Basic Guidance for Step 2.2

Monitoring Plan

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Resources for Implementing the WWF Standards

Contents

Monitoring Plan

What Is a Monitoring Plan?

Now that you have your action plan in place and you have begun implementing your project, you may be wondering how you will know if you are on track and if you are having the impact desired. This is where monitoring comes in.

Monitoring is the periodic process of gathering data relative to the stated project vision, goals, objectives and strategic activities. A monitoring plan defines what you will monitor and how the monitoring will be done. It includes information needs, indicators, and methods, spatial scale and locations, timeframe, and roles and responsibilities for collecting data. Monitoring plans are almost always designed and implemented by project staff and stakeholders.

Why Monitoring Plans Are Important

Monitoring is carried out primarily for the benefit of the project team. Good monitoring allows you to determine whether your project is on track. That is, it tells you what progress you are making relative to your planned vision, goals, objectives and strategic activities. Analysis of your monitoring data helps you to adapt the project design and plans to get the best results.

In addition, good monitoring can enhance your relationships with people outside the project team, which also benefits your project. For example, monitoring can:

- Help WWF as an institution to assess its total contribution.
- Help WWF to learn which approaches are working best, leading to better decisions on future priorities and strategies.
- Enhance accountability, credibility and transparency with external donors and accountability bodies.
- Strengthen ownership of the work by partners and stakeholders, and therefore sustainability of the work for the future.
- Support the overall effort to professionalize WWF's work and hence help raise funds, build brand awareness and publish informed results.

A monitoring plan is important because it provides the blueprint for how monitoring will happen. It specifies exactly what is going to be measured, who will measure it, how and when they will measure it. It assigns responsibility and dates to help ensure that the monitoring is actually done. Individual project teams will have clarity about what is expected of them, and they will know who to consult if they are looking for specific data or information. A monitoring plan also provides a succinct way of organizing and summarizing a lot of information. Unless the project is very small, monitoring requires significant resources to make it happen – human, financial and systems. If you don't have a clear plan, you will not be able to allocate appropriate resources. You will end up wasting resources or, more likely, monitoring will not happen at all.

When to Use Monitoring Plans

You will formally develop your monitoring plan at Step 2.2 in the *WWF Standards of Conservation Project and Programme Management,* but you have really been preparing for the monitoring step all along. By describing your project situation in a conceptual model, creating results chains to portray the logical sequences that link your strategic activities to your targets, and developing goals and objectives that fulfil the necessary criteria, you and your project team have done all the hard work of outlining the key assumptions that you are making. Now, you just need to take all that hard work and develop ways of testing these assumptions.

How to Develop Good Monitoring Plans

Monitoring is a process that should not start after your project has already been implemented. It is something you should plan for right from the start. This is one of the reasons the WWF Standards place a heavy emphasis on developing a complete conceptual model, well-defined goals and objectives, and detailed results chains that make explicit the logical sequences that link your strategic activities to your targets. If your project team invests the up-front time in these design steps, then deciding what to monitor and developing your monitoring plan should be straightforward.

An outline of the process for developing a monitoring plan is provided in Step 2.2 of the WWF Standards of Project and Programme Management. The process involves four main sub-steps: A) Define your information needs; B) Develop your monitoring plan; C) Prepare for data storage, processing, and analysis; and D) Put your monitoring plan in action. Here each of these sub-steps is described in more detail.

1. Define Your Information Needs

The first part of developing your monitoring plan involves specifying your information needs that you will monitor. All too often project teams either collect no information or too much information because they do not define what is needed.

Good monitoring uses the minimum of resources to provide you with the minimum of information needed to determine if your project is on track. By prioritising and limiting the number of information needs, you are far more likely to end up with a completed monitoring plan that you can actually use. This means you need to focus your monitoring efforts primarily on your goals, objectives, and strategic activities and the status of targets and critical factors you are addressing with your actions, but need to keep track of.

By the end of this step you should have a list of your information needs and an explanation of your reasons for selecting them. The following guidance might be helpful in this process:

Start from Your Action Plan

The Action Plan that you developed in Step 2.1 and, in particular, your results chains (or similar tool for making explicit the logical sequences that link your strategic activities to your targets), should be your primary guide for your information needs. At a minimum, you will want to monitor to see if you are on track to meet your goals and objectives. You will also want to select key points along your

results chain that can help you determine whether your work is proceeding as planned. In addition you need to monitor your financial spending.

Decide What Else You Need to Monitor

In addition to your action plan, other information needs will focus on the status of targets and factors that you are not actively taking action on, but that you should track to better interpret your monitoring results and/or to see if action will be required in the future. For example, you might want to track the population level of a certain species to see if it is stable, in which case no action will be required, or declining in which case you may have to take action. You may also want to monitor the external context of your project including key risks you have identified, or have other information needs that address concerns of key partners and stakeholders.

Prioritise Based on Cost and Benefit

Consider to what extent you will plan to monitor all of the goals, objectives and strategic activities. You may need to prioritise if you want a realistic monitoring plan. If you do have to make choices, think about the cost and benefit of monitoring each possible information need, taking into consideration the following issues:

- The monitoring of goals and objectives is very valuable. The majority of your monitoring investment should go towards that.
- In addition to the objectives along your results chains, consider the extent to which you will be able to measure other key results. In the interest of keeping monitoring manageable, you should not try to measure all points along your results chains.
- Strategic activities should be monitored, but this monitoring should be kept simple and light.
- Information needs that can be rolled up to relevant targets and milestones of the Global Conservation Programme should be high priority.
- Any links to relevant donor or country targets (e.g. those from Poverty Reduction Strategy Papers or from Millennium Development Goals).

2. Develop Your Monitoring Plan

The next sub-step is to develop the specific indicators and the methods that will be used to collect and analyze the data required to meet your information needs. These indicators and methods then need to be compiled into a formal monitoring plan that specifies roughly when, where, and by whom data will be collected, and how data will be analyzed and used. It is generally helpful to summarise the monitoring plan in tabular form as shown in the example below. Many people find spreadsheet software such as MS Excel to be a more flexible tool for capturing tables then the table feature of word processing software such as MS Word. Components of a monitoring plan include:

Indicators (what you will measure)

An indicator is a measurable entity related to a specific information need, such as the status of a target, change in a threat, or progress toward an objective. Indicators can be quantitative measures or qualitative observations. Good indicators meet the following criteria:

- **Measurable:** Able to be recorded and analysed in quantitative or in discreet qualitative terms.
- **Precise:** Presented or described in such a way that its meaning will be the same to all people.

- **Consistent:** Not changing over time so that the same phenomenon can be measured over time; for example a currency that inflates or deflates in value is not a consistent measure of wealth.
- **Sensitive:** Changing proportionately in response to actual changes in the condition or item being measured.

In most cases, there should be a fairly obvious indicator associated with each information need. In particular, if you have developed goals and objectives that meet the criteria of being *specific* and *measurable*, then the indicators should flow directly from your goal and objective statements. In some cases, however, if you cannot measure the information need directly because data are too difficult, too expensive, or culturally inappropriate to acquire, then you will need to develop a proxy indicator. For example, you might use orangutan nests as a proxy for the orangutan population.

As with all your project work, you should make sure that your partners and stakeholders buy into the indicators that you select. Where relevant, you should also try to align your indicators with those of WWF's Global Conservation Programme and with indicators that are relevant to other institutions and stakeholders (e.g. Millennium Development Goals).

Methods (how you will collect data)

Methods are specific techniques used to collect data to measure an indicator. Methods vary in their *accuracy and reliability, cost-effectiveness, feasibility,* and *appropriateness.*

- **Accuracy and Reliability:** Accuracy refers to the degree of error inherent in the measurement. Reliability refers to the degree to which results obtained using the method will be repeatable. Often accuracy and reliability are related.
- **Cost-Effective:** The cost of acquiring the data needs to be acceptable. There may be a trade-off between accuracy and reliability, against the cost. Are there cheaper ways to get the same or nearly the same data?
- **Feasible:** Does the team require access to people that can produce the information. Can the method be successfully used when the available materials, technology and skills are considered?
- **Appropriate:** The method should be appropriate to the environmental and cultural context. For example, it may be impossible to use GPS monitors under a thick forest canopy, or it may be socially unacceptable to ask people directly about their financial status.

The key is to select the most cost-effective method that will give you data that is reliable enough to meet your management needs. There may be a wide range of possible methods to assess a given indicator. In many cases you or your colleagues will be aware of the range of methods available. If this is not the case you can learn about various methods by talking to experienced people, reviewing documents or manuals on the subject, taking courses, or scanning through examples of monitoring plans that have been developed for other programmes in WWF.

For many information needs, you may not have to collect primary data. Instead you can use secondary or outside sources of data, provided they meet the criteria above. Good sources of data include ongoing research projects and routine monitoring by scientific institutes, universities or administrative bodies. For example, one method for collecting data about a given fish population might be to "download harvest records posted by a government agency on the internet." Some other sources for

secondary data might include the Living Planet Index, TRAFFIC trade figures, United Nations climate data, Convention on Biological Diversity, and National Biodiversity Strategy and Action Plans.

The proposed method/source of data should be referenced or summarized in a few words in the monitoring plan. Methods need to be defined more fully in a separate document, especially where the method is not well known to those carrying out the monitoring.

Where (location of data collection)
Describe briefly the specific physical location or community where the monitoring will be carried out. As noted above, in many cases, secondary data can be downloaded or obtained from other sources.

When (timeframe & frequency of data collection)
At a minimum you need to define the dates when baseline and final data will be collected for each indicator. In many cases you will want to collect data on a more frequent basis than this (e.g. quarterly or annually).

Consider the following factors:
- *Time period to effect change.* If you realistically cannot expect to see a change in a factor for five years after the start of the project, then your next measurement after the baseline measurement should be no earlier than five years.
- *Natural variability* of the phenomenon to be monitored.
- *Seasonality issues* in terms of data availability and variation.
- *Project life cycle.* For example, it may make sense to collect and review data in advance of key project reviews, planning or reporting timings

Who (people responsible for data collection)
Monitoring can require extensive resources, especially commitments of project team members' time. It is important to ensure that the appropriate person(s) with the right skills are designated to handle these functions. Whilst multiple staff may be responsible for collecting and recording data, it is also important to have a single driving force and 'owner' of the overall monitoring process. You should state the name of the individual or the organisation responsible for measuring each indicator and the name of the person in the project team responsible for getting the information (where this is not the same person). This may be written as an information flow (Organisation X → Person Y).

Who will analyse and use the data?
It is important to systematically check, clean and code raw data as soon as you get it; store and back-up your data, and then analyze and discuss your data to check if you are on track. You should state who will do this for each indicator.

Related Indicators (GMS, GAA, Country)
You should already have made efforts to align your indicators to the targets and milestones of the Global Conservation Programme, or to the goals of particular institutions or stakeholders. As

appropriate, reference here the relevant target, milestone, goal, objective or the name of the institution. This will help you greatly when it comes to reporting.

Cost (of monitoring this indicator)

For your own management purposes it is important to assess the resources required to do the monitoring. You should state the approximate financial cost and/or the amount of staff time that will be needed to monitor the indicator by the stated method.

Baseline Data (measurement and date)

Collection of baseline data is the first step in the actual use of the monitoring plan. It is critical that baseline data is collected early in order to inform the project design, and because all subsequent data gathered over the life of the project will be measured against the baseline.

The use of already existing data for a baseline is strongly encouraged, provided it is of acceptable quality and its source is adequately acknowledged. In ecoregions that have completed a biological assessment or conservation vision, much baseline data has already been collected (at least for this scale of analysis). Data may be available backwards through time (e.g. remote sensing or human population data). In this case it is will be possible to compare trends before and after the start date for the project.

In the monitoring plan you should state the baseline measurement, and the applicable date (the date when the measurement was made). Where the baseline has not yet been defined, you should say when this will be done.

Final Desired Result

State here the desired final result for this indicator, consistent with achievement of the relevant Goal, Objective or Strategic Activity.

Optional Fields

In addition to the above fields, you may want to include the following in your monitoring plan:

Intermediate Desired Results

This can be useful where the final desired result is on a time frame of more than one or two years.

Donor

This can be useful where it is known that certain donors have a strong interest in particular indicators.

Result Without Project

Some practitioners find it useful to also estimate what the indicator value would be if no project actions were to be taken. This estimate can be helpful in estimating the value of alternative strategic actions.

3. Prepare for Data Storage, Processing and Analysis

Many projects start collecting data and then find that they are unable to use them effectively because they are overwhelmed by the amount of data coming in. If you have focused your monitoring efforts on only the key information needs you should already be in a better position. Even so you will undoubtedly generate a lot of data, and systems need to be prepared in advance for storage and analysis of the data.

The systems used will vary considerably between projects. A large complex programme may already have a sophisticated database system, whereas a small project may decide to work off a simple spreadsheet. Below are some important factors to consider in determining what system you will use.

Recording

Data can be recorded either on paper forms or in computer files. You should ask yourself:
- How will raw data be systematically, consistently and clearly recorded, and in what format?
- Will you use paper systems, computers or both?
- How will data be checked and cleaned?

Storage

The storage system should be as simple and user friendly as possible. It should be designed around the information needs of the project, not based on all possible information needs. Questions to consider include:
- Will the data be held centrally (e.g. in Head Office), locally (e.g. by individuals) or both?
- Will data be entered into spreadsheets, a database, or a statistical package?
- How will data be backed up?

Analysis

Data need to regularly analysed. You should think about:
- How and when will data be reviewed? Will this be done locally, centrally or both?
- Will you hold periodic team meetings to review data? What processing of data should be done in advance?
- How will decisions to adapt plans be made?

Reporting

Finally, data need to be turned into useful reports. Questions to consider include:
- Who will provide reports to whom, and using what format? (click here for the Internal Technical Progress Report format. There may be a feeding up process for reports and also a feedback process).
- What data will be entered into the Track database?

4. Put Monitoring Into Action

Having prepared your plans, you need to move them forward into implementation. The steps below may sound obvious, but they are critical and they require continuing attention as you implement the project.

Include Monitoring Activities in Your Work Plan and Budget

Your initial workplan may include baseline data collection or the completion of your monitoring plan. Subsequent workplans will concentrate on monitoring of progress, although you may want to allocate some time to adapt or refine monitoring plans. It is very important to be clear about individuals' overall responsibilities related to monitoring and not get lost in the detail of spreadsheets!

In addition you need to budget for your monitoring activities. Clearly the amount budgeted will vary depending on your project's conditions (see Salzer and Salafsky paper in reference for a detailed discussion), but unless you have prior experience of monitoring this type of project, a good guide is 5-10% of the project budget. This may include staff time. As a very rough guide:

- For smaller shorter projects (<CHF 100,000, one year) monitoring should be kept very simple.
- For large multi-year projects (>CHF 200,000, 3 years duration or longer), monitoring plans need to be comprehensive.

Build Capacity and Partnerships as Necessary

As with other activities, you need to build the necessary capacity to deliver the plan, especially where the project involves working in partnership. A monitoring plan can look quite intimidating to people who have not been involved in its development (unless they are very familiar with monitoring). In this context, it is wise to carry out the development of a monitoring plan with the participation of whoever you see are the key players. This will help to build capacity and ownership, and will probably help you to produce a better plan. You need to think through how best to do this and how to integrate monitoring planning with your other planning activities. The Standards support team can provide advice on this if requested.

When working with partners, it may be appropriate to secure your key partners' commitment to monitoring by specifying the monitoring requirements in formal documents such as contracts or memoranda of understanding.

Example

Tropical Forests Site

Monitoring Plan
Date: October 20, 2005

Goal: By 2020, at least 80%* of the primary forest coverage (hectares) in the Rio Arroyo Watershed maintains its productive and ecological functionality.
* This goal could be divided in two, if there is a more specific zoning in the future. Possibly, it could be separated by % intact and % for forest product harvesting.

What? (Indicator)	How? (Methods)	When?	Who Responsible?	Who Analyse?	Where?	Related Indicators	Monitoring Cost	Baseline Data	Desired Result	Comments
Forest cover: # of hectares of primary forest	Current satellite images	Every 3 years	WWF GIS Team (Armando)	Project team (Maria as lead)	Primary forest in the Rio Arroyo watershed	National government forest plan (2005 – 2015),	Zero (available through local university)	100,000 hectares	80,000 hectares or more	
	Field validation through sampling	Every 3 years	Forestry specialist (Frank?)	Project team (Maria as lead)	Sampling sites identified through GIS	Objective 4	EUR 1,000 every 3 years			
Presence (yes/no) of key sensitive flora and fauna: - Huangana - Paujil - Maquisapa - Caoba - Lunpuna	Inventory and evaluation of wild flora and fauna	Every 3 years	Fauna: José and José Luis Flora: Frank	Project team (Maria as lead)	Primary forest in the Rio Arroyo Watershed	None known – to be determined	Zero (available through local university biology & forest departments)	To be collected, January 2006	Presence of all key species	
Abundance of key species (from above)	Transects	Every 3 years	Fauna: José and José Luis Flora: Frank	Project team (Maria as lead)	Primary forest in the Rio Arroyo Watershed	None known – to be determined	Zero (available through local university biology & forest	To be collected, January 2006	Representative viable populations of each key species (varies by species)	Need to determine with local university what are representative

> You may not always have all the information you need – you should note in your monitoring plan where you still need to find information & then come back at a later date & update your plan

Monitoring Plan

What? (Indicator)	How? (Methods)	When?	Who Responsible?	Who Analyse?	Where?	Related Indicators	Monitoring Cost	Baseline Data	Desired Result	Comments
							departments)			viable populations of key species
Objective CB1: By 2006, all recognized communities have internal statutes and regulations applied in an effective manner. * 7 titled plus 8 annexes make up the total of communities in the Rio Arroyo Watershed.										
# of communities with internal statutes and regulations	Review statutes & regulations	Every 6 months	Specialists (Robert, Maria, José)	Project team (Maria as lead)	In communities in the Rio Arroyo Watershed	None	EUR 0 – 50 (project staff time)	0	7 titled communities + 8 annexes	We want to encourage them to use the statuses & regulations
# of community authorities that apply the statutes and regulations	Community surveys to know if villagers know about the statutes and regulations Review the community board acts and decisions	Every 6 months	Specialists (Robert, Maria, José)	Project team (Maria as lead)	In communities in the Rio Arroyo Watershed	None	EUR 50 – 100 (project staff time to verify)	0	7 titled communities + 8 annexes	We want to encourage them to use the statuses & regulations Standard questionnaires & representative samples
Objective CB2: By 2006, at least 15 indigenous communities have basic knowledge about their rights over territories and natural resources										
# of elected authorities and promoters in communities trained	List of participants in the courses	At the end of the course	Technical team (Robert)	Project team (Maria as lead)	In Rio Arroyo communities	None	EUR 50 – 100 (project staff time to verify)	0	At least 2 per community or annex	Every 6 months, it will be necessary to systematically organize the information

What? (Indicator)	How? (Methods)	When?	Who Responsible?	Who Analyse?	Where?	Related Indicators	Monitoring Cost	Baseline Data	Desired Result	Comments
# of elected authorities and promoters trained who display basic knowledge about their communities' rights over territories and natural resources	Individual evaluation of knowledge*	Before and after the course	Technical team (Robert)	Project team (Maria as lead)	In Rio Arroyo communities	None	EUR 50 – 100 (project staff time to verify)	0	At least 75% of participants and at least 1 elected authority per community or annex	* How do they learn about the concepts in their daily life context?
Objective CB3: By 2006, 15 indigenous communities have a functioning control and vigilance system.										
# of communities with control and vigilance systems established	Review acts to find establishment of vigilance committees	Every 3 months	José	Project team (Maria as lead)	In Rio Arroyo Watershed communities	None	EUR 50 – 100 (project staff time to verify)	0	15 indigenous communities	
	Verification with community authorities and local teacher the number of field patrols	Every 3 months	José	Project team (Maria as lead)	In Rio Arroyo Watershed communities		EUR 50 – 100 (project staff time to verify)			
	Accompany committees on their patrols	Every 3 months	José	Project team (Maria as lead)	In Rio Arroyo Watershed communities		EUR 300 (project staff time & field trip costs to			

Depending on the circumstances, this may or may not be appropriate

This team was probably overly ambitious in their estimates of how often they would collect monitoring data. Remember, you want to keep your monitoring as simple as possible and collect the least amount of information needed to provide you with good management guidance.

Monitoring Plan

What? (Indicator)	How? (Methods)	When?	Who Responsible?	Who Analyse?	Where?	Related Indicators	Monitoring Cost	Baseline Data	Desired Result	Comments
Objective CB4: By 2007, the presence of illegal commercial loggers in community territories has decreased by 80%.										
# of outsiders in communities	Interview authorities	Every 3 months	José	Project team (Maria as lead)	In Rio Arroyo Watershed communities	None	EUR 50 – 100 (project staff time to verify)	Approx. 50	10 or fewer	Outsiders are ones responsible for illegal logging. If system works, we hope to find fewer outsiders in the communities.
Amount of illegal wood extracted	Interview authorities	Every 3 months	José	Project team (Maria as lead)	In Rio Arroyo Watershed communities	None	EUR 50 – 100 (project staff time to verify	To be determined	20% of baseline value	

> Indicator should specify how the amount will be measured – e.g., # of trucks leaving community, wood volume in m^3, etc.

References

There are literally thousands of guides published to develop protocols for monitoring different habitat types, taxa of animals and plants, and various socioeconomic variables. If you are interested in a specific factor, please consult the appropriate guide, although be aware that many of these guides go into more depth than the average conservation project or programme will require.

*** **Note to Oct 2005 Version** – We are still looking for good references. Please let us know of guides that you have found helpful. ***

General Guides for Monitoring Conservation Projects

Margoluis, Richard, and Nick Salafsky. 1998. Measures of Success: Designing, Managing, and Monitoring Conservation and Development Projects. Chapter 5. Island Press, Washington, D.C.

Salzer, Dan and Nick Salafsky. 2004. Allocating Resources Between Taking Action, Assessing Status, and Measuring Effectiveness. Working paper. The Nature Conservancy and Foundations of Success. Available from:
http://www.fosonline.org/images/Documents/allocating_monitoring_03_03_17.pdf

Guides for Monitoring Biodiversity

Terrestrial and Freshwater Biomes

Bartram, Jamie and Jack Balance, eds. 1996. *Water Quality Monitoring: A Practical Guide to the Design and Implementation of Freshwater Quality Studies and Monitoring Programmes.*

Chapman, Deborah, ed. 1996. *Water Quality Assessments: A Guide to the Use of Biota, Sediments and Water in Environmental Monitoring.*

Heyer, W . Ronald, Maureen A. Donnelly, Roy W. McDiarmid, Lee-Ann C. Hayek, and Mercedes S. Foster. 1994. *Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians.* Smithsonian Institution Press.

Rabinowitz, Alan. 1993. Wildlife Field Research and Conservation Training Manual. Wildlife Conservation Society, Bronx, NY.

Wilson, Don E., F. Russell Cole, James D. Nichols, Rasanayagam Rudran, and Mercedes S. Foster 1996. *Measuring and Monitoring Biological Diversity: Standard Methods for Mammals.* Smithsonian Institution Press.

Marine Biomes

Guides for Monitoring Socioeconomic Factors