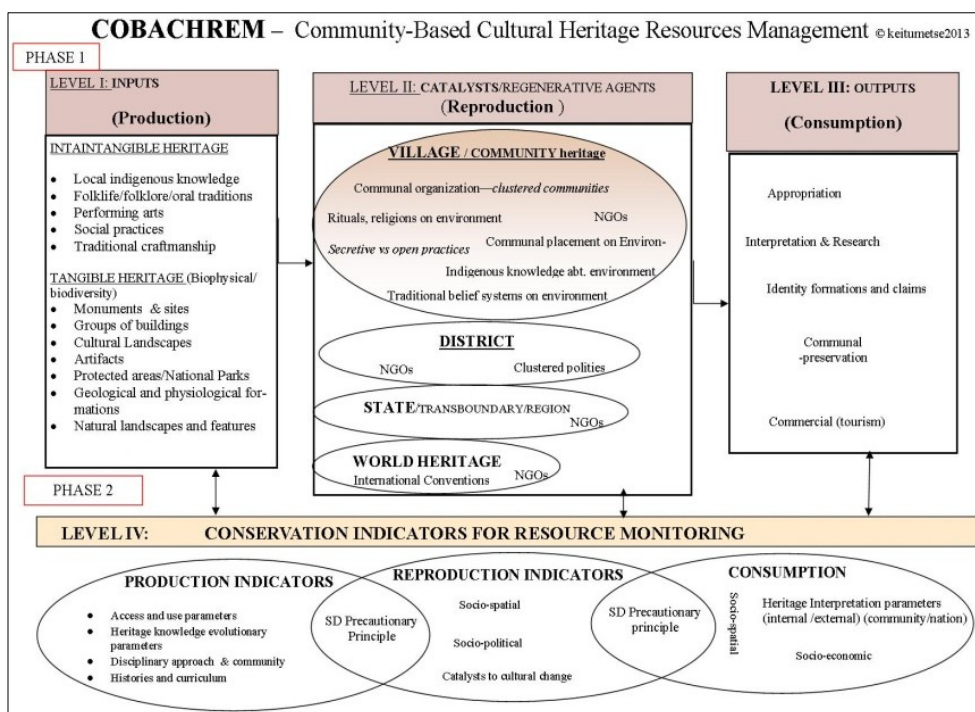


Figure 2. showing expanded phases 1 and 2 of the COBACHREM model. (a) showing phases 1 with level I (production) level II (reproduction) and consumption (level III); (b) showing phase 2 of the model with level IV where monitoring indicators for levels I-III are developed for conservation.

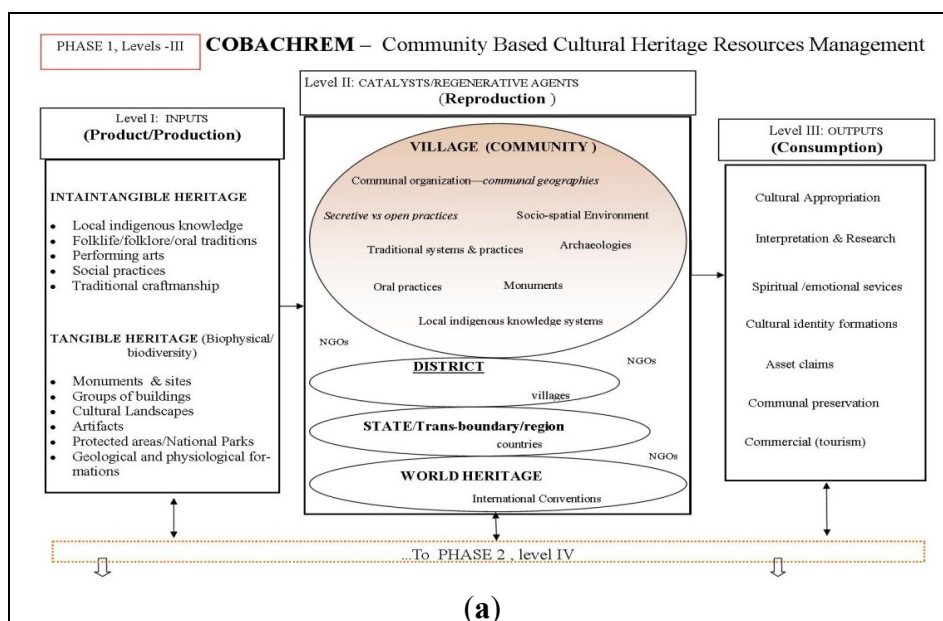
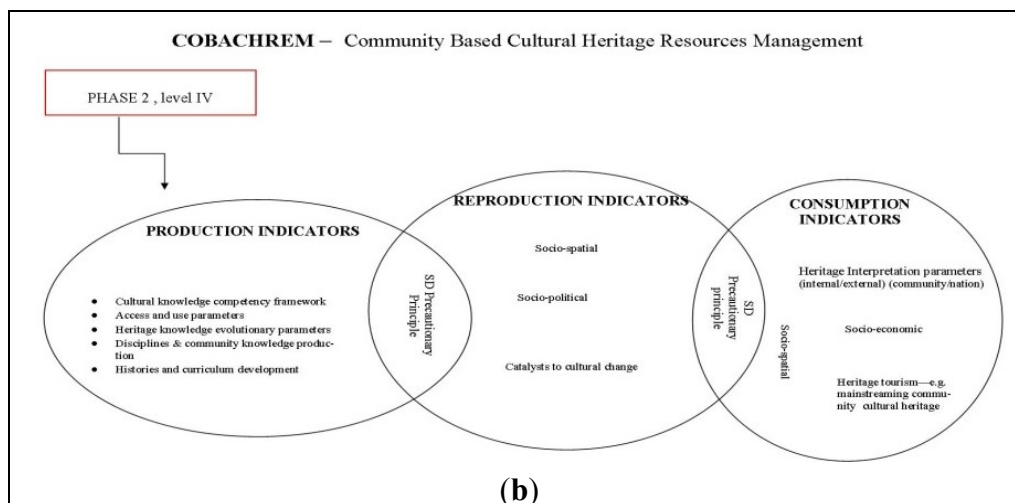


Figure 2. Cont.



The synergy between the intellectual and the technical is better illustrated through a discussion of well known concepts of identity formation, being *indiginity* and *autochthony* that exists in academic scholarship surrounding an environment where the COBACHREM model will be operating. Gausset *et al.* [18] observes that indiginity and autochthony concepts are oftentimes presented as synonymous because of their focus on primo-occupancy (place of origin) and cultural specificity, but are different in that “... Indigenous people are commonly regarded as being the first inhabitants of a given territory, or at least to have occupied it prior to successive waves of settlers” with distinct social, cultural, economic and political characteristics relative to those of the dominant societies in which they live; while autochthony “... is more often used with reference to agricultural or industrial populations, who are not necessarily marginal, but rather believe that their resources, culture or power are threatened by ‘migrants’” ([18], p. 139). While indiginity is more localized, autochthony is compatible with both local and global communal frameworks and as observed by Hilgers [19], assumes a characteristic of being malleable, thus applicable to both rural and urban communal contexts where the COBACHREM model will be implemented. Examples from Botswana where both indiginity and autochthony could be used as guiding frameworks within COBACHREM model are briefly discussed in the results section that follows.

3. Results and Discussion

The COBACHREM model is founded on a two-phased process being phase 1 with three (03) levels, and phase 2 with one (01) level(s). The levels contain isolated operational parameters from which community conservation initiatives and indicators can be clearly distinguished per category of stakeholders within the cultural resources management framework. Once the indicators are identified, a much more focused monitoring (phase 2 level IV) process is feasible.

3.1. COBACHREM: The Model and Descriptions of Levels of Operation

Two main phases of the COBACHREM model illuminate on this new perspective:

- Phase 1: Devises a 6 community-based cultural heritage resources management (COBACHREM) framework that isolates and outlines production (inputs), reproduction (regeneration) and consumption (outputs) indicators specific to cultural and heritage resources as a process that enables efficient monitoring of activities that affect the use and re-use of cultural resources at community levels. This process will also facilitate development of monitoring strategies specific to cultural and heritage resources—e.g., example of phase 2 below.
- Phase 2: The development of operational guidelines (indicators) from the isolated parameters in phase 1 of the model necessitates monitoring approaches and tools for activities in levels I–III. In this article, two examples of monitoring tools provided are (i) a development of competency-based education training using people’s cultural competency; and (ii) mainstreaming of community cultural competency into an already existing eco-certification process.

The paragraphs below outline processes taking place in sections I–IV (Figures 1 and 2) as follows:

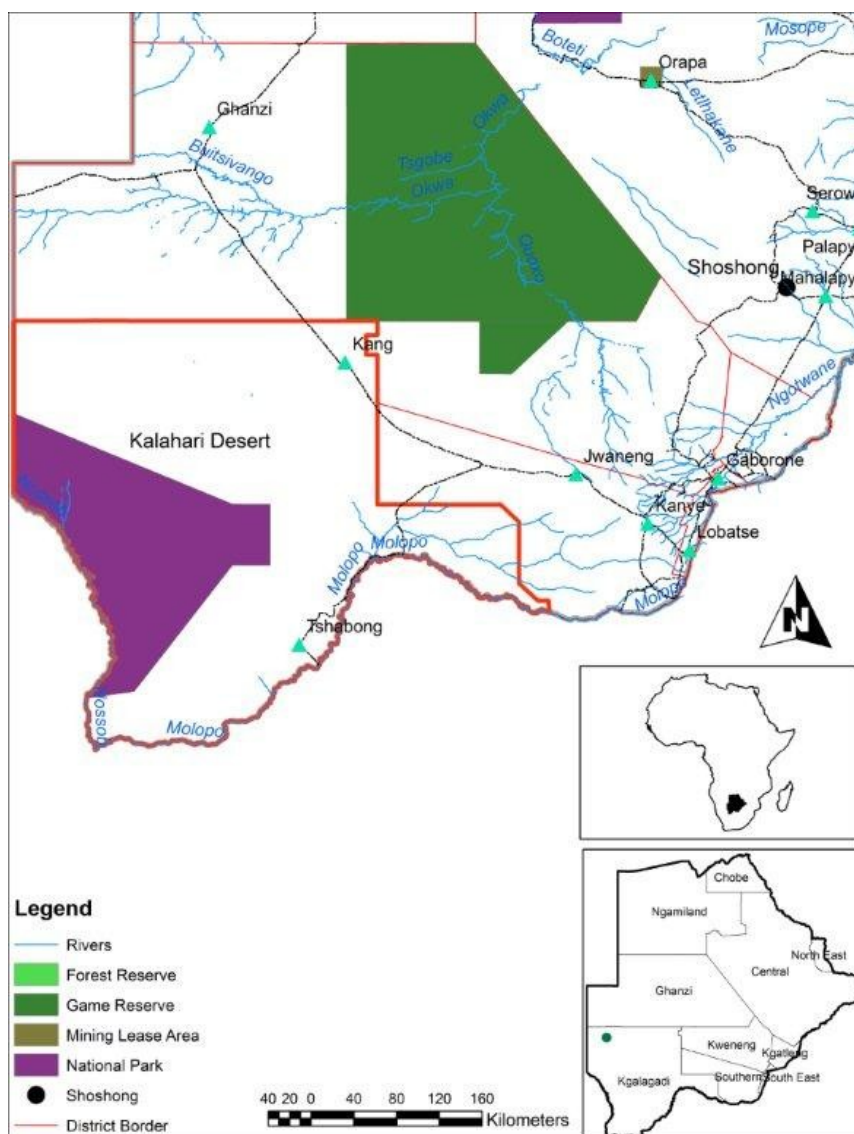
- Level I (Product/production): identifies the foundation upon which cultural heritage resources exist and are contained, i.e., environment as container and cultural environment as a product. Borrowing from Soja ([20], p. 209) we will call this “... space per se, or contextual space ...”. The Main divergent categories of cultural resources are identified and isolated into distinct categories such as tangible and intangible cultural heritage to enable distinct separation of conservation indicators going forward.
- Level II (Reproduction/Regeneration): identifies stakeholders that interact with cultural heritage, including grassroots communities. The stakeholders represent reproductive/regenerative agents or socio-spatial catalysts that interact with cultural heritage resources and give them meaning. Issues of whose heritage, who uses heritage, for what and why are common here. A socio-spatial placement and representation of cultural heritage within sectors and regions is considered. Local heritage transformation to world heritage in what can be termed the geographical transfer of value [20] is prevalent at this stage, where community interaction with cultural resources is redefined. Setting *catalytic limits* is necessary here to maintain resource authenticity; and benchmark the scale (*catalytic stretch*) at which inputs are influenced by various stakeholders for monitoring in the future. This is equivalent to limits of acceptable change concept in natural resources management [21]. It is here where communities are faced with competition for use of their cultural heritage knowledge and where cultural bearers require sensitization and empowerment through new strategies such as COBACHREM to give them a competitive advantage through their cultural competency.
- *Level III—Consumption*—Again borrowing from Soja [20] we will call this the “... socially-based spatiality, the *created space* of social organization and production”, where appropriation of cultural resources through various uses by regenerative agents in level II is at its highest. Consumption of heritage takes the form of identity affiliation, use in claims to resources such as land; traditional practices, ritual practices, religious practice, use in cultural heritage tourism, to mention but a few.

- *Level IV—Monitoring* is where conservation indicators for each of levels I–III are developed based on identified characteristics of cultural resources that require various conservation approaches. For example in level II, indicators that will maintain product authenticity are key; while for level III indicators that limit catalysis to acceptable standards of resource use are encouraged. Finally for level IV, indicators that will maintain a sustainable consumption of cultural resources are sought.

3.2. Examples of Identity Formation Concepts for COBACHREM Model: Indigenuity and Autochthony Case Studies

As already discussed in the preceding section, the COBACHREM model is technical in nature but sharpens its academic approach to the concept of community from existing discourses and conceptual frameworks of identity formation such as indigenuity and autochthony that are discussed here with real-life community cultural discourses from Botswana cultural landscapes represented in Figure 3.

Figure 3. Shoshong village in east-central Botswana and Kgalagadi desert in South West Botswana.



3.2.1. Indiginity Concept: Kgalagadi Desert People, Botswana

The San/Bushmen community is generally understood to be an indigenous population not only in Botswana but the whole of southern Africa. In Botswana they are mainly, though not exclusively confined to the Kgalagadi desert area which constitutes two thirds of the country's habitat (Figure 3) Article 1 (a) of 1989 ILO [15] Convention No. 169 defines indigenous people as:

“Tribal peoples in independent countries whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulation” [22].

This fits most characteristics associated with the concept of indiginity that they are native or original inhabitants of the southern African area prior to other settlers; they have a distinct social, cultural, economic and political characteristics compared to other communities in the region; and are generally perceived to be discriminated against or marginalized within their countries.

The significance of the indiginity concept of communal identity formulation is better understood for the COBACHREM model when discussed within the model's four processes of operation (Figure 1 above) as follows:

- Level I (production)—physical environment (locality) or “... contextual space” as characterized by Soja [20]—within Botswana San/Bushmen being commonly Kgalagadi desert areas (Figure 3), which by virtue of its distinctiveness determines the constitution of tangible and intangible cultural heritage of the community in question. This comes from the fact that a community work on what it has in terms of environment, not necessarily on the fact that the environment determines what becomes heritage about a community because some skills that are brought to an environment have been innovated outside that environment but ultimately alters it to a particular heritage context.
- Level II (reproduction)—identification of stakeholders that interact with indigenous cultures and communities, in order to assess evolutionary direction of a community heritage resulting from the interaction. Considering indigenous communities as “... first inhabitants of a given territory, or at least to have occupied it prior to successive waves of settlers” [18], stakeholders in a country such as Botswana can be traced to kingdom/chiefdom status, European explorers, missionaries, to mention but a few. Events that will have brought more stakeholders and influenced the shape of indigenous communities' cultures may include pre-colonial regional wars such as *Mfecane* [23] which will have pushed them into environmental frontiers that prompted a revised cultural context, modifying cultural identities from the authentic ones. Many other events will follow including colonial period, nation-state building period, and current democracy model, all of which bring along different stakeholders that require identification in order to determine factors that influenced change in authentic cultural context and its resuscitation where necessary. In addition, identification of stakeholders also enables a temporal tracking of their influence on indigenous communities' cultural consumption in step III. The outcome of the identification of stakeholders and/or events process is later used to benchmark the degree of dilution of cultural context as a step towards a more representative cultural component for the community.

- Level III (Consumption)—With some of the characteristics of indigeneity being native occupation of land and marginalization, examples of the *catalytic stretches* of cultural heritage may include the degree/scale of contact with identified stakeholders in II, while *catalytic limits* can be drawn from temporal parameters of the *before-after* contact. In instances where catalytic limits may already have been exceeded, intangible heritage from memory and archaeological data become necessary to determine the boundaries of cultural identity resuscitation, reconstruction and restoration.
- Level IV—Monitoring of catalytic limits identified through steps II-III takes place at this stage as a sustainable conservation approach. An example within indigenous concept include implementing sustainable cultural consumption methods such as keeping sacred knowledge sacred, slowing the scale of extinction of varying cultural domains such as hunting songs, to mention but a few.

3.2.2. Autochthony Concept: Shoshong Village People, Botswana

The autochthony concept as defined earlier here illustrates the relevance of COBACHREM model within a cultural landscape (environment) that consist of multiple and often subtly contested identities and potential benefits derived from applying COBACHREM model's four levels of operation which provide opportunities to achieve balanced selection and presentation of all concerned ethnic groups inhabiting the landscape as well as providing a democratic process of expressing and presenting historical identities of such landscapes. As rightly observed by Vubo [24] in his study of historical awareness and identity formation in Cameroon, "... the process of globalization is accompanied by the rise of individual group identity awareness and of a politics based on it" and this is characteristic of autochthonous communities as discussed below from Botswana's Shoshong village where somehow subtle cultural identities of two ethnic communities are awakened by one ethnic group that requires cultural monopoly of the landscape heritage, *i.e.*, seeking not only cultural visibility but also cultural superiority over the other two through a forced change in a customary political system known as *bogosi* (chiefdom) system.

Within the confines of the definition of autochthony as a communal identity concept, it is safe to classify the two ethnic groups of Baphaleng and Bakaa in accordance with Gausset *et al.*'s that they are [18] "... agricultural or industrial populations, who are not necessarily marginal, but rather believe that their resources, culture, or power are threatened by 'migrants'" This is applicable in the case of Shoshong village as presented in the sections below.

Shoshong village is a cultural landscape in east-central Botswana consisting of multiple communal identities derived from three ethnic groups and is presented here as it represents autochthonous communities very well. Two of the ethnic groups in Shoshong being (Baphaleng and Bakaa) currently have physical presence in the landscape and contest chieftaincy heritage identity against representatives of one ethnic group (Bangwato), that currently only has a virtual presence in the village derived from past occupation history that lasted for approximately 40 years. Within the confines of autochthony, the Bangwato represent the dominant 'migrant' having moved into the landscape early to mid-19th century running away from regional wars (Mfecane) of the time to use the Shoshong hills as security shared with the other two ethnic groups. Unlike Baphaleng and Bakaa, historically the

