Since many people did not really understand the issue of soil conservation, the team chose to focus on water issues, which are more concrete and of immediate importance to local people. Villagers were asked about problems they may have had with water. When the team uncovered some water problem, they asked how it was dealt with. The team was looking for verifiable stories of groups who had come together and successfully addressed some water problem. Appropriate cases were followed up and noted down in detail.

Outlook and Recommendations

This indicator is a valid measure of social capital—if people have demonstrated the ability to pursue grievances regarding watershed issues, then social capital is present. Unfortunately, this is not a reliable indicator. The questions that the investigators need to ask are necessarily vague, so respondents may not always understand what the evaluation team is looking for. In addition, not everyone in a watershed may even be aware of the social capital that exists. If evaluators do not interview the right people, they will not gain the necessary information.

In addition, it may be difficult to determine change with this indicator. If *Social Capital* was previously non-existent in a baseline survey and then it registers in a subsequent survey, evaluators are safe in assuming that change has occurred. Evaluators can also assume that change has occurred if identical types of social capital are found in the ìbeforeî and ìafterî surveys, but the intensity of the social capital has changed. If, however, one or more forms of social capital were found during a baseline survey, but completely different ones are found in a subsequent survey, evaluators will not be in any position to determine if the level of social capital has increased or decreased. It is very difficult to say whether one type of social capital is stronger than another.

While the indicator is inexpensive to use in terms of equipment (absolutely none is required), it must be executed by someone with a sophisticated understanding of social capital, local society, governmental structures and the programme being evaluated. In addition, this person must be a skilled interviewer, although local language capabilities are not essential for such interviews.

Finally, this indicator cannot be executed with any great speed. It involves much open-ended interviewing with various types of people—from farmers to local government officials. In addition, many of these interviews require subsequent discussions with additional informants. These interviews can, however, be carried out concurrently with other parts of the evaluation. Since it is a participatory indicator, it does not require the use of controls.

This indicator is recommended with reservation. It is the best available alternative for measuring the existence of social organisation and mobilisation. It can be abandoned if a more reliable and less time consuming alternative is developed.

VIII

CONCLUSIONS

Indicators work! After testing and refining the Programme Evaluation Protocol under field conditions, the Principal Investigator does not hesitate to claim that this indicator set can be used to measure physical and socio-economic realities in rural watersheds, although not always as quickly, cheaply and easily as originally hoped. Exclusive of travel time, a team consisting of the PI and two assistants was able to execute the preliminary PEP in two Representative Watersheds—Arki in Himachal Pradesh and Kattery in Tamil Nadu—in ess than twenty days. This was done with very few expensive tools and with research assistants who had received very little special training.

Of the nine indicators in the set, four—*Height-for-Age, Consumer Durables, Use,* and *Outsiders*—are highly recommended. Two more—*Soil Loss* and *Ground Water,* —are recommended with some reservations. This is because they do not meet all of the original selection criteria—that the indicators be "fast, cheap and easy to use". (For example, both *Soil Loss* and *Ground Water* are labour intensive and a final analysis can only be undertaken after years of data collection.) Finally, while they are usable in their present forms, it is recommended that *Attendance, Replication* and *Social Capital* could be further modified due to reliability problems. The following table contains summary information about the individual indicators.

In general the findings with regards to the impacts of the IGBP programme are inconclusive. This is not surprising given that most of the indicators were not designed to measure change with only a single site visit. Where change was recorded, it was directly linked to IGBP activities in only a few cases. Again, this is not surprising because the RWS Programme has been in operation for less than two years.

Some activities have, however, already begun to demonstrate their potential to bring about positive change. For example, the federation of self-help groups set up by MYRADA in Kattery have begun to address community watershed problems. In addition, the Forest Department's programme in Arki has improved both sapling and grass quality. The Forest Department has done this by choosing the tree species to be planted on plantation lands in consultation with local villagers and by granting grass harvesting rights on these lands to inhabitants of nearby villages.

As a final note, it is important to repeat that the point of this book has not been to claim that indicators are a monitoring and

FINAL EVALUATION OF THE INDIVIDUAL INDICATORS

Indicator	Objectives Measured	Validity[1]	Reliability[2]	Precision[3]	Respons.[4]	Equip. Costs	Training[5]	Man Hours[6]	# Field Visits?[7]	Further Refine?	Comments
Soil Loss	Topsoil conservation	++	++	++	++	---	++	---	---	N	Highly labour intensive
Ground Water (participatory method)	Ground Water conservation	+	+	---	++	++	-	-	++	N	Not Recommended —Metric too imprecise to be of use in most projects.
Ground Water (scientific method)	Ground Water conservation	++	++	++	++	---	++	---	---	N	Highly labour intensive
Height-for-age	Health, Wealth, Gender parity, Social equity	++	++	++	---	+	-	-	+	N	Slow to measure changes in objectives.Not useful in areas with pre-existing levels of socio-economic development.
Consumer Durables	Wealth, Social equity	++	+	++	-	++	-	-	++	N	Less useful in extremely poor areas.
School Enrolment	Education, Gender parity	++	-	++	-	++	-	-	++	Y	Collection of comparable time-series data sets difficult.
Use and Maintenance	Sustainability, Replicability	+	+	-	++	++	---	-	++	N	Low validity due to incompleteness of the indicator.
Outsiders	Sustainability, Replicability	+	+	-	++	++	---	-	++	N	Low validity due to incompleteness of the indicator.
Replication	Replicability	+	-	-	-	++	---	+	++	Y	Very incomplete indicator.Not valid for relatively expensive schemes.
Social Capital	Sustainability	+	-	---	++	++	---	-	++	Y	Limited reliability. Incomplete indicator.

In this table, the superior rating (whether that means highest validity or lowest equipment costs) is represented by "++". This is followed by "+" and then "-". The most inferior rating is always represented by "- - -".

[1] How well does indicator measure the objectives?
[2] Results not dependent upon identity of the investigator.
[3] How fine grained is the indicatoris metric?
[4] How quickly does the indicator register changes in the objectives being monitored?
[5] The level of training, skill or education necessary to implement the indicator.
[6] The total time necessary to implement the indicator.
[7] Regardless of the man hours, how many field visits are necessary to fully implement the indicator?

evaluation panacea. They are simply one of the many tools that are available. The strength of this method is its economy vis á vis time and monetary resources. For this reason, small programmes may prefer it. Most indicators do not, however, offer the sort of precision and detail that can be obtained through a full benefit-cost study. Nor are all indicators as easy to execute, as originally imagined. Just as with traditional, benefit-cost analyses, most of the indicators discussed here must be executed by college graduates or professional consultants.

The hope is that programmes and monitoring and evaluation specialists will now be able to benefit from the IGBP experiences. Those interested in carrying out a similar evaluation can follow the simple guidelines set out in the Programme Evaluation Protocol (presented in Annex A).

