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## Choosing Your Baseline Carefully: Integrating Historical and Political Ecology in the Evaluation of Environmental Intervention Projects

DANNY DE VRIES

### Abstract

*Environmental intervention projects aim to re-engineer the cultural landscape. Entering at a particular moment in time, such projects commonly produce a “baseline” analysis. This analysis captures elements in the environment that are later compared to measured changes the project claims to produce. Illustrated through a case study of a Tanzanian community conservation non-governmental organization, the argument made in this paper is that uncritical use of such baselines in measuring and evaluating environmental intervention projects is a practice that tends to impose ahistorical understandings of human-environmental relationships that have deep historical roots. The paper illustrates how an attempt to draw a “basic analysis” of initial conditions, without reference to historical situatedness, hindered accurate evaluation of program success in terms of finding sustainable solutions to the problem(s) addressed. Instead, the baseline survey unwillingly functioned as a tool that impeded local empowerment by missing opportunities for local management input and channeling authority to outside experts. The paper explores an alternative cultural-historical approach that integrates historical and political ecological insights by focusing on cultural memory, political facilitation, multiple temporal scales, and public compromise.*

### Introduction

Tracing changing landscapes through multiple temporal and spatial scales, the working assumption among historical ecologists is that all systems, organic and mechanical, have histories that shape current systemic parameters (Balée 1998; Crumley 1994, 1998; Egan and Howell 2000; Marquardt and Crumley 1987; Moran 1990). Because historical ecologists see landscapes as the current manifestation of a long history of coevolution and adjustments of the species composing it, understanding of this history is key to measuring the way in which a landscape changes (Winterhalder 1994). Yet, despite recognition of the value of this historical approach to ecological analysis, the use of historical ecology in the evaluation of environmental intervention programs remains underutilized (Hill et al. 2004; Nilsson and Langaas 2002; Renger et al. 2002). As a discipline, evaluation is typically seen as a science-based solution to problems of practice that approaches dilemmas

not as real human predicaments to be lived and to be addressed in living, but largely as technical problems that have only evidence-based solutions (Schwandt 2005)<sup>1</sup>. Because of this bias, and following Crumley (1994, 1998), it is probable that the cultural vagueness associated with the discipline of history—as opposed to the scientific rigor associated with the discipline of ecology—may be a barrier to the practical application of historical ecology in evaluation practice.

This paper argues that the common use of program monitoring and measurement methodologies illustrate such barriers. Baseline analyses, which are commonly used in the evaluation of intervention effectiveness, typify this problem. This analysis captures elements in the environment that are later compared to measured changes the project claims to produce. Illustrated through a case study of a Tanzanian community conservation non-governmental organization—the Ugalla Project<sup>2</sup>—the argument made in this paper is that uncritical use of such base-

lines in measuring and evaluating environmental intervention projects is a practice that tends to impose ahistorical understandings of human-environmental relationships that have deep historical roots. The paper illustrates how, in the Ugalla Project's case, an attempt to draw a 'basic analysis' of initial conditions, without reference to historical situatedness, hindered accurate evaluation of program success in terms of finding sustainable solutions to the problem(s) addressed. Instead, the baseline survey unwillingly functioned as a tool that impeded local empowerment by missing opportunities for local management input and channeling authority to outside experts. The paper explores an alternative cultural-historical approach that integrates historical and political ecological insights by focusing on cultural memory, political facilitation, multiple temporal scales, and public compromise.

### Baseline Analyses in Environmental Intervention Projects

In a baseline analysis, evaluators often attempt to provide a comprehensive measure of the physical and social features of the current environment that they believe are most critical to documenting the changes they aim to bring about through intervention. There are important reasons for wanting to engage in a baseline survey in program management, including quality control, oversight, external review, accountability, and a positive public image<sup>3</sup>. Although measuring "initial environmental conditions" helps to establish accountability, there is also something ambiguous about this situation. Political scientists have labeled this tension the 'baseline problem.' In a 1975 issue of the *Journal of Politics*, Holsti critiqued scholarly writing on American foreign policy and defense budgets from a baseline perspective. He concluded:

- (1) baselines defined by a single datum are highly suspect unless the reader is also given additional information about whether the datum was a representative figure in terms of trends in the defense budget;
- (2) trends that are depicted by only two points should be viewed with skepticism, especially if a more complete time series is available;

- (3) the nature of the data often will determine the best techniques for depicting trends; and
- (4) even accurately depicted trends may be inadequate for answering certain types of questions.

Almost ten years later, in 1984, Weisberg wrote in the same journal that baseline models should be tuned very closely to what he called "our best substantive understanding of the behavior being analyzed." This practical recommendation of obtaining a "deep" understanding of the programs to be evaluated remains common (Weiss 1998). However, how to come to this understanding often is not addressed.

The baseline problem has not disappeared. For example, the demographers Rutenberg and Diamond (1993) cite fertility estimates for Botswana suggesting a decline of more than two births per woman between 1981 and 1988 for both urban and rural areas. They critique this finding by arguing that the baseline fertility was overestimated: this "faulty baseline" was derived from an adjustment of census data, and probably too high. Thus, with a baseline standard measured too high, later measurements indicated a decline and, thus, a success for the population planning policies. Having readjusted the baseline downward after reanalysis of the data, yet still measuring somewhat of a decline, the authors point to less dramatic causal factors, such as a short-term drought.