Bangwato were then organized into a complex political system of ruler/servant which made them dominant and more visible in the landscape than their hosts. After approximately 40 years, at the end of the regional wars, they moved on to settle in another village (Serowe) but set up the administrative authority to remain within their power as “rulers” of the other two groups. Both written and oral history presents Bakaa and Baphaleng as two distinct ethnic groups that occupied the Shoshong village landscape prior to Bangwato but of the two the former later on invited Bangwato into their territory as a strategic step to amass support against stronger groups from other groups in the region that were leading marauding wars in most parts of present-day southern Africa including what is now Botswana in early to mid 19th century. The interaction that has now turned into cultural contestation started here.

A brief summary of the settlement histories of the three ethnic groups in relation to the Shoshong village landscape places the Baphaleng ethnic group’s settlement in southern Botswana and later Shoshong village to the 16th century following migrations from present-day Republic of South Africa. Chebanne *et al.* [25] date Baphaleng’s presence in present-day Botswana around the 1560s (16th century). In addition, the Bakaa ethnic group is historically known as an offshoot of a kingdom different from Baphaleng and they settled the Shoshong village and lived alongside Baphaleng, with whom they still co-exist. After migrating to several places in what is now southern Botswana the Bakaa eventually settled near Shoshong hills Ngcongco” ([26], pp. 32–33) around the 17th century. On the other hand, the Bangwato also originated from present-day Republic of South Africa within a lineage that they share with Baphaleng ethnic group, though in an independent and distant relationship. Bangwato ethnic group migrated to the village of Shoshong during the 19th century, oral history pointing that it was at the invitation of Baphaleng ethnic group, to run away from regional war groups from the north, present-day Zimbabwe. Due to their political and economic organization, though late arrivals, Bangwato became dominant in Shoshong in the 19th century, prompting European missionaries and travelers’ to attest the landscape to them alone in the written records that were later accessed and used by historians to compile histories of these ethnic groups. However, in practice, the autonomy of the Bakaa and Baphaleng ethnic groups has always been maintained. In the late 1890s when the regional wars subsided and after approximately 40 years in Shoshong, Bangwato finally migrated north of Shoshong and set up their current village of Serowe.

Management of cultural traits within which the brief communal history of Shoshong village in Botswana exists requires steps 1–IV of the COBACHREM model as a pre-requisite to community cultural heritage identification, selection, and presentation. The most important trait is that the landscape has multiple communal identities that need to be balanced to create or sustain social harmony within the landscape. As a point of departure, cultural characteristics that overlap are better prioritized to bring cohesion and cultural visibility for all groups concerned. Below is an example of how the COBACHREM model steps can be applied to this particular case study:

- Level I (production)—village settlement history discerned with a focus on various historical locations and events characterizing the existing multiple communal identities.
- Level II (reproduction)—reproductive agents of cultural heritage are first traced through historical origins, political and economic history. Communal mapping becomes a pre-requisite at this stage. Many other events will follow including colonial period, nation-state building period, and current democracy model, all of which bring along different stakeholders that require

identification in order to determine factors that influenced change in authentic cultural context and its resuscitation where necessary. Village to state level stakeholders are crucial.

- Level III (Consumption)—identification of heritage that is common and neutral to the two communities that have physical presence in the landscape followed by the community with a virtual presence on the landscape. Communities that are “living the environment” possess a sense of place to the landscape and that should be prioritized.
- Level IV (Monitoring indicators)—conservation indicators are developed for historical processes and events identified in steps I–III to sustain communal and social cultural democracy.

The two presented case studies on indiginity and autochthony illustrate a practical implementation of the COBACHREM model as a platform through which community interventions are mainstreamed in cultural resources management to achieve sustainable use of both historic and natural environments.