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A

PROGRAMME EVALUATION PROTOCOL

The following pages contain detailed guidelines for executing the nine indicators in the indicator set. Each indicator is discussed in terms of the following parameters:

* Required Team Members (Number and Skills)
* Necessary Tools and Support
* Total Time Required to Use the Indicator
* Frequency of Use
* Sequence of Use
* Sampling
* Procedures and Methods
* Data Matrixes and Questionnaires
* Data Analysis
* Presentation of Results

This detailed protocol is a modified version of the preliminary PEP, which was originally designed to help structure pilot evaluations in Arki RWS, Himachal Pradesh and Kattery RWS, Tamil Nadu. The PEP has since been modified in the light of these field experiences. It is presented here in a manual format so that others may quickly and easily use it as a rough guide for organising their own evaluations.[1]

[1] Please note: The sample data matrixes and questionnaires listed in the PEP are not intended to be used in a recipe-like fashion. Instead, the protocol has been designed with a probing, sceptical, observant investigator in mind. The investigators should use the protocol as rough maps to guide the formulation of their own evaluation.

It is also important to realise that the sample questions are not to be taken literally; they are only guides to the questions that need to be answered. In the field, investigators should ask these questions as they see fit. They will need to observe their surroundings with a critical eye. In addition, these questions should be administered as open ended interviews, not structured surveys. For example, an investigator may ask beneficiaries how often a particular hand pump is used. For whatever reasons, the answer given may be, "Every day". Yet, an observant investigator may see that the hand pump is frozen with rust. In such an instance the investigator will not simply note down that the hand pump is used regularly. Instead, he will pursue the issue further in order to uncover the clearest possible understanding of actual level of use of the hand pump . In the end, the investigator may have to disregard answers that are obviously false and proceed with his own observations. The investigator must be similarly inquisitive when conducting key informant interviews and/or participatory sessions.

PREPARING TO CARRY OUT THE EVALUATION

ASSEMBLING AN EVALUATION TEAM

1. Assistants should have rural development or social science backgrounds.
2. Assistants should have experience conducting interviews, and participatory evaluations.
3. Choose team members with local language needs in mind. There should be a native speaker of every language in which a participatory evaluation will be conducted.
4. Team members do not need any medical background to conduct the stunting study.
5. Since much of the work to be done is qualitative (and does not require repetitive survey work), the team should be kept as small as possible.

PURCHASING NECESSARY TOOLS

Executing the Evaluation Protocol requires the use of very few specialised tools. Those tools which are required should generally be available in most international capitals. Given the sometimes remote nature of field sites, all tools should be purchased prior to the actual visit. The following is a list of tools (see the individual guides for details):

- Poster paper
- Coloured Pens/Markers
- Record books
- Height or length boards
- Floor scale for measuring weight
- Flat board (along with 4-6 wedges and a level)
- Stunting software (i.e., EpiInfo6)
- Statistical software (i.e., SPSS)
- Still camera
- Hydrological Instruments
  - 5 automatic rain gauges
  - water level sensor
  - data logger
  - current meter
  - stop watch
  - set of stick gauges
  - turbidity sensor
  - Punjab bottle sensor
  - data collection form sheets
- Silt Laboratory Equipment
  - set of sieves
  - electronic balance
  - drying oven
  - record books
- Data Processing Equipment
  - PC plus printer
  - data reading unit
- Miscellaneous Equipment
  - dumpy level

SELECTING VILLAGES TO EVALUATE

1. If random sampling is not possible, let the NGO and state department select the villages.
2. Upon arrival in the watershed, ask the NGO and state department to choose one or two villages where they believe their work has had the most positive impact.
3. Make preliminary visits to these villages to determine if they are suitable.
4. From the pool of villages selected by the NGO and state department, choose the number of villages which the evaluation team has time to survey.

WORKING WITH PARTNER NGOS AND GOVERNMENT DEPARTMENTS

1. Partner organisations are concerned that evaluations show their work in the best possible light.
2. If they are relied upon too closely, they will (even if only unconsciously) bias the data collection in their favour.

3.Thus, partner organisations should not be overly relied upon and should be worked with cautiously.
4. Partners must be used as liaisons for entering the villages, but after this they may need to be kept at a distance.
5. When gathering data indirectly related to the partner's work (for example, the stunting study), the partner may be asked to give assistance.
6. When a partner's work is being directly evaluated (especially with executing the indicator *Use*) the partner must be kept away.
7. In order not to offend anyone, attempt to give partners alternative tasks to do, instead of dismissing them.
8. Ask them to help gather more objective data, which is not easily manipulated. For example, partners could help gather school attendance figures.
9. It is important that the results of the evaluation be shared with the partner organisations.

SETTING UP A RESEARCH ITINERARY

1. It is a better use of resources to make one long visit to the watershed, instead of two or more short visits.
2. The visit can be broken up into five component phases: Gearing Up, Field Study, Stunting Study, Participatory Sessions, and Wrapping Up.
3. The five components should be executed in this order. See the two calenders in Chapter IV for suggested itineraries.
4. One or two extra days should be built into the research timetable to compensate for unexpected holidays, bad weather, equipment breakdown, etc.
5. The initial evaluation should be significantly shorter than successive visits because the indicators *Use* and *Outsiders* are omitted.
6. With an extra day built in, the baseline evaluation should take about ten days and follow-up evaluations take about fourteen (exclusive of travel time).

SOIL LOSS

Data to be collected extractively.

Data to be collected:

- Rainfall at several points in the watershed.
- Water level and water velocities at the outlet of the watershed.
- Sediment concentration at the outlet of the watershed.
- Cross section of the river where the water level is being measured.

The sediment load of the river, that is the volume of sediment carried out by the river during a given time period, is a proxy for the erosion rate in the watershed. To eliminate climatic changes, data must be collected continuously during monsoon for several years (minimum 7-10 years). Furthermore, a control watershed outside of the project area has to be monitored in order to pinpoint the impact of the Programme activities. Hence, a very expensive and long-term effort, which is only justifiable for projects with major financial input.

TEAM MEMBERS (NUMBER AND SKILLS)

1. A Hydrologist: will establish Silt Monitoring Stations (SMS), train and supervise local observers. The hydrologist will also be responsible for analysing and publishing data.
2. Three Silt Observers: Since the SMS are to be operated 24 hours a day during the monsoon, three silt observers must be hired locally. They will be trained by the hydrologist to perform their duties.

NECESSARY TOOLS AND SUPPORT

1. SMS consisting of a stilling well with housing for the instruments and a small building (2 rooms) for the silt laboratory.
2. Hydrological Instruments:
* 5 Automatic Rain gauges
* 1 Water level sensor
* 1 Data logger
* 1 Current meter
* 1 Stop watch
* 1 Set of stick gauges
* 1 Turbidity sensor
* 1 Punjab bottle sampler
* Data Collection form sheets

3. Silt Laboratory Equipment
* Set of Sieves
* Electronic Balance
* Drying oven
* Record books.

4. Data Processing Equipment
* 1 PC plus printer
* 1 Data Reading Unit

5. Miscellaneous Equipment
* 1 Dumpy level

Data has to be collected during the monsoon at half hour intervals, twenty-four hours a day. Data should be collected from the watershed before the programme starts its activities and from nearby watershed where the programme will not be active. In this manner, controlled, time-series data can be collected.