Analogous to this situation, but at a much more intimate scale, experimental social psychologists Tversky and Kahneman (1987) have provided well-known cognitive evidence for a link between the choice of baseline and outcome evaluation. They describe a psychological status-quo bias, also known as the anchoring and adjustment bias, as a cognitive tendency in outcome evaluation situations in which people are asked to make probability estimates in an experimental situation when they are given an initial starting value. They then adjust this initial starting value to estimate the final probability they perceive to be real. The initial value—the 'anchor' or starting point—may be suggested by the formulation of the problem, or it may be the result of a particular computation. In either case, adjustments typically are

insufficient. That is, different starting points yield different final probability estimates, which are biased toward the (suggested) initial values.

From an ecological point of view, the baseline problem seems to extend beyond the choice of initial values, instead addressing more fundamental conceptual problems. In one study, environmental scientists Wiens and Parker (1995) outline methods to assess the effects of random environmental accidents, such as oil spills. They suggest that the most common design is the before-after design, or baseline evaluative design, in which comparisons involve the use of historical information that was fortuitously gathered before the unplanned event. Although their point is to argue that in the case of accidents such data are usually not available, they summarize some problems fundamental to the baseline design:

When conducted in an analysis of baseline data, the evaluator assumes that factors affecting levels or conditions of a resource are in a steady-state equilibrium: natural variation in these factors is similar both within and between the baseline and the post-impact sampling periods. This assumption implies that the resource measure has a constant mean, about which values vary in a regular way. (Wiens and Parker 1995:1072)

Diving deeper into the murky waters of the baseline problem, the oceanographer Steele (1998) suggests that it is not only difficult, but also probably counterproductive to try to define a baseline state for complex marine ecosystems. While both marine and terrestrial ecosystems might be considered highly connected, open and complex systems, the argument is based on a fundamental difference he sees in time scales relevant to understanding oceans compared to those to which we are accustomed in terrestrial ecosystems. Steele (1998) argues that because of the adaptive character of such systems, it would seem unlikely that restoration or recovery would be able to retrace past changes even if human impacts substantially decreased, and that in fact it is not always clear what the pristine state was. What is suggested in this case is that the baseline is an ideal, one to be strived for, but unattainable in the open-ended environment of complex, dynamic systems, such as the ocean or African cultural landscapes.

Adding up these critiques—flawed representation, faulty baseline numbers, biased cognitive adjustments, ignoring natural variation in measurement factors, and the philosophical impossibility of knowing initial conditions in broad scale biomes—it might be somewhat puzzling that baseline surveys remain in widespread and relatively unchallenged use, particularly in project intervention contexts that strive for scientific authority (for examples see National Park Service 1996; United Nations Environmental Program 1997; World Data Center for Meteorology 2004; Ziegler and Combs 2000). Although there certainly are exceptions (for example see Casagrande 1997), many monitoring and evaluation projects tend not to contextualize the temporal and perceptual relativity of the baselines constructed, but instead take them as ad hoc beginning points for future comparisons. In fact, the baseline concept itself appeals so much to common sense that it prevents cultural and historical critique. How does this happen? And what can evaluators do to address this situation?

### Politics of Perception

In the past decade or so, ecological anthropologists and political ecologists increasingly have challenged the assumption that ‘the environment’ means the same thing for different people, instead arguing that the definition, meaning and value of certain environmental conditions can only be understood in terms of the lives and histories of the peoples involved (Ingold 1993; Martinez-Alier and O'Connor 1999; Rocheleau and Ross 1995). Political ecologists often analyze environmental debates and natural resource conflicts by focusing on such “politics of perception” (Brosius 1999). As Arturo Escobar writes: “nature is simultaneously real, collective, and discursive—fact, power, and discourse” (1999). With regard to the choice of baseline indicators in natural resource management, different perceptions over what constitutes the environment could produce bias in the baseline instrument, or even political tensions over how representative the baseline is for the situation at hand. Despite such politics of perception, the need for baseline surveys to function as tools for evaluation, including decisions about future funding, is paramount, since, as one educational consultant

writes: “without a baseline evaluation it is difficult to produce meaningful measures of effectiveness or success” (Tribble 2004:1). Further, baseline studies may have political impact even before a project is approved or at the beginning of a project. In the words of the consultant, such use is important “to ensure that a project is necessary” or “to ensure that the project plan is appropriate and that meaningful evaluation will be possible” (Tribble 2004:1). Confused by ambiguity one could wonder: to what extent is the baseline analysis written to ensure a fixed project outcome, particularly one likely to be appreciated by external funders? How do such politics of perception enter the practice of evaluation in the case of environmental interventions in historical landscapes? And, what solutions can be

proposed to better integrate political and historical ecological concerns in the evaluation of environmental intervention programs?

### Method

I obtained field data for this paper through ethnographic and documentary research throughout three summer months in 2000, when I engaged in a work-internship with the Ugalla Project in the region of Tabora, Tanzania. Coordinated and funded by a large international non-governmental organization, the Ugalla Project started in 1999 and was a five-year program in community based conservation and natural resource management in the Ugalla ecosystem of Tabora and Rukwa regions (see Figure 1).



Figure 1. Ugalla ecosystem in Tanzania, including its three districts and major cities (from the Ugalla Reserve Management Plan 2000).



The Ugalla Project's aim was to help eliminate practices that are environmentally destructive while allowing local populations to continue assessing natural resources and explore new forms of income generation. The non-local project staff worked to experiment with innovative methods pioneered in South and East African areas to provide local residents greater responsibility in sharing natural resources in protected areas. The project staff used participatory planning, training and study tours at several levels, introduced resource-friendly techniques and technologies, and supported small enterprises. As a demographic intern, the goal of my involvement was to work further with population level baseline survey data collected and already reported by a South African consultant (Kaale 1999). According to the work contract, the consultant had been paid to capture the extent of indigenous strategies for conservation. He had arrived with an assistant to do the project within a few months. The situation provided an opportunity for me to explore the content of the baseline survey—product of a negotiation between the consultant, the Ugalla Project, and evaluation standards—and compare it with my own experiences in the field. To what extent did the reality I observed—which was also the reality my various informants had explained to me—match the official baseline description of the initial conditions at the start of the intervention project?

I used ethnographic fieldwork to find an answer to this question, which included watching and listening to project staff going about their daily business, office narratives and images conveyed about the local population and the baseline survey, as well as observations of actual training sessions and events held in various villages across the forest and game reserves. In addition, I collected valuable data through travels with a small staff team for three weeks to villages that were targeted within the intervention program. Within these villages, I held informal interviews with villagers focusing on their stories about landscape history, political ecology, and reflections on the Ugalla Project's intervention program, with the help of a translator when necessary. Outside of this context, I interviewed staff from various other non-governmental organizations and other local, outside

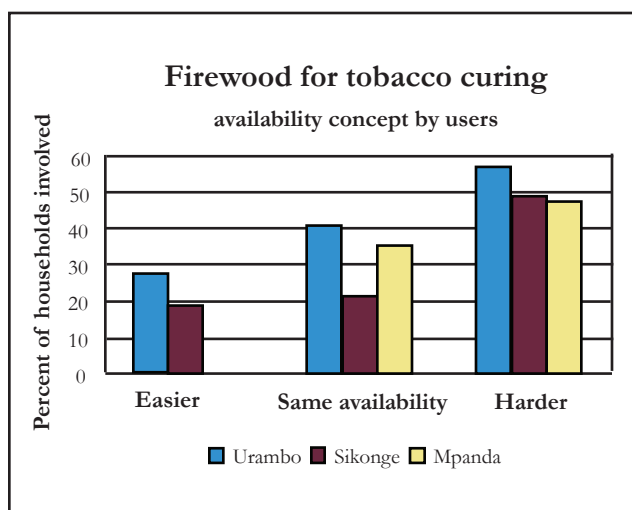
stakeholders about their perception of the activities of the Ugalla Project. Field notes were written during and after the end of each conversation and analyzed for trends and patterns.

Doing this as a relative outsider while emphasizing to my informants that my allegiance was neither explicitly to the project nor to the local people, I immersed myself in the daily reality of the Ugalla Project. This provided me with an opportunity to receive open and repeated feedback from stakeholders about the effectiveness and importance of the organization. In addition, shared assumptions about the causality and meaning(s) of the population-environmental problems at hand worked their ways into the narratives and observations I documented, which became important sources of information during data-analysis. Both during fieldwork and during the data-analysis phase theories emerged about the similarities and differences of the historical claim(s) made by the baseline document and the local historical perceptions of my informants. During this process I paid particular attention to the way in which informants presented and defined the problems, how they understood causality, and the role of historical events. To further contextualize findings I gathered documentary evidence, including official documentation from the Ugalla Project and newspaper articles describing the general perceptions of the forest and its resources. Finally, historical ecological research on the Tabora landscape was conducted using materials from the university libraries in Dar Es Salaam and the University of North Carolina at Chapel Hill. Historical analyses were submitted to several students and professors for dialogue and feedback.

### **A Tanzanian Landscape Baseline**

The main conclusion of the Ugalla Project baseline report followed the persistent theme that natural resources were under pressure. The baseline data were collected through literature review, physical observations, and participatory interviews with 122 district officials and 203 households. The results measured and described items such as perceived natural resource availability, collection distances, collection time, main sources, as well as several socio-demographic factors, both in aggregated form at

the district level (Urambo, Sikonge, Mpanda) and at the village level ( $n=41$ ). The forest resources that were measured included firewood, fruit trees, fibers, mushrooms, medicine, fish, wood for bee-keeping, and wood for charcoal production, poles, timber, and tree bark. The report also included resource charts aimed at providing historical dynamics captured through questions about perceived changes in the supply and availability of these resources in the past five years. The answer categories for these questions included simple descriptions such as “Easier,” “Same,” and “Harder,” or “No change,” “Declining,” and “Increasing,” as illustrated in Figure 2.



**Figure 2. Example from the baseline report. Note the lack of a time-scale in which the perceived change in availability is presented (which is actually five years).**

Based on this data, the report acknowledged that the local population generally was aware of the declining trend of their natural resource base. The survey data did not claim to make any other historical observations beyond this five-year span. The results stated that the people lacked skills and technical capabilities to initiate effective community based natural resources management programs. According to the report:

The villages surveyed had high potential of natural resources. However, the existing resources are regarded as communal properties with little local initiatives to manage them on a sustainable basis, due to lack of awareness and experience. (p. 63)

Backing up these claims about local knowledge were observations that conservation practices were low: the planting of only a few indigenous trees in farm land for provision of shade, the planting of only a small number of fruit trees, the use of dry (as opposed to wet) firewood for cooking, and local lack of understanding of the concept of conservation. The baseline report noted that villagers had indicated that the lack of availability of seedlings and technical assistance in tree growing were the main constraints hindering large-scale participation of the community in agroforestry. Field observation had “revealed that villagers were lacking experiences and technical knowledge on how to manage planted trees” (p. 19). The report also claimed that “villagers have low awareness on the potential of tree planting to alleviate poverty, sustain food supply and enhance sound environmental conservation” (p. 19). Although 73 percent of the households were leaving trees in the landscape when clearing for agricultural expansion, the report argued that this existing traditional practice of conserving trees in farmland could be intensified: “... technical assistance is required to help farmers determine the optimum number of trees to conserve in farmland and how to manage the trees to minimize competition with agricultural crops” (p. 11).

