

**Threat Reduction Assessment in the UNDP-GEF East African Cross Borders  
Biodiversity Project: Experiences with a New ICDP Monitoring Tool<sup>1</sup>**  
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A major challenge to the successful implementation of Integrated Conservation and Development Projects (ICDPs) is how to monitor project and evaluate the conservation impact of project activities in an accurate and cost-effective manner. This article highlights a new ICDP monitoring tool known as Threat Reduction Assessment (TRA), and describes its use by the UNDP-GEF East African Cross Borders Biodiversity Project.

The TRA approach is described by Salafsky and Margoluis (1999) in the journal *Conservation Biology*, and the book: Margoluis and Salafsky (2001) "Is our project succeeding?". TRA monitors threats to the resource rather than changes to biological parameters themselves, as a proxy measurement of conservation impact. By doing so, this method reduces the need for complex (and expensive!) ecological studies traditionally used to monitor the state of a biodiversity rich area. Ecological studies provide valuable information on changes to a given resource, but they require large time investments over many years and often yield results that are difficult to interpret by non-scientists. The TRA approach is much simpler and cost effective, as it measures changes in the broader human activities that threaten the integrity of the resource (e.g. logging, bark stripping, fire), and then uses that information to draw inferences on the state of the resource itself. TRA provides feedback to project staff on the extent to which project activities are helping to conserve the biodiversity of a target area, and can also help to identify a course of action for meeting similar threats in future project interventions.

TRA involves seven steps, summarised as follows (after Salafsky and Margoluis, 1999):

1. Define the project area (spatially and temporally), e.g. a village-forest reserve interface over two years.
2. List all direct threats to the biodiversity at the project site, which were present at the project start date.
3. Rank each threat based on 3 criteria: area, intensity and urgency. Area refers to the percentage of the habitats in the site that the threat will affect. Intensity refers to the impact of the threat within a micro-site - will the threat completely destroy the habitat in a small locality, or will it only cause minor changes? Urgency refers to the immediacy of the threat - will the threat occur tomorrow or in 15 years? If there are 4 threats, then the highest ranked threat for each criteria receives a score of 4, and the lowest ranked threat receives a score of 1. Try not to exceed five or six threats!
4. Add up the scores across all three criteria to get a total ranking.
5. Determine the degree to which each threat has been met (this requires project staff to first define what "100% threat met" means for each threat).
6. Calculate the raw score for each threat. Multiply the total ranking by the percentage calculated in step 5 to get the raw score for each threat.
7. Calculate the final threat reduction index score. Add up the raw scores for all threats, divide by the sum of the total rankings, and multiply by 100 to get the threat reduction assessment index. Total the raw scores and then divide by the total ranking to get the final threat reduction assessment index, as a percentage.

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## **Real World Application**

The TRA approach has many benefits for assessing ICDP progress and conservation success. One of these benefits is flexibility - project staff can tailor the methodology to fit project needs. Other benefits include the ability to detect changes within the project timeframe; ease, efficiency and cost-effective of use; results which are readily interpretable by all stakeholders (rather than only to scientists); flexibility to generate meaningful results in the absence of a good baseline data set; and effective comparison of results between dissimilar sites.

The TRA approach requires the assessors to agree upon a standard field methodology for each target conservation site. This field information then provides the basis for the TRA assessment. The final output of the TRA methodology is the generation of a "Threat Reduction Index", a percentage indicating to what extent the threats to a target conservation area have been reduced as a result of project interventions. The Threat Reduction Index is tabulated after the assessors have identified threats to the resource, ranked these threats in order of their relative importance, determined the degree of progress the ICDP has made towards reducing each threat (over a chosen time period of project intervention), and calculated a combined estimate of the percentage by which the threats to the resource as a whole have been reduced over the chosen time period of project intervention. TRA can be carried out each year to chart the progress the project has made in reaching its target conservation goals. As the project gets off the ground and starts to have tangible conservation impacts, the Threat Reduction Index should continue to increase over time.