TIME REQUIRED TO USE INDICATORS

A minimum of seven to ten years are required to accumulate a sufficient amount of data.

FREQUENCY OF USE

Daily

SEQUENCE OF USE

The Silt Monitoring Stations should be operational preferably one or two monsoons before the programme starts.

PROCEDURES AND METHODS.

This is a complex undertaking that has been well-documented in the Indo-German Bilateral Project's manuals.

15/92: Collection and processing of automatically collected hydrological and sediment data - 'A' manual.
16/92: Collection and processing of manual collected hydrological and sediment data - 'M' manual.
17/92: Operation and Maintenance manual for sediment monitoring stations - 'O&M' manual.
06/92: Training manual for hydrological and sediment monitoring of small watersheds.

SAMPLING

Sampling is not an issue regarding the placement of the SMS. There need be only one SMS in each watershed. It is located at the point in the watershed past which all drainage flows. As mentioned under the "Frequency" section above, silt samples are taken from in front of this SMS once every half hour, twenty-four hours per day.

In order to carry out all the necessary calculations for this indicator, total rainfall in the watershed must be calculated. This requires the placement of approximately five rain gauges. These should be evenly distributed throughout the watershed (preferably near the residences of teachers or educated farmers who are willing to take readings).

FINAL PRESENTATION AND ANALYSIS

The data collected from the SMS should be presented in a table like the following sample taken from an IGBP Report*

Rainfall-Runoff Rates (Q/R) for Individual Events - 1996

Watershed	No.	Event	Total rain (mm) R	Total Discharge (mm3) Q	Peak Rain Intensity (mm/hr)	Peak Flow (m)	Q/R (%)	Max. Silt Conc. (g/l)	No. of Silt Samples
Banha, Bihar	1	July 1996	250.8	2318603	54.1	2.530	52.7	5.811	46
(1751 ha)	2	Aug. 1996	448.6	5670210	NA	2.324	72.0	3.190	60
	3	Sept. 1996	97.3	877354	NA	1.123	51.0	9.826	25
Haripura Raj.	1	21/7-25/7/96	100.6	155280	22.8	0.684	9.5	NA	0
(1612 ha)	2	16/8-17/8/96	130.5	400594	45.7	1.316	19.0	2.133	8
	3	1/9-6/9/96	149.5	301500	NA	1.296	12.5	9.526	6
	4	14/9-15/9/96	33.8	136495	31.6	1.063	25.1	1.979	4

The key column on this table is Runoff Ratio (Q/R). This figure represents the percentage of the watershed's total runoff that flows past the SMS. If this percentage is high, less rainfall has been absorbed by the ground and more has run into the local streams. The logic is that more runoff leads to more erosion and less ground water recharge. When enough data has been accumulated, a time-series analyses of the Runoff Ratios can be undertaken. If erosion control treatments are successful, the Q/R ratio will decrease in value.

Data must also be collected for monthly sediment loads (not shown in the above table). Once again, when enough data has been accumulated, a time series analysis can be executed. Like the Q/R ratio, the values for this variable should decrease if treatments are successful.

*Guy Honoré and S.Kumar, "Analysis of Rainfall and Runoff Data of Project Watersheds", IGBP Technical Publication, 76/97, 1997

2A GROUNDWATER LEVEL FROM PARTICIPATORY RESOURCE MAPS

This is a quick, easy, inexpensive way to measure ground water levels in selected areas of a watershed. This indicator assumes that the water level in local wells can be used as a proxy measure for ground water in that locality. Through participatory discussions with frequent users of local wells, researchers can map the water levels in local wells.

While the results obtained by this method are accurate and reliable, they are not precise. If evaluators need fine-grained results, this method will be of little use to them. They may wish to use Indicator 2B instead.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Hydrologist. At the outset of the programme, the hydrologist will select the wells to be monitored. His decision will be based on expectations of where programme impacts should be felt.
2. Social Scientist. The social scientist will periodically monitor the water levels in these wells. This will be done with resource maps in a group participatory session.

NECESSARY TOOLS AND SUPPORT

1. A water resource map (see Chapter VII). These can be drawn by hand.
2. Coloured Pens

FREQUENCY OF USE

The data for this indicator will be collected during periodic evaluations.

TIME REQUIRED TO USE INDICATOR

Making a water resource map should take no longer than one hour per well.

SEQUENCE OF USE

The resource mapping should be done during the "field visit" portion of the evaluation. The social scientist can visit the selected wells when he is collecting data for the "Use" and "Outsider" indicators.

SAMPLING

Ground water levels will be monitored in the selected villages. The hydrologist will determine the number and location of the wells necessary to monitor the water table in each locality. The social scientist will conduct participatory sessions in the village nearest the test wells.

PROCEDURES AND METHODS

1. The hydrologist selects the wells to be monitored at the outset of the programme.
2. The social scientist visits the selected wells during his periodic evaluations.
3. The social scientist gathers a group of three to eight people who frequently use the well.
4. The people are asked to fill in a water resource map for this well.
5. The social scientist asks the participants to explain why water levels are the way they are.
6. On repeat visits, the social scientist will ask the beneficiaries to explain any variations between the old and new maps and the cause/causes for the apparent changes?

DATA MATRIXES AND QUESTIONNAIRES

See Chapter VII for an example of a water resource map. (These should be drawn to match local conditions.) Data can be stored on the resource maps-one for each well surveyed.

FINAL PRESENTATION AND ANALYSIS

1. Summarise the individual and aggregate findings from the water resource maps.
2. Discuss instances of change.

If desired, the results of the resource maps could be coded and turned into data that could be analysed and presented graphically.

2B GROUND WATER LEVEL USING TECHNICAL MEASUREMENTS

For this indicator, the data on local Ground Water levels is to be collected extractively. The water level in local wells is taken as a proxy for the ground water level. Hydrological assistants will collect data on local water table levels everyday, at fixed times, at selected sites. This data is then analysed for changes over time. In order to locate causal explanations for empirical observations, the results of this analysis will then be the subject of participatory discussions.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Hydrologist. The hydrologist will establish ground water Monitoring Stations (GWMS) and see to their staffing. The hydrologist will then periodically collect and analyse the data.
2. A team of Hydrological Assistants. These assistants must be hired locally (e.g., teachers, or literate farmers) as they will need to perform their duties on a daily basis over long periods.
3. Social Scientist. The social scientist will discuss the hydrologist's data with the beneficiaries through participatory sessions.

NECESSARY TOOLS AND SUPPORT

The tools required depend upon the approach taken. If the programme chooses to bore its own wells to construct GWMS, construction equipment will be necessary. This protocol is written under the assumption that, for reasons of cost minimisation, programme managers will choose to monitor the water table level in selected existing wells. In this case, the following equipment will be needed:

1. Water level sensor
2. Five rain gauges (these can be the same five used to measure Soil Loss).
3. Record book.
4. In order to make contacts in the selected villages, the social scientist will need to arrive with a representative of the partner NGO or state department.

FREQUENCY OF USE

The empirical data for this indicator must be collected continuously, on a daily basis. This data must be transmitted to the project headquarters periodically for storage and analysis. This collection must occur for at least two years before investigators can begin to measure change.

Participatory sessions (to interpret the extractively collected data with beneficiaries) should take place along with the periodic evaluations that take place every three to five years.

TIME REQUIRED TO USE INDICATOR

Executing a single depth measurement should take no more than five minutes.
Participatory discussions of the empirical data should last no longer than thirty minutes per well.

SEQUENCE OF USE

If the GWMS are in place, the latest empirical data is gathered and analyzed before the Assessment Team arrives at the site. Participatory discussions of this data will occur towards the end of the assessment, when all of the participatory sessions are conducted.

SAMPLING

Water table levels will be monitored in the select villages. The hydrologist will determine the number and location of the wells necessary to monitor the water table in each locality.
The social scientist will conduct participatory sessions in the village nearest the test wells.

PROCEDURES AND METHODS

1. The hydrologist selects the wells to be monitored.
2. Water Table Monitoring Stations (WTMS) are established (using the water level sensors). Control WTMS should also be established.
3. The hydrological assistants monitor ground water levels on a daily basis and record it in their record books.
4. Hydrological assistants will also monitor the rates of rainfall.
5. The hydrologist collects and analyses this data.
6. Based on this data, the social scientist discusses change in water table levels at the participatory sessions.

DATA MATRIXES AND QUESTIONNAIRES

SAMPLE DATA MATRIX

Village: Frequency of Monitoring:
Well #: Observation Team Members:

	TOTAL RAINFALL	AVERAGE DEPTH OF WATER BELOW GROUND LEVEL
JANUARY		
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		

QUESTIONS TO BE ASKED AT PARTICIPATORY SESSIONS

1. In the wells that we have been monitoring, the water table has [changed in this _____way] over the last several years. Is the same true in your other wells?
2. What may have caused this?
3. Has there been an unusually large amount of rain recently?
4. Have more people been pumping water (for domestic use or irrigation)?
5. Have new wells been dug in the area?
6. [Search for other possible explanations]

FINAL PRESENTATION AND ANALYSIS

1. Present the empirical data from the WTMS in tables and as graphs.
2. Discuss these in detail.

2 HEIGHT-FOR-AGE

While the main aim of this indicator is to gather data about stunting (low height-for-age), measurements for incidence of wasting (low height-for-weight) can also be easily taken. For this reason, the stunting team will record the heights, ages and weights of children in the selected villages. In addition, the mothers of the children measured can be asked some basic health questions. Together, this data will provide a broad-based picture about the health of the children in the watershed.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Stunting Team Leader. This person will be in charge of leading the stunting team, which will include four other members. Keeping in mind the amount of time required to execute this indicator, it is recommended that the PI should not take on this responsibility. The stunting team leader need not be a medical professional. Any person with an eye for detail and who is fond of children can carry out this work. Since the stunting team leader will be working with village women, a woman is best suited to take on this responsibility.
2. Stunting Assistant #1. This person will work closely with the stunting team leader to carry out the hands-on work of the stunting study (taking body measurements and recording them). Again, this person does not need to be a medical professional. Like the stunting team leader, this person is part of the permanent evaluation team.
3. Stunting Assistant #2. Will help with handling the children. To be hired as required at the individual programme sites.
4. Stunting Assistant #3. Will handle crowd control. Will be hired at the individual programme sites.
5. Team Doctor. A doctor will accompany the stunting team in the field. This doctor will cater to the minor medical needs of the children and adults who attend the stunting session.

NECESSARY TOOLS AND/OR SUPPORT

1. Height/Length Board. These can be purchased locally or they can be ordered from UNICEF or Perspective Enterprises. The FAO and the American Center for Disease Control also distribute blueprints for those who want to construct their own. All this information is available in the "Anthropometric Tutorial".[2]

[2] Bill Bender and Sandy Remancus. "Anthropometric Tutorial." Anthropometry Resource Center. http://www.od.com/anthro/tutorial/tutoc.html (November 16, 1997).

2. Scale. Same as above.
3. Flat Board. To be used as a stand for the scale.
4. A level and several wedges. To ensure that the board, and hence the scale, is level.
5. Spreadsheet questionnaires (sample provided in a later section).
6. Permanent markers. To mark the skin of those children who have been measured.
7. Medications (to be determined by the Team Doctor).
8. Stunting Software. This is needed to turn the raw data into Z scores (using internationally accepted distributions of height-for-age). EpiInfo Version 6 is in the public domain and is currently available free of charge from the World Health Organization Information Services (WHOIS). It can be downloaded from the World Wide Web at www.cdc.gov/epo/epi/epiinfo.html
9. Statistical Software. EpiInfo also has statistical capacity, but it is very difficult to use and lacks options. It was much easier the re-enter the data into a commercial statistical package such as SPSS (EpiInfo has no export capabilities) and analyse it there.
10. A guide provided by the NGO and state department to act as liaison in the villages.

FREQUENCY OF USE

Data for this indicator will be gathered in periodic campaigns. Campaigns should be carried out no more frequently than every three years.

TOTAL TIME REQUIRED TO USE INDICATOR

The stunting team will be able to measure approximately seventy-two children per day, if the team takes five minutes per child, and if they can work six hours per day. Unless a village is particularly large, the Team should be able to finish a village in one day. The number of villages to be surveyed depends upon other considerations.

SEQUENCE OF USE

This indicator should be executed towards the middle of the visit. It cannot be done right away because the team must first schedule the visits and then make preliminary visits to the villages. The indicator cannot be executed at the end of the visit, or the team will not be able to discuss the results at the participatory sessions.

SAMPLING

There will be no sampling. The team will simply measure all children in the selected villages.

PROCEDURES AND METHODS

1. Organise the necessary equipment before going to the watersheds.
2. Train the permanent stunting team members.
3. Upon arrival in the watershed, inform the partner NGO and state department that anthropometric information will be collected from the selected villages. Ask them to arrange time for the study.
4. Ask the NGO or state department to help hire a local doctor and two assistants.
5. Conduct a mini-training session with the entire stunting team.
6. The stunting team leader should visit the selected villages at least once before the stunting study is to be conducted there. Such a visit can be made while collecting data for other indicators such

as *Use* or *Outsiders*. This is both to select a site to conduct the measurements, as well as for becoming acquainted with the local people.
7. On the day scheduled for the study, arrive at the selected village at least an hour early. This is to confirm that the site is appropriate and to set up the equipment.
8. The stunting team leader will work with Assistant #1 to measure the heights and weights of the children. Assistant #1 can take the actual measurements while the team leader can record the information (matrix provided below).
9. Assistant #3 will assist with handling the child being measured.
10. While the measuring is taking place, the stunting team leader can ask the mother a series of questions (provided below). We dispensed with this step because it created confusion and because children were often too restless.
11. After the measurement process, the child's parents have the option of taking the child to visit the doctor.
12. During this whole process, Assistant #4 acts as gatekeeper. On several occasions we had difficulties with curious onlookers causing the children to become more anxious. Crowds and noise also made it difficult for the team members to communicate details of the measurements. It is best if everyone except the child being measured is kept at a distance. To satisfy people's curiosity, we took measures of all those interested after all the children had been measured.
13. As the gatekeeper, Assistant #4 was also placed in charge of handing out sweets to children who were on their way out. This was a gesture of goodwill, as well as an incentive to stop those yet to be measured from becoming too anxious.

DATA MATRIXES AND QUESTIONNAIRE

SAMPLE DATA MATRIX

NAME	GENDER	AGE*	WEIGHT	HEIGHT
CHILD 1				
Child 2				
Child *n*				

* This should be in months. In the event that birth records are not available, the team should be ready to ask this question in terms of local events. See the "Calendar of Local Events" that follows.)

QUESTIONS FOR THE MOTHERS

1. Which immunisations have the child received? When?
2. How many siblings?
3. Have you lost any children since this child was born?
4. Before this child was born?

SAMPLE CALENDAR OF LOCAL EVENTS (For visit to Bihar)				
	1998	1997	1996	1995
January (Pongal)				
February (Shivratri)				
March (Holi)				
April				
May (Heat)			General Elections	
June (Monsoon)				Big Flood
July (Sowing)				
August		Death of village headman		
September (Harvest)				
October (Diwali)				
November				Temple opened
December				

DATA ANALYSIS

1. Feed the data for height, weight, age and gender into EpiInfo.
2. Calculate stunting (height-for-age) and wasting (height-for-weight) Z-scores. These are standardised scores based on standard deviations from established norms for age and gender.
3. Calculate the percentage of stunting and wasting in the population. The percentage of the population which is stunted and/or wasted is itself an indication of poverty.
4. Calculate the variation between the means and stunting (wasting) rates of girls and boys. Inequalities between girls and boys are an indication of gender inequality.
5. Calculate the standard deviation of the Z-scores. A large standard deviation indicates high social inequality.
6. If it is possible to analyse the data in the field, the results of the data should be discussed during the participatory sessions.
7. After the second time that stunting and wasting studies are done in the same village, the data can be compared for changes over time.

FINAL PRESENTATION AND ANALYSIS

1. Present the stunting data in a table similar to the following:

	Sample size	Mean z-score*	Mean z score girls:boys	Standard deviation of z-scores	Standard deviation girls:boys
Watershed A					
Watershed B					
Watershed n					
Aggregate					

*As explained in Chap.VII, z-scores are the standardised height measurements

2. The same should be done for the data on wasting.
3. In addition, histograms of stunting and wasting z-scores should be presented (for aggregate figures, as well as by watershed and gender-wise figures). This will act as an indicator of social equality (or inequality). If the scatter plot has a normal distribution, there is social equality. A multi-peaked scatter plot indicates social inequality. Large standard deviations are also indicators of high social inequality.
5. The above data should then be discussed qualitatively.
6. Discuss the quality of the "sample" (the number and characteristics of the people who participated in the participatory discussions).

4 SURVEY OF SELECT CONSUMER DURABLES

The evaluation team will conduct a survey of select consumer durables using resource maps. Participatory methods will be used to construct and fill in these maps. Change will be determined through repeated surveys using the same resource maps, several years apart.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Social Scientist. The social scientist will assess the level of consumer wealth in the watershed. He will do this using pictorial surveys in the participatory sessions.
2. One Assistant. The social scientist will probably need to have an assistant present to take notes during the participatory discussions. Leading a discussion and taking good notes at the same time is almost impossible.
3. An Artist. If at all possible, one of the team members should be hired with an eye towards a minimal level of artistic ability. This person will draw the pictorial surveys.

NECESSARY TOOLS AND SUPPORT

1. Large sheets of poster-like paper for the pictorial surveys.
2. Coloured pens to draw the surveys, and to fill them in.
3. In order to make contacts in the selected villages the investigator must arrive with a representative of the local NGO or state department.

FREQUENCY OF USE

The data for this indicator will be collected during periodic evaluations.

TOTAL TIME REQUIRED TO USE INDICATOR

It is difficult to pinpoint how long it takes to use this indicator because it is executed during the participatory sessions, along with many other indicators. A survey of ten items should take thirty to sixty minutes.

SEQUENCE OF USE

This indicator should be implemented towards the end of the field visit when the other participatory work is over.

SAMPLING

If possible, multiple surveys of consumer durables need to be conducted in the selected villages.

Each session should focus on a different segment of the village community (e.g., men, women, low caste, upper caste). This could be difficult, however, given how exhausting participatory sessions can be.

PROCEDURES AND METHODS

1. With the help of NGO staff and others knowledgeable about local realities, choose 10 to 15 consumer goods that most local people do not own, but aspire to do so. These goods should not be so expensive that the villagers have no realistic hope of owning them in the next five to ten years.
2. The artist will then draw pictorial surveys containing pictures of each of these items (refer to Chapter VII for an example).
3. Make as many photocopies of these maps as needed.
4. During the first several days of the field visit, conduct a preliminary visit to each of the intended sites. Propose a group discussion and gauge the reaction.
5. During the participatory sessions, the social scientist will inquire about local ownership rates of the select consumer durables.

DATA MATRIXES AND QUESTIONNAIRES

SAMPLE DATA MATRIX

Village name (hamlet name): Date:
Investigator Guides:
Names and identity of the Participants: Translator:
1. 5.
2. 6.
3. 7.
4. 8.

Consumer Good	# in the Village	Confidence Level of Response*	# Before**	Confidence Level of Response
Good A				
Good B				
Good C				

* The investigator must rate his degree of confidence that the answers are correct. This rating will be obtained through listening to the confidence of the respondants' answers and their body alnguage. Ratings are "++" (very confident), "+" (Confident) and "—" (Uncertain).

** This information is to be gathered during the participatory session. when the survey is conducted again in a few years, this question will not be asked as previous rates of ownership will already be known.

ADDITIONAL QUESTIONS TO BE ASKED

1. How else do people spend their money?
2. How has this changed in the last __ years?
3. Why do we see the changes in ownership patterns that we do?
4. Where have people managed to find the resources to purchase the additional goods?

DATA ANALYSIS

1. Compare ownership rates between the various villages, and watersheds.
2. Calculate changing ownership rates for the various consumer durables.

FINAL PRESENTATION OF RESULTS

1. Present the following ownership matrix, first for the individual villages and hamlets, then in an aggregate matrix.

SAMPLE REPORT MATRIX

Village name (hamlet name): Date:

Consumer Good	**# in the Village**		**Confidence Level**		**# Two Years Ago**		**Confidence Level**		**Percentage Change**	
	Vill. A	Vill. B	Vill. A	Vill. B	Vill. A	Vill B	Vill. A	Vill. B	Vill A	Vill B
Good A										
Good B										
Good C										

1. Interpret the data.
2. Include the interpretations that the beneficiaries themselves offered of the data, especially regarding change and sources of income.

5 SCHOOL ATTENDANCE RATES

The evaluation team must determine how many students are attending school and until which grade level they attend. Separate figures will be kept for girls and boys so that gender equity in education can be analysed.

Attendance figures can be gathered in two ways. First, the evaluators can ask administrators at the schools visited to share attendance records with them or they can actually count the numbers of children present on the day of the visit. The latter is more time consuming, but the former may be less accurate (due to poor record keeping or conscious manipulation of records). This protocol recommends that evaluators gather their own attendance data, but the latter procedure may be preferred under certain circumstances.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Social Scientist. One social scientist will be able to measure the number of children attending the local schools. The same person will also be able to interview the on-site administrators about attendance rates. During the participatory sessions, this person (or whoever else is conducting the PRA) will be able to ask questions about attendance rates.

NECESSARY TOOLS AND/OR SUPPORT

1. This indicator requires no special tools.
2. In order to legitimise the school visits, the investigator must arrive with a representative of the local NGO or state department.

FREQUENCY OF USE

Data for this indicator will be gathered through periodic assessment campaigns (every three to five years).

TIME REQUIRED TO USE INDICATOR

A single school visit should take no more than two hours (both to count the students, and discuss the findings with the administrator). Total time requirements depend upon how many schools need to be visited.

SEQUENCE OF USE

This indicator can be executed at any time before the commencement of the participatory sessions. It is suggested that these measurements be taken in conjunction with measurements for *Use, Outsiders* and *Replication*. The reason for this is that all three indicators require touring the same areas, and covering the same ground twice can be time consuming and wasteful.

SAMPLING

Unless there is a very large number of schools, all schools in the treated areas of the watershed should be visited. If the watershed is too large, then only those schools that serve the selected villages should be surveyed.

PROCEDURES AND METHODS

1. In order to reduce the amount of work required, the social scientist should attempt to determine until approximately what age most children in the area attend school. He can then restrict his survey based upon this information. For example, if informants report that most children attend till the eighth standard, then the social scientist does not need to visit any school that serves students only up to the sixth standard.
2. The social scientist will tour the watershed, visiting all schools in the treated areas. If there are too many schools in this area, survey only those schools that serve the villages selected for evaluation.
3. If possible, the social scientist should arrive unannounced.
4. He should request permission from the director/principal to count the number of students attending school on that particular day.
5. The social scientist should count the students, keeping separate records for each grade level and for the gender of the students.
6. After the data has been gathered, the social scientist should talk to the director/principal about the findings.
7. Finally, the findings should be discussed at the participatory sessions.

DATA MATRIXES AND QUESTIONNAIRES

SAMPLE DATA MATRIX

School Name: Location:
Principal: Date:
Investigator: Guide:

	Girls	Boys
Grade 1		
Grade 2		
Grade 3		
Grade 4		
Grade n		

QUESTIONS FOR SCHOOL ADMINISTRATORS

1. [Show the administrator the counts taken.] Do you think these numbers represent your average attendance?
2. If not, what is different about today?
3. [Given that many administrators will claim that the current day's attendance is unusually low, the investigator must assess the administrator's explanation. Is it "highly believable", "believable", or "unlikely"? These ratings should be made in consultation with other local contacts such as NGO and state department staff.
4. How many students usually attend?
5. Has this number changed over the last ___ years?
6. How many students attend regularly? Seasonally? Irregularly?
7. Estimate the number or percentage of children in your school district that do not attend more than once per week?
8. Why don't they attend?
9. Under what conditions might they start to attend?
10. According to our count the ratio of boys to girls is ____ to ____. Is this average?
11. Has this ratio changed in the last three years?
12. What would it take to get more girls to attend school?

QUESTIONS TO BE USED IN THE PARTICIPATORY SESSIONS

1. What percentage of the local children aged ___ attend school?
2. The local principal's estimate is that ____ percent of the local students do not attend school. Do you agree with this estimate?
3. Why don't children go to school?
4. Under what conditions would they do so?

5. The principal's estimate is that there are ____ more boys than girls attending school. Why is that so?
6. Under what conditions would more girls attend school?

DATA ANALYSIS

1. Calculate the ratio of boys to girls for each grade, each level (primary, middle, and high school) and as a whole.
2.If time series data is available, calculate the changing attendance rates.

FINAL PRESENTATION AND ANALYSIS

1.The numeric data should be presented in a matrix (see below).
• First, separate matrixes should be presented for each watershed, then a combined matrix should be presented to facilitate comparison.
• In each matrix, present the number of students in each school, in each village, and in total.
• Present ratios of boys to girls in each school, village, and the total.

SAMPLE DATA MATRIX
(this is for one watershed)

	Village A				**Village B**				**Total**	
	School A		School B		School A		School B			
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Grade 2										
Grade 3										
Grade 4										
Grade 5										
Grade 6										
Grade 7										
Grade 8										
Grade 9										
Grade 10										
Grade 11										
Grade 12										
Total										

2. Follow up these matrixes with qualitative discussions of the data.
3. Make sure to include a ratio of the numbers of students attending to an estimated number of students who are absent.
4.Then discuss responses given to issues addressed through the questionnaire.

6 UNIT USE AND MAINTENANCE

The evaluation team will measure if the investments made by the programme are being used and/or maintained. Investigations will take place at the level of the "unit". A unit could be anything from one hand pump if the activity in question is to install hand pumps or a unit could be one self-help group if the activity is to facilitate the formation of such groups. Definitively determining whether a unit is actually in use and/or being maintained is difficult, but reasonably accurate assessments can be made.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Social Scientist. The social scientist will tour the watershed, evaluating the units which have been installed.

NECESSARY TOOLS

1. This indicator requires no special tools.
2. A representative of the NGO and/or the state department must take the social scientist to the various programme sites.

FREQUENCY OF USE

The data for this indicator will be gathered through periodic evaluations. It makes little sense for such assessments to take place before a gap of three years.

TOTAL TIME REQUIRED TO USE INDICATOR

This depends upon many factors including how difficult the terrain is. Most importantly, it depends upon the number of activities, and units in each activity. If there are many activities and if each activity has installed many units, this indicator can be extremely time consuming to implement. In order to conserve time, we tried to take samples such that we could survey one village per day.

SEQUENCE OF USE

This indicator should be implemented at the same time as *Outsiders* and *Ground Water,* since all three require touring essentially the same large areas of the watershed. All indicators should be executed during the Field Study so that they can be discussed at the Participatory Sessions.

SAMPLING

If an activity has only a very few units in the watershed, all of them should be surveyed. If this is not possible, only those units in the selected villages should be surveyed. For some activities, so many units existed that even this was not possible. In such cases, we attempted to visit units as randomly as possible.

PROCEDURES AND METHODS

1. Obtain a complete list of all activities being implemented in the watershed. This should be obtained before arrival, or during the Gearing Up phase. Make certain to consult both the NGO and the state department.
2. For each activity, define a "heavily used", "moderately used", and an "under used" unit. Do the

same in terms of maintenance. If possible, this should be done in consultation with the people who designed the activities.
3. Tour the watershed, visiting all the installed units.
4. Visually inspect units.
5. Take photographs of units which are being used and properly maintained, as well as those which are not.
6. Speak with available beneficiaries about the use and/or maintenance of units (see the questionnaire which follows).
7. Interview NGO and state department staff members about the findings (see the questionnaire which follows).
8. Discuss findings at the participatory sessions (see questionnaire below).

DATA MATRIXES AND QUESTIONNAIRES

SAMPLE DATA TALLY

Activity:

DEFINITIONS	RATIO OF UNITS IN THIS CATEGORY
"Heavy use":	
"Light use":	
"Disuse":	
"Well Maintained":	
"Moderately Maintained":	
"Poorly Maintained":	

* Include photographic illustrations for each of the above.

QUESTIONS FOR BENEFICIARIES

1. Who uses these units?
2. How often?
3. Under which circumstances?
4. Why is it not used any more? (to be asked if the unit isn't used)
5. Who is in charge of maintenance?
6. Who actually does the work?
7. What do they do?
8. How often?

QUESTIONS FOR NGO AND STATE DEPARTMENT PERSONNEL

1. ____ percent of the units in _____ activity do not seem to be in use, or only in "light" use. Why?
2. [Discuss particular cases.]
3. Who is responsible for maintaining the units?
4. ____ percent of the units in the _____ activity do not appear to be well maintained. Why?
5. [Discuss particular cases.]

QUESTIONS FOR THE PARTICIPATORY SESSIONS

1. ____ percent of the units do not seem to be in use, or only in "light" use. Why?
2. Who uses these units?
3. How often?
4. Under which circumstances?
5. Why is it not used any more? (to be asked if the unit isn't used)
6. Who is responsible for maintaining the units?
7. ____ percent of the units do not appear to be well maintained. Why?
8. Who is in charge of maintenance?
9. Who actually does the work?
10. What do they do?
11. How often?

DATA ANALYSIS

Calculate percentages from the above data matrix.

FINAL PRESENTATION AND ANALYSIS

1. Present the data matrix, including percentages.

	Total units installed	Units in heavy use	Units in light use	Units in disuse	Units well maintained	Units moderately maintained	Units poorly maintained
Activity A							
Activity B							
Activity C							

2. The above matrix should be modified to show change when the evaluation is done for a second time.
3. Present the results of the questionnaires.
4. Discuss and illustrate with sample cases.

7 THE PRESENCE OF OUTSIDERS IN PROGRAMME OPERATIONS

Evaluators must determine who actually runs, manages and administers units installed by various programme activities. Are they done by the local people themselves, or by "outsiders"? Determining whether or not a person is an outsider can be difficult. This protocol defines "outsiders" as those people who would not carry out their duties were it not for programme funds. Such people in all likelihood leave after programme funds dry up. Employing such a logic, a local bank manager who came from the big city is not an outsider. This is because this manager (or his replacement) will remain in the watershed after the Project has withdrawn. An employee of the NGO, even if he/she is a life-long residents of the watershed, is, however, defined as an outsider.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Social Scientist. The social scientist will be responsible for determining who actually runs local programme operations.

NECESSARY TOOLS AND SUPPORT

1. This indicator requires no special tools.
2. A representative of the NGO and/or the state department must take the social scientist to the various programme sites.

FREQUENCY OF USE

The data for this indicator will be gathered through periodic evaluations, carried out approximately every three years.

TOTAL TIME REQUIRED TO USE INDICATOR

Refer to the same section in *Use*.

SEQUENCE

Refer to the same section in *Use*.

SAMPLING

Refer to the same section in *Use*.

PROCEDURES AND METHODS

1. In order to determine who actually runs the programme, visit a sample of units from each activity.
2. Interview local users, workers and managers. Ask them who operates and maintains the unit (see the questionnaire which follows).
3. Visit central funding/support/administrative offices and ask similar questions (see the questionnaire which follows).
4. Attempt to meet the people who are supposedly operating and maintaining the units. Determine if these people are in some way supported by the Project. If the the reply is positive, they are "outsiders".
5. Ask similar questions at the participatory sessions (see the questionnaire which follows).

DATA MATRIXES AND QUESTIONNAIRES

QUESTIONS FOR BENEFICIARIES (WHERE APPLICABLE)

1. Who runs this programme unit on a day-to-day basis?
2. If any maintenance is required, who directs that it be carried out?
3. Who actually does the work?
4. If there is any dispute regarding the use or maintenance of this unit, how is it solved?

QUESTIONS FOR NGO AND STATE DEPARTMENT OFFICERS

1. Who runs the programme units on a day-to-day basis?
2. If any maintenance is required, who directs that it be carried out?
3. Who actually does the work?
4. If there is any dispute regarding the use or maintenance of this unit, how is it solved?
5. Is there any mechanism through which future planning for this programme can be carried out?
6. How does it function, and under whose leadership/authority?
7. Is the use of this unit, or the planning for the future of this programme carried out in co-ordination with any other local, state or national group?

QUESTIONS FOR PARTICIPATORY SESSIONS

1. Who runs the programme units on a day-to-day basis?
2. If any maintenance is required, who directs it to be carried out?
3. Who actually does the work?
4. If there is any dispute regarding the use or maintenance of this unit, how is it solved?
5. Is there any mechanism through which future planning for this programme is carried out?
6. How does it function, and through whose leadership/authority?

FINAL PRESENTATION OF THE DATA AND ANALYSIS

1. Present that data matrix below and discuss it in detail.
2. Illustrate as many of the boxes as possible with qualitative detail.

SAMPLE DATA MATRIX

Who Does the Work:

Beneficiaries, NGO Staff, State Department Staff, or no one?

	Day-to-day Operation and Administration	Maintenance	Planning and Co-ordination	Dispute Resolution
Programme A				
Programme B				
Programme C				
Programme D				

8 UNITS UPGRADED OR REPLICATED WITHOUT PROGRAMME SUPPORT

The evaluation team will search for evidence of programme investments being upgraded or replicated without programme support. Investigations will take place at the level of the "unit". The team will use observation and interviews with key informants to locate examples of upgraded or replicated units. A unit is "upgraded" if it is expanded beyond its original size, capacity or capability. A unit is "replicated" if a new unit (one that never existed previously) is put up.

TEAM MEMBERS (NUMBER AND SKILLS)

1. Social Scientist. The social scientist will interview and observe locate examples of programme units which have been upgraded or replicated.

NECESSARY TOOLS AND/OR SUPPORT

1. Still camera.
2. A representative of the state department and/or the NGO must accompany the investigator to existing programme units. These same people should help the investigator track down reports of upgraded or replicated units.

FREQUENCY OF USE

The data for this indicator will be collected during periodic evaluations, conducted every one to three years.

TOTAL TIME REQUIRED TO USE INDICATOR

This has the potential to be a very time consuming indicator. It will take investigators three to five days to complete the touring necessary to verify instances of upgradation and/or replication.

SEQUENCE OF USE

This indicator should be implemented at the same time as *Use* and *Outsiders*, since all three require touring essentially the same areas of the watershed. All three indicators should be executed at the beginning of the field study so that the findings can be discussed at the participatory sessions.

SAMPLING

There is no sampling for this indicator. The investigator must look for all cases in and around the watershed.