Interestingly, though, when it concerned the issue of what people did know about environmental management, the report offered little data, despite the mandate of the baseline to capture indigenous strategies for conservation. Only for one of the 41 villages did the report briefly identify a list of “tribes” that, according to the interviews with the local villagers, had different beliefs and land use practices. In fact, the report seemed to steer clearly towards the inevitable conclusion that the local population needed help:

In general villagers in the three districts do not understand the concept of environmental conservation and how it affects their survival. Only two percent of the total population surveyed indicated they had some rough understanding of the term ‘environmental conservation’ or **mazingira** in Swahili language. (p. 19)

To support this assertion, the author provided a sample of some the responses given by the villagers on the meaning of the term **mazingira** (p. 19): “cleaning of house compound;” “construct and using a toilet;” “stop beating a wife;” “shortage of medicine in dispensaries and health centers;” “planting fruit trees;” and last but not least “conserve trees in farm land.” Except for maybe the last two responses, the examples seemed to a certain extent self evident (if not ridiculous) in disqualifying the local population’s knowledge on the meaning of the concept by the mere absurdity of their answers. The explanation for this widespread ignorance included both insufficient access to extension services—the experts getting ready to intervene—in the face of a declining resource base and by reference to:

the notion that indigenous conservation practices for conserving natural resources had been eroded by the government program of settling mixed tribes (local and foreigners) in the same villages, therefore undermining culturally specific, tribal regulations for conserving common village natural resources. (p. 12)

In conclusion, the historical claim, which the baseline made, was twofold. First, it provided scientifically authorized evidence that the local population had seen their resources decline over the past five years or, in other words, that there were more resources five years ago. Second, and minimally elaborated, the baseline claimed that this population once had historical regulations for conservation, but this “tribal knowledge” had fallen victim to governmental resettlement schemes. The villagers were presented as unable to adapt to modernity and deprived from modern environmental education available to them by the more knowledgeable

agricultural extension agents. They observed their resource base decline yet did not know what to do. Hopeless, they were left behind, uneducated, unskilled and unaware of the meaning and purpose of conservation itself. Foremost, they needed help, according to the report.

### Traversing Ugalla

Questions about the intent of the report did not really settle with me until I was told by people in a nearby market town that to their understanding **mazingira**—the word the locals did not know and which disqualified them from having environmental knowledge—typically refers to ‘physical environment,’ in a general sense, and not conservation as suggested by the author of the baseline report. From this perspective, most of the examples given by the locals actually made some sense<sup>4</sup>. It occurred to me that linguistic confusion about the intention of the **mazingira** question posed by the baseline consultant might be more to blame for the results found than an actual unawareness about natural resources on the part of the local residents. Through the course of my work with the Ugalla Project, it became increasingly clear to me that the baseline survey might have been marshalling data for a foregone conclusion. Although it was acknowledged that a large number of villagers illegally generated income from various natural resources, the silence on this matter and the hostile relationships between villagers and officials were not further explored as relevant to the baseline analysis. In fact, the issue was seen as a hindrance to data collection and only noted as such:

Most households disliked taking notes (recording the discussion). Once the survey team started to write, many villagers showed serious suspicions and communication started to be difficult. Some started to communicate in their own language, indicating they had difficulties expressing themselves well in Swahili, which they were earlier talking fluently. (p. 2)

Throughout its various interventions, the Ugalla Project had allied itself with regional extension officers in an attempt to bridge a communication gap with the local Kinyamwezi people. Seen as a productive alliance



because of the capacity of Ugalla Project workers to cross boundaries with high level bureaucrats inaccessible to extension officers<sup>5</sup>, the project had in the process, and perhaps unwillingly, also aligned itself with people in power perceived by the local people as monitors who policed and legally controlled resource use through licensing. When project staff took me with them into the **miombo** woodlands with the mission of delivering a new type of canoe (more stable and crocodile safe) to a fishing camp at the Ugalla River from its village base deeper into the forest, they paid a regional fisheries extension officer, Mr. Gachu, to come along on this trip. As staff explained to me, the officer had only been to the reserve three times, hindered by a lack of transportation. His main task was to issue fishing licenses, and “we allow him to actually get into the field.” On the way into the village, Mr. Gachu’s remarks about the local villagers illustrated his authoritarian position: “They will fish as long as they know I do not have any transport. Their nets take fish, which are smaller than 2.5 inches, which are the young ones and this is illegal. They hide their small nets when I come and say they did not have any catch.” When we arrived at the village, the higher-tech design canoe that we were supposed to transport to the fishing camp, already delayed from schedule, appeared to still be unfinished because no ‘legal’ timber had been found in time. Trying to explain the situation to me, Mr. Gachu stated: “The conservation strategy is starting to pay off.” When I asked the village teacher who spoke English if he thought villagers were going into the forest to timber illegally, the fisheries officer intervened, and said, “They don’t. It is illegal.” It ended our conversation.

This association of the Ugalla Project with government officials seemed to have implications for the capacity of the project to intervene in village level natural resource dynamics. The mostly outsider, albeit Tanzanian, staff appeared to have exclusive access to confiscated ‘illegal timber’ before it was auctioned on the market through a local forest officer, while some (but certainly not all) appeared to be motivated more by personal gain than the common good. Critical outsiders were quick to point some of these issues out to me. For example, the local Tabora hotel owner who had hosted me also explained to

me later during my stay that he had worked in the Ugalla forests for ten years during the 1980s when he owned a timber company financed through the World Bank. He explained,

I took 100 villagers with me into the forest. We scoped out good trees. That is why you need to know the geography, and they did. We had the rights from the local government to take timber from public lands. But of course you want good wood. So, the trees in the forest and game reserves are much better trees, thicker, older. They are like gold. We scoped them out and cut them. I also used to hunt in the forest reserve. I would provide Arusha tourists with a certain game they requested. I used the local people to find this game. They know every animal in the reserve.

Answers by local residents about forest resources did not seem naïve, but contextualized by the positioning of the Ugalla Project as linked to authorities and the history of relations the villagers had with outsiders. That this relationship was problematic is illustrated by a newspaper article I found stuck on a wall of the project’s office—next to the shared desktop computer—which appeared to set the tone for how to think causally about the deforestation. Its large heading announced in bold letters the news that, according to the Minister of Natural Resources and Tourism, Ms. Meghji, “Tabora witnesses massive forest destruction.” In the article it was said that about 200,000 ha of forest reserves had vanished while 40,000 ha of unreserved forests were destroyed every year in the Tabora Region. The newspaper quoted the Minister providing a straightforward solution: “Mrs. Meghji said the problem could only be solved if Tabora people stopped shifting cultivation and followed proper land use plans which included destocking of livestock and planting of trees.” The article also quoted a Tabora village chief, Mr. Lugusha, who “...wondered whether the government did not see the importance of narrowing the boundaries of its forest reserves in the district to cope with population growth in the area” (Tanzania Daily News 1999).

While the Ugalla Project’s baseline rapport appeared to share the perception of the Minister that the key barriers to the deforestation problem were the “people of Tabora,” one project member

indicated to me that the real issues impeding community based conservation were not caused by a lack of awareness or conservation capacity among the villagers. Instead, the problem was much broader and more structural: “the villagers, if left to themselves, would manage sustainably. They have done so for centuries. It is the outside, external influence that differs.”

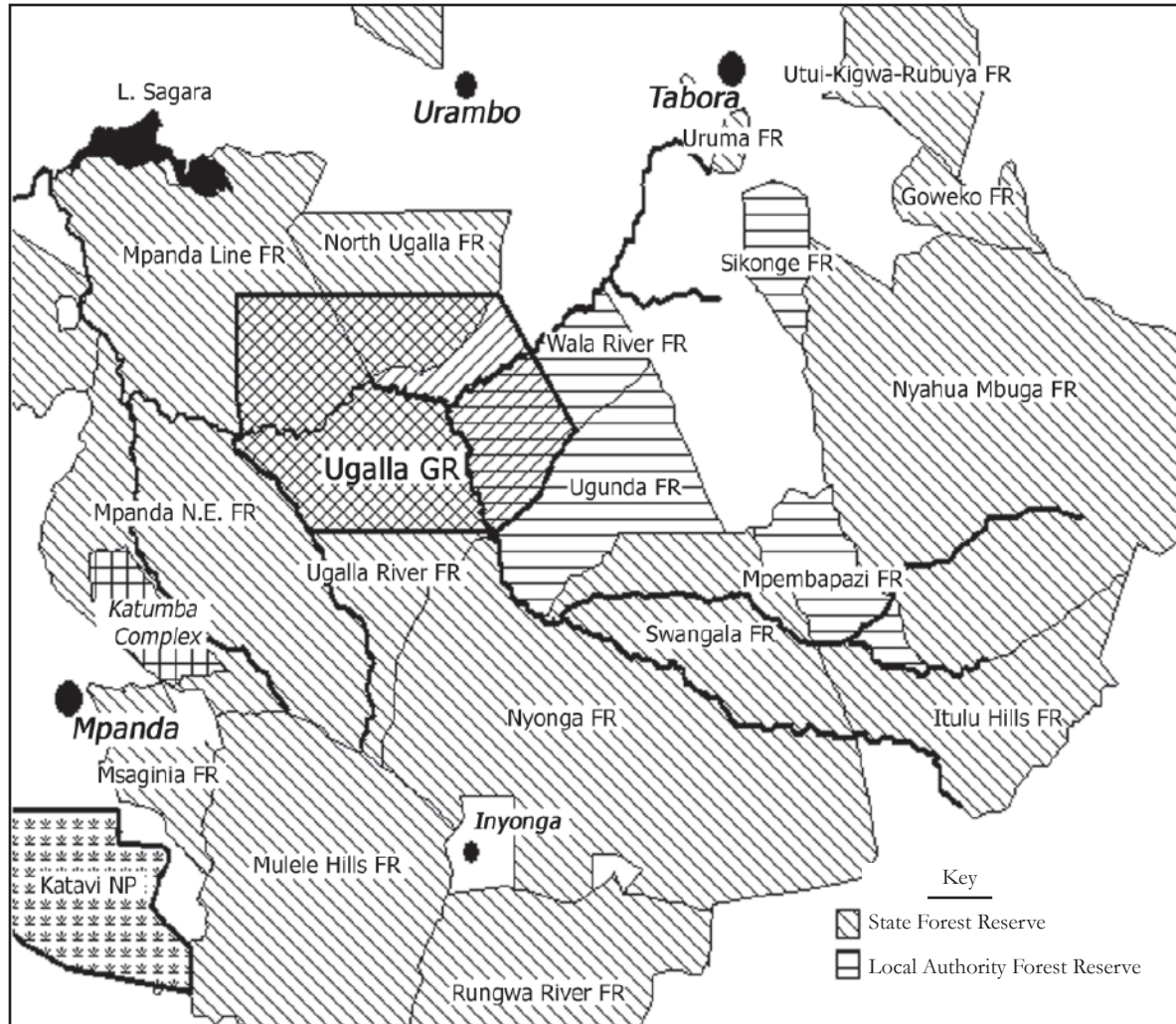
### A History of Outside Interventions

According to a detailed description by Kjekshus (1996), Tabora and Urambo Districts had been known to be an important fertile area, providing food and trade to many parts of Tanzania throughout recorded history. The German explorer Speke, who travelled Tabora in 1864, wrote that the district exhibited signs of the most impressive wealth he had encountered in Africa. The area was densely populated and the villages “followed one on the other, with few intervals of jungle. The district abounds in flesh, milk, eggs, and vegetables of every variety” (Kjekshus 1996:62). On the southern edge of the Tabora District, the Ugalla River area has been memorized as occupied by the WaGalla people, a branch of the WaNyamwezi, who lived by hunting game, fishing and the shifting cultivation of a variety of food crops. Indeed, aerial surveys have shown that the **miombo** woodlands of southern Tabora Region have signs of extensive disturbance in the past, probably 100 to 200 years ago (Lawton 1979).

By the time the number of European colonists increased dramatically in the early 20<sup>th</sup> century, this regional abundance had changed radically. An assault of droughts and diseases had devastated local subsistence economies, ravaged human populations, and had caused internal competition between different indigenous ethnic groups struggling to survive (Ambler 1988; Dawson 1979; Hartwig and Patterson 1978; Waller 1985). Kjekshus (1996) indicates that already by 1900 German tax exemption had lured many local Nyamwezi males to the Usambara's and coastal areas, leading to a rapid decline of agricultural production and cattle-keeping in the already understocked, female-dominated villages. From surplus production in 1890, the province was on the verge of poverty in 1910. Confronted with this situation, which evidenced a population in distress and adding

to it a bloody conquest of their lands, the German and British colonial officials misjudged indigenous self-sufficiency and the resilience of agro-pastoralist lifestyle. Based on misguided perceptions on what the ‘normal’ situation was, the colonialists constructed a faulty intervention baseline. The evaluative starting point for the colonial project was so low that the tendency to see their projects as successful was easily sold to the colonial administrators. African historians have argued that the interventions that followed did not ameliorate this situation for the indigenous Africans. Instead, the colonists took ecological control further away from the local population, and without proper knowledge of historical ecological conditions they ultimately failed to develop the region economically up to the moment of African independence (Beinart 1984; Kjekshus 1996; Richards 1983; Showers 1989; Vail 1977; Waller 1988). In the case of the Ugalla ecosystem, all of the areas surrounding the Ugalla Game Reserve were designated Forest Reserve, as shown in Figure 3.

In the villages I visited, it felt as if this historical narrative had never made its way beyond the forest landscape. An elderly man in Izimbili, a small village bordering one of the Ugalla forest reserves, explained that until 1964 the village chief was in charge of land use plans and traditional conservation, but after the Arusha declaration of independence the regional administration took over this function. The result was that many areas suddenly were cut off from access and were designated forest reserves. He explained that many people still resented this. How this resentment had carried on until today became clear to me when I met a man in Ukumbi Siganga, another village close to the protected forest boundary. He told me that in 1990 the Ugalla Forest became a Game Reserve, after which, in 1993, “Coleman took it.” This reference to the Ugalla Game Reserve as “possessed” by Coleman & Robin Hut—an Arusha-based commercial hunting company with exclusive access rights serving wealthy tourists—provides another example of the local perspective emphasizing that forest ownership had been taken out of their hands. He explained that people still did not understand why they could no longer enter the reserve for natural resource extraction: “This is a problem, since the village has had its foundation on lumbering since its inception in the 1960s.”



**Figure 3. The Forest Reserves around the Ugalla Game Reserve (from the Ugalla Reserve Management Plan 2000).**

### Evaluating the Baseline

The baseline analysis, completed and available in all of the offices of project staff workers I visited, started to lead a life of its own. It created the Moment A, the temporal notion that an initial working condition of the Ugalla forest landscape had been identified. It served as a crucial snapshot in an historical narrative, one that would from that point onward function as the moment from which program success was to be understood. This baseline Moment A was of course crucial to the eventual Moment B, when the project would cease, and funders would have to be convinced of its success. With the

main goals of evaluating interventions and measuring improvement, the baseline report indirectly linked funding needs with measured information. Yet, the resulting summary of bar-charts, numbers, and graphs that measured the Moment A did little more than reauthorize a classic view of the essentialized tribe in a wilderness landscape. Omitting all historical complexity and political dilemmas, the Ugalla Project's baseline analysis suggested that vast tracts of wilderness had always existed and that the retreat of these resources presents a threat with no local historical precedent.



If ecological systems are truly historical, one has to assume that population-environment relationships may be variable, non-linear, and unpredictable (see also Fairhead and Leach 2000). Understanding of such non-linearity means looking at both short and longer periods of time while paying close attention to politically charged institutional frameworks, cultural diversity, and changing landscape boundaries and organizational forms. The implications of not doing this can be illustrated through an example. The Tabora region has been prone to ecological shifts over the long term. As in Figure 4 below, Nicholson (1999) has graphed the fluctuations in water levels for Lake Rukwa, south of the Ugalla, during different historical time periods.

From this time series it can be seen that there appear to be highs and lows within the historical record. Without considering a broad temporal scale, the initial conditions at the time of program implementation might very well turn out to be situated at the bottom or top of one of the curves shown in Figure 4. Program progress might then be a free ride on the waves of the past, or worse, impeded due to unknown causes. Although the example here is applied only to rainfall, the argument remains that without finding ways to include historical and political understanding in ecological measurement paradigms, any possible baseline conditions cannot be appropriately judged and might bias outcome

evaluation. In the case of the Tabora villagers, the baseline analysis ignored public resentment over the loss of forest access, the historical reasons for distrusting outsiders, and the influences of in-migrants. I argue that without finding a way of measuring such cultural and historical variables, it is conceivable that the eventual evaluation will measure mostly itself, instead of what is happening on the ground.

### A Cultural-Historical Approach

What alternatives do we have? A first step is to expand the scientific notion of environmental monitoring. Conventional scientific monitoring is generally considered the activity of following the development of cost-effective, quantitative indicators of concern in time and (sometimes) space (Mol et al. 2001). In addition to this, anthropologists have identified indigenous or traditional monitoring practices that tend to focus on qualitative information. Berkes and Folke (2002) suggest that while the strength of conventional science and management is in the collection of synchronic (simultaneously observed) data, the strength of many local and traditional management systems is in diachronic information collection, or long time-series of local observations. Key to such "ethnohistorical" observations is cultural memory, which is about making meaningful statements about the past in a given cultural context of the present (Borofsky 1987; Friedman 1992)<sup>6</sup>.

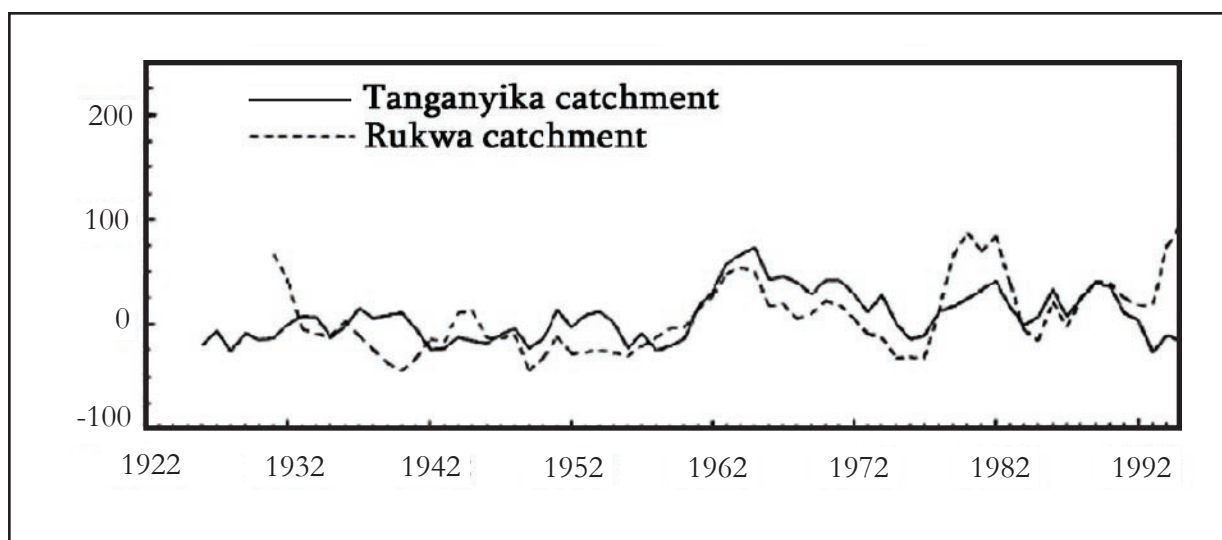


Figure 4. Water level of the Tanganyika and Rukwa catchments (from Nicholson 1999).

Many anthropologists have emphasized that humans have traditionally relied on cultural memory as a strategic way of capturing information about environmental variation (Halbwachs 1950; McIntosh et al. 2000; Schama 1995). When Tabora villagers indicate that mistrust in the intentions of a commercial hunting company has roots in several historical moments when governments took their lands and livelihoods away, it does not matter per se that the hunting rights actually were given in part to the hunting company in exchange for other benefits (such as monetary compensation and local investments), while colonial governments forced local people out of the game reserves. The point is that the resentments were expressed historically, and that in the current context these memories are seen as analogs for the situation at hand and, therefore, influence local behavior and politics. Such a cultural-historical baseline includes, if not embraces, cultural bias and the diversity of local histories, simply because it reconstructs memory as it is seen from the perspective of the target population who have lived through the environmental conditions that the intervention project promises to improve.