### **TRA use in the UNDP-GEF East African Cross Borders Biodiversity Project**

The UNDP-GEF East African Cross Borders Biodiversity Project (CBBP) is a consortium of central government, local government, NGO and CBO partners, supported by UNDP-GEF. The project's overarching goal is to reduce the rate of biodiversity loss in four cross-border sites in Kenya, Tanzania and Uganda. The Project does this by working with communities and with district policy initiatives that affect forest and wetland resources and influence the conservation of biodiversity at local levels. This includes addressing fiscal and non-fiscal incentives and disincentives for conservation, including access, tenure and a greater awareness of options for sustainable resource use.

TRA has been extremely useful in helping CBBP assess its progress towards achieving its goals. Pilot TRAs carried out by Uganda, Tanzania and Kenya in 2000 enabled the UNDP-GEF East African Cross Border Biodiversity Project (CBBP) to tweak the Threat Reduction Assessment methodology so that it is more applicable to the particulars of the CBBP project. The Project has now completed a second round of TRAs at most of its sites. TRAs conducted in Chome Forest Reserve in the South Pare Mountains in 2000 and 2001 suggested that project activities in and around Chome FR have reduced the threats to the forest reserve by 26% (an increase from 12% in 2000). In particular, threats of accidental and intentional forest fires were greatly reduced through provision of fire-fighting equipment to the Forest Department, clearing 75% of the forest boundary and establishment of a system for village mobilisation to fight fires. The threat of agricultural encroachment was also reduced through renegotiation of some of the forest reserve boundary, and clearly marking the new live boundary.

In carrying out these TRAs, CBBP has encountered some points for clarification with the methodology. These are described below:

### **1) Methodology Change: Threats were split into two categories, forest interior threats and forest edge threats.**

CBBP noted that the kinds of threats, and seriousness of each threat, vary in and around project forests by location. Particular threats also have different levels of scope, impact and urgency in different places in and around the forest. In order to take into account these differences, CBBP divided threats into two equally weighted categories - forest interior threats and forest edge threats - and now carries out separate sub-assessments on these two categories rather than lumping all of the threats into a single assessment. Forest interior threats are those which occur inside closed forest more than 100m from the forest edge, while forest edge threats are those which occur within 100m from the forest edge, and in the forest perimeter zone (e.g. agricultural encroachment). The sub-assessments are then combined into a final threat reduction index, using the standard formula  $[(\text{Raw Score}/\text{Total Ranking}) * 100]$ .

### **2) Interpretation of the Threat Met category.**

Project staff initially over-emphasised "awareness-raising" when calculating a number for the Threat Met category. However, the "Threat Met" percentage should only be based on quantifiable evidence of a reduction in the threat (for instance, project indicators such as hard evidence of less trees being cut in the forest, a smaller number of forest fires since the project began, etc.) - awareness raising is an activity which would feed into seeing these changes on the ground, if the awareness raising has been effective.

### **3) TRA and subjectivity.**

The TRA designers point out that their approach is not immune to bias. Some of the categories used in the assessment hinge on subjective analysis. The Threat Met category is probably the biggest pitfall in this respect. When carrying out the assessment, project teams must keep in mind that the objective of the TRA exercise is to gain a realistic understanding of the progress they have made so far. The TRA ideally should be carried out at predetermined intervals over the project lifetime, giving a trend over time in the amount that threats have been reduced, and thus project effectiveness. In a perfect world, one would expect to see the final threat reduction index percentage start off rather small (because activities normally take some time to get off the ground before they start to have real impact), and grow in an upward trend over the course of the project. But in a realistic world, some project activities are not as effective as one would hope, others take longer to be effective than planned, others take off quite well. TRA helps to see this, and enables project teams to use this information to improve on their work. Project teams need to turn a critical eye toward their own activities, and must try to be as objective as possible when answering questions such as, for example "To what extent have our project activities reduced threat X in Forest Y"?