PROCEDURES AND METHODS

1. The social scientist will inform the state department and NGO guides that he is looking for instances of self-funded upgradation and replication of programme units. It may be helpful if this is done before arrival in the field.
2. The evaluation team will tour the entire watershed, tracking down reported cases.
3. The social scientist will take notes describing cases of upgradation and/or replication (see the questionnaire that follows).
4. A still camera will be used to document the physical appearance of unaltered, upgraded, and/or replicated units.
5. The results of these field investigations will be discussed at the participatory sessions (see the questionnaire that follows).
6. The team should follow up on any additional reports of upgradation and/or replication that surface at the participatory sessions.

MATRIXES AND QUESTIONNAIRES

SAMPLE DATA MATRIX

Programme: Total units installed in surveyed area:

Definition of terms for this programme

"minor upgrade"
"major upgrade"
"partial replication"
"full replication"

	Minor Upgrades	Major Upgrades	Partial Replications	Full Replications
Village A				
Village B				
Other Villages				

*** Snap photographic examples for all boxes in the matrix.

QUESTIONS TO ASK AT SITES OF UPGRADATION AND/OR REPLICATION

1. How long has this unit been in operation (in its present form)?
2. How does it work?
3. Who "built" it?
4. Who financed it?
5. Why was it built?

QUESTIONS TO ASK AT PARTICIPATORY SESSIONS ABOUT UPGRADATION AND/OR REPLICATION

1. _____ unit was upgraded and/or replicated. Who did the work? Who financed it?
2. Why was it done without Programme support?
3. Why don't more people do this?

DATA ANALYSIS

All that is required is a simple tabulation of findings.

FINAL PRESENTATION OF RESULTS

1. Present data in the following matrix form.

Sample Data Presentation

	Units Installed	Minor Upgrades	Major Upgrades	Partial Replicationsa	Full Replications
Activity A*					
Activity B					
Activity C					

* For each activity, the terms "minor upgrade", "major upgrade", "partial replication", and "full replication" must be defined in a footnote.

2. Follow this up with a qualitative discussion of the matrix.
3. In order to convey the clearest possible picture to the reader, sample photographs should be included.
4. Present a summary of the participatory sessions as they clarify the above data.

SOCIAL CAPITAL

This indicator is a late addition to the PEP. It was developed and tested in the field. Of all the indicator guides, this is by far the most open-ended. This is because the definition of social capital may vary considerably from programme to programme (various sorts of social capital will require different documentation methods).

TEAM MEMBERS (NUMBER AND SKILLS)

Social Scientist. The social scientist will need a clear understanding of the concept of social capital, in addition to knowledge about local social and governmental structures. He or she must also have the ability to conduct unstructured interviews.

NECESSARY TOOLS AND SUPPORT

1. No special tools.
2. A liaison from the partner NGO and state department.

FREQUENCY OF USE

This indicator should be executed at the outset of the programme. There should be a gap of four to five years before it is used again. The delay between evaluations is quite long because social capital takes a long time to germinate and grow.

TIME REQUIRED TO USE INDICATOR

This cannot be specified. The evaluation team should spend whatever extra time that is available to investigate the existing level of social capital in the watershed.

SEQUENCE OF USE

Research for this indicator will be executed throughout the period of the evaluation.

SAMPLING

Begin with the selected villages, and gradually attempt to cover the whole watershed.

PROCEDURES AND METHODS

1. Even before arrival in the watershed, evaluators should begin to ask about local government structures, and watershed management institutions.
2. During the course of other discussions (e.g., water resource mappings, field visits to programme activities) the evaluators will inquire about water problems that local people have recently faced. What are the problems? How have they been dealt with? By whom?
3. Follow up carefully any potential leads. The details of complex social events can quickly get lost or change when they are retold a number of times. Locate the actual people involved and obtain the details from them.
4. Carefully note down the details of stories about local people working together to solve watershed problems.

DATA MATRIXES AND QUESTIONNAIRES

Questions must be based on the types of water-related problems that are encountered locally.

1. What problems related to water were encountered in the recent past?
2. How have people dealt with them?
3. Who were the active parties?

FINAL PRESENTATION OF DATA AND ANALYSIS

This is a qualitative variable, so there will be no tables, charts or graphs. Instead, the final report should contain detailed, descriptive accounts of the social capital uncovered in the watershed. This should comprise of general descriptions, as well as any case studies that may have been done.

B

GUIDING PRINCIPLES

The following set of guiding principles are prepared to serve the State Government Departments (SGD) and Non-Governmental Organizations (NGO) in developing their plans and proposals and to serve while implementing the IGBP's RWS Programme:

1. The SGDs and NGOs will elaborate jointly on an annual basis a plan of action and keep each otherinformed on the progress of their work on a regular basis.
2. The SGDs and NGOs must maintain their focus upon soil and water conservation activities, that are of central concern and importance to this project.
3. No activity of SGDs and NGOs must cause harm or damage to the natural environment or cause further natural resource degradation.
4. The programmes and activities should also focus on the needs and problems of landless farmers (on a priority basis).
5. Development of networking Self Help Groups with strong womenís participation is expected to be a main activity of the NGOs.
6. Assets and infrastructure created by NGOs should be in the name of local institutions which have strong female participation.
7. The partner organisations should not promote economically unviable activities which focus on improvement of livelihood conditions and depend thus primarily on subsidies and sponsorship.
8. Beneficiaries of the programme are expected to make contributions by way of cash, kind or labour. No activities with immediate direct tangible benefits must reach the beneficiaries totally free of costs.
9. State Government Departments and NGOs are expected to work mainly in their field of experience.
10. Within a given watershed, the NGO should begin its activities ahead of the SGD, having a lead time for preparing the community, explaining the objectives and mobilising their participation, preferably 1 year.
11. The activities must be based on principles of sustainability, equity and social justice. The partner organisation must strike a balance between developing community resources and providing individual benefits. Individual benefits to rich farmers that perpetuate the resource gap between the rich and the poor are to be avoided. Greater emphasis should be laid on developing community infrastructure and resources. Access of poor farmers/ villagers over such facility must be ensured.
12. The long term perspective of the State Government Departments and Non-Government Organisation should be the development of a watershed committee in which all main socio-economic groups of the watershed will be represented and which will take care of watershed management activities beyond the project period.

Indicators are proxy measures of phenomenon that are difficult to measure directly. Indicators function as a quick, inexpensive, and easy-to-use alternative to traditional measures of project impact such as benefit-cost ratios and internal rates of return.

This book chronicles the Indo-German Bilateral Project's experiences in India using a set of nine indicators to evaluate its Representative Watershed Programme. This indicator set is designed to measure progress towards the objectives of natural resource management and livelihood enhancement as well as estimate project sustainability and replicability.

In the hope that others can benefit from the IGBP's experiences, detailed information is presented in the Programme Evaluation Protocol as to how this nine-indicator set can be implemented under field conditions. The Protocol also lays out how data can be recorded and analysed.

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The Indo-German Bilateral Project "Watershed Management" is a joint undertaking of Government of India, Ministry of Agriculture, Soil and Water Conservation Division and the German Ministry for Economic Cooperation and Development.

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RODECO Consulting is a leading German engineering consulting company specialized in international projects with emphasis on water resources management, water supply and sanitation.

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