A second step is to engage in a political facilitation process. Local power dynamics will enter the baseline when, in addition to scientific time-series, history is captured through cultural memory as well. *Who* is invited to speak on behalf of the community and interpret its history is a delicate political process, and the assumption has to be made that no community is served by one history alone. Although it might appear cumbersome to incorporate this mediated and negotiated cultural process, it is valuable to the baseline survey process because it can provide important clues as to the power relationships that could facilitate or hinder outside intervention success, including its long term sustainability. Ethnographic field observations can be made by the evaluation team to assess the political situation in a community and identify the stakeholders and their historical positions, after which interviews with key informants can be scheduled. Culturally meaningful historical events and trends will be referenced during these interviews, and these events can be used in follow-up ethnohistorical research (next step). Finally,

focus group and public meetings can further help to identify different landscape histories at the community level. The end result of this process is that the baseline has the potential to become a collectively stated and negotiated memory—an open and frank account of the lived histories that have shaped the current landscape configuration. In doing so, the evaluator will not only be confronted with stories of past conditions that are meaningful and relevant to the lives of those affected by intervention projects, but also be forced to take these voices into account at the final moment of evaluation. In fact, the role of facilitator taken on by the evaluation agent in making up the baseline survey can be seen as being more than a mere collection of stories, but the moment which initiates the intervention process itself through the establishment of community dialogue, trust, and rapport. In this evaluation approach, the evaluation must be seen as less of an applied social science and more like a pedagogy in which the impact of evaluation comes from the very act of people engaging one another in a process of thinking evaluatively (Patton 1997).

A third step is to address the problem of temporal scale: how do we deal with the selectivity of how much history to take into account? Dealing with this problem, historical ecologists have argued for a multiscale approach; when a particular scale is chosen during one moment of analysis, it is because at that effective scale patterns can be recognized and meaning inferred (Crumley 1994). Thus, while historical information about the dealings of the tobacco industry in rural Tanzania would not need an extensive historical review preceding the 1970s, a long and complicated history of communal land tenure does exist about which villagers likely hold their own, particular versions. In this step, information about the cultural memory of local stakeholders can be helpful as a basis for archival work through the identification of meaningful historical events and the development of an understanding of the temporal scale that is dominant in local, cultural understanding of the environment. Further, and taking into consideration the lack of time-depth in most quantitative databases, additional scientifically measured data (such as longitudinal harvest, rainfall, and birth



data) can be obtained to contextualize and situate what matters to the local population and maintain a notion of objectivity on behalf of the evaluator.

The last step in the process would be to provide a transparent, public space of compromise. The eventual baseline document that is to be made is one in which compromise takes central place. Without compromise, political tensions can potentially escalate. The end goal is to create a commonly negotiated document to which all parties can agree. Basic mediation skills are required for this, and results should be disseminated widely and be made available for public review. Through this cultural-historical approach, the resultant baseline document will provide the foundation for the evaluation of the success of the intervention program. Integrating political and historical ecological concerns, it transforms the essentialized Moment A into Momentum A, and ensures democratic participation in the evaluation process through a participatory environmental intervention design.

## Conclusion

This paper has focused on a representation of human-environment interactions common to applied ecology—the baseline analysis. Baseline analyses evaluate program success through a simple pre- and post-intervention measurement design. The ‘baseline problem’ identified in this paper and illustrated through both a literature review and case study is that by trying to keep cultural bias out of the baseline survey, the evaluator risks having politics enter through the backdoor while producing a representation that has little to do with the political reality on the ground. Instead of measuring program success, the baseline survey can unwillingly function as a tool that impedes local empowerment by channeling program funds to uninformed, outside ‘experts.’ In addition to this, some fundamental tendencies for errors inherent to baseline intervention designs make the concept problematic and worthy of further anthropological analysis. These tendencies include flawed representation, the erroneous baseline numbers, biased cognitive adjustments, the ignoring of natural variation in measurement factors, and the tenuous position of estimating initial conditions in open and complex systems.

The main conclusion of this paper is that an alternative cultural-historical approach is needed. The proposed approach argues for, in addition to more common survey tools, the inclusion of a local history through a focus on cultural memory, careful political facilitation, multiple temporal scales, and public compromise. Using these tools, the historical ecological aim of making explicit the different political histories that express themselves in the intervention landscape is linked to a pedagogical, evaluative process in which local reactions to and perceptions of environmental problems are emphasized. As a suggestion to be proposed and strived for, the democratization of the baseline is to recognize the diversity of memories that present themselves as localized, historically embedded knowledges. Such a baseline is one that must be concerned with the acceptance of bias in order to gain improved quality of information and the incorporation of a plurality of acknowledged histories for use in assessing the quality of information (Funtowicz and Ravetz 1994).

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## Notes

- <sup>1</sup> Ironically, this ideal of science is at the same time challenged by the recognition that the context in which evaluation operates is very political (Weiss 1998).
- <sup>2</sup> This is a pseudonym.
- <sup>3</sup> In the face of many criticisms about mismanagement and ideological interests, institutions like the World Bank have voiced an interest in developing baseline studies in order to create a positive image with regard to good practice (O’Riordan 1990).
- <sup>4</sup> In the *Concise Swahili and English Dictionary* (Perrot 1965) the term for conservation appeared instead to be **kuhi-fadhi**. Later, Swahili speakers explained to me that the common understanding would be **kuwinda** or **kuchunga mazingira**, translated as “guarding or protecting the physical environment.” The answer “stop beating a wife” might be related to the verb **kuzinga**, which is the root of **mazingira**.
- <sup>5</sup> “They [outside non-governmental workers] were able to step into any office, especially those of higher officers, where the government technical forester could not,” one of the Ugalla Project staff members told me repeatedly.

<sup>6</sup> This conception of cultural memory corresponds to studies of other forms of memory in society, which have shown how even personal recollections by individuals concerning the (fairly recent) past of their own lifetime

do not support the view of memory as a simple storage place for information that can be retrieved later on, suggesting rather that in memory the past is actively constructed depending on certain social and mental conditions.

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