3.3. Examples of Phase 2, Level IV: Monitoring Initiatives derived from Production, Reproduction and Consumption Levels in Figure 2

Examples of phase 2, level IV—*i.e.*, isolated operational parameters that emanate from production reproduction, and consumption levels but focused at grassroots communities and can be monitored for cultural conservation are several. However, in this article only two are provided to introduce the COBACHREM model and these include the following examples:

Example #1: Community-based curriculum development framed within Competency-Based Education and Training (CBET) framework, or education for employment whereby educational unit standards are developed using community existing heritage knowledge and skills, as illustrated in Table 1 [27,28].

In each *title* additional parameters will be incorporated/mainstreamed into sub categories that will include level of operation; classification; recommended skills and knowledge; criteria for merit; criteria for excellence; outcomes; evidence requirements; *etc.*

Example #2: Mainstreaming community-based cultural practices into existing environmental accreditation systems such as eco-tourism and eco-certification to increase conservation efficiency as well as recognize community cultural competency within popular natural resources conservation frameworks. Table 2 below demonstrates this example within the Botswana eco-certification system (BTO 2010) derived from the global eco-tourism framework.

Table 2. Mainstreaming local community cultural competency into environmental accreditation in tourism accommodation establishments.

Example of ecotourism and eco-certification attributes Botswana Eco-certification (2010) principles	Select examples of community cultural competency that can be tapped through COBACHREM approach
1. Policies relating to conservation of both wilderness and wildlife resources	<ul style="list-style-type: none"> • Use of taboos and totems relating to wilderness and wildlife conservation procedures • Traditional hunting practices and select animal species for only rare status occasion • Sacred places with limited access (carrying capacity related) • <i>etc.</i>

Table 2. Cont.

Example of ecotourism and eco-certification attributes Botswana Eco-certification (2010) principles	Select examples of community cultural competency that can be tapped through COBACHREM approach
2. Physical design and operations	<ul style="list-style-type: none"> • Cultural settlement patterns for social cohesion • Traditional architecture for minimal land pollution
3. Visitor experience, impact	<ul style="list-style-type: none"> • Communal hospitality • Exchange of culture in a respectful manner
4. Maximizing local community and districts benefits	<ul style="list-style-type: none"> • Procure community made materials such as mats, bedding, furniture, bedside lamps • Community chefs for cultural meals • Outsourcing services from community cultural groups • Procurement of supplies such as traditional food from traditional agriculture systems
5. Conservation	<ul style="list-style-type: none"> • Explore traditional systems of land use
6. Ecotours (nature interpretation)	<ul style="list-style-type: none"> • Example #1 on community cultural knowledge curriculum development

4. Conclusions

Developing countries are gradually becoming reliant on cultural and heritage resources for various pursuits that require the use of heritage beyond heritage's sake but for other purposes that may be economic and/or political. Like most natural resources, cultural and heritage resources are communal goods but unlike natural resources, there are no readily available conservation models guiding cultural heritage resources use to guarantee their sustainability, particularly at the level of grassroots community. The earlier outlined COBACHREM model addresses this loophole by devising a grassroots-based conservation framework that applies sustainable development practices to enhance conservation of the overall environment in the following manner:

- Advance planned use of cultural and heritage resources in poverty alleviation strategies to add value to existing conservation initiatives within natural resources.
- Use cultural resources management process (COBACHREM) to diversify communal resource uses in a way that curb competition, and subsequently conflicts, surrounding the use of natural resources in poverty stricken environments such as African wetlands like the Okavango Delta area of Botswana.
- Facilitate the building of sustainable communities in rural landscapes by using cultural resources to connect people to their historic and natural environments in a spiritual, emotional and economic manner expedited through recognition of cultural competency. The approach reduces pressure from overuse of wilderness and wildlife resources.
- Provide cultural resources as alternative resources to curb communal poverty in rural areas of developing countries.
- Merge the technical (model) and academic (concepts indigeneity, autochthony) aspects of cultural resources use to come up with sustainable management approaches.

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Conflicts of Interest

The authors declare no conflict of interest.

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