It is important to carefully define the meaning of "100% threat met" for each threat category before the TRA is carried out, so that project staff have a measuring stick for interpreting the percentages in the TRA table. For instance, CBBP defined "100% threat met" for forest fires as "Early fire detection and village fire-fighting mobilisation system in place. Number of fires not exceeding 1 per year. Forest patrols occurring on a regular basis. (Note: forest fires will occur on a stochastic basis - the emphasis here is on rapid detection and containment)". "100% threat met" for tree cutting for poles, charcoal and wood carving may mean a sustainable system of extraction in place to meet community needs. These are issues that each project team will need to flesh out and agree on before doing the TRA.

#### **4) Understanding and setting a useful time frame of analysis.**

An appropriate time frame of analysis must be set and understood before doing each TRA. The first TRA carried out at each site should use the project start date as the lower time limit for analysis, in order to generate a baseline percent reduction to biodiversity threats at the site since the project began. The TRA is meant to provide information on the reduction of threats to biodiversity resulting from project interventions, over the course of the project lifetime. Subsequent TRA analyses should also define the time frame over which threats will be assessed, before undertaking the assessment. The time frame should be long enough to allow for changes to be seen (if there are any).

#### **5) Groundwork feeding into the TRA.**

A standard methodology should be designed for collecting data to feed into the parameter rankings for the TRA (area, intensity and urgency). The methodology could vary by project site, and may vary for individual threats, as well (e.g. assessing burn area, intensity and urgency is not well suited for a simple walking transect methodology; walking transects along existing footpaths in forests gives information on areas of highest human activity/impact, but may miss emerging threats in other parts of the forest. Methodologies should be decided on by the project team before starting the analysis, and are informed by prior knowledge of the forest layout, areas of human activity, and nature of threats. It is okay (and probably better) to combine a number of different methodologies to assess threat levels.

#### **Incorporating communities into the TRA process**

Starting in 2000, CBBP has used TRA yearly in each of its sites to help monitor project progress. The TRAs were initially carried out by a team of core project staff in conjunction with Forest Rangers, District Forest Officer and other key District partners familiar with each of the forest sites. In Tanzania, the Project has recently piloted a more community-oriented TRA methodology at the Longido site in Monduli District. The community approach involves Village Environment Committee members in the entire TRA process. VEC members take part in steps ranging from the development of definitions for the "Threat Met" categories, to carrying out the field work which informs the ranking process for each conservation threat. As villagers and Forest Department staff become more familiar with the methodology, CBBP hopes that the TRA tool will become a routine activity in monitoring forest condition even after the project lifetime has ended. As CBBP target forests move towards the development of a Joint Forest Management paradigm, TRA could become even more valuable as a cost-effective conservation monitoring tool easily implemented by combined FD/village assessment teams.

CBBP has received positive feedback from Longido VEC members, who noted that the TRA process in which they took part also served as an effective springboard to discuss the condition of Longido Forest Reserve within their community. Conducting the TRA in a more visible and community-oriented manner helped to engage a range of villagers in discussion about how community activities in and around Longido FR have influenced both positive and negative changes to the forest. Further involvement of forest-adjacent communities in the TRA process could also help to maintain community interest in forest conservation into the future.

## References.

The first two references below provide detailed information on how to conduct TRA, and are available on the Biodiversity Support Program website: [www.BSPonline.org](http://www.BSPonline.org). The latter reference (Persha) is available from CBBP Arusha.

Margoluis, R. and N. Salafsky. 2001. Is our project succeeding? A guide to Threat Reduction Assessment for conservation. Washington, DC.: Biodiversity Support Program.  
Salafsky, N. and R. Margoluis. 1999. Threat reduction assessment: a practical and cost-effective approach to evaluating conservation and development projects. *Conservation Biology* 13:830 - 841.

Persha, L. 2001. Threat Reduction Assessment (TRA) Notes and Methodology Changes. UNDP-GEF East African Cross Borders Biodiversity Project, Arusha, Tanzania.