The Grab Bag: Supplementary Methods for Assessing Human Well-Being

6 The Criteria & Indicators Toolbox Series

C&I Toolbox Series

C&I Tool No. 1 — Guidelines for Developing, Testing and Selecting Criteria and Indicators for Sustainable Forest Management
Prabhu, R., Colfer, C.J.P. and Dudley, R.G.

C&I Tool No. 2 — The CIFOR Criteria and Indicators Generic Template
CIFOR C&I Team

C&I Tool No. 3 — CIMAT (Criteria and Indicators Modification and Adaptation Tool) (CD-ROM + user manual)
Prabhu, R., Haggith, M., Purnomo, H., Rizal, A., Sukadri, D., Taylor, J. and Yasmi, Y.

C&I Tool No. 4 — The CIFOR Criteria and Indicators Resource Book Database (CD-ROM + user manual)
McDougall, C., Isbadi, I.R., Santoso, L., Corless, M. and Purnomo, H. (eds.)

C&I Tool No. 5 — The BAG (Basic Assessment Guide for Human Well-Being)
Colfer, C.J.P., Brocklesby, M.A., Diaw, C., Etuge, P., Günter, M., Harwell, E., McDougall, C., Porro, N.M., Porro, R., Prabhu, R., Salim, A., Sardjono, M.A., Tchikangwa, B., Tiani, A.M., Wadley, R.L., Woelfel, J. and Wollenberg, E.

C&I Tool No. 6 — The Grab Bag: Supplementary Methods for Assessing Human Well-Being
Colfer, C.J.P., Brocklesby, M.A., Diaw, C., Etuge, P., Günter, M., Harwell, E., McDougall, C., Porro, N.M., Porro, R., Prabhu, R., Salim, A., Sardjono, M.A., Tchikangwa, B., Tiani, A.M., Wadley, R.L., Woelfel, J. and Wollenberg, E.

C&I Tool No. 7 — Scoring and Analysis Guide for Assessing Human Well-Being
Salim, A. and Colfer, C.J.P., with McDougall, C.

C&I Tool No. 8 — Who Counts Most? Assessing Human Well-Being in Sustainable Forest Management
Colfer, C.J.P., Prabhu, R., Günter, M., McDougall, C., Porro, N.M. and Porro, R.

C&I Tool No. 9 — Guidelines for Applying Multi-Criteria Analysis to the Assessment of Criteria and Indicators
Mendoza, G.A. and Macoun, P. with Prabhu, R., Sukadri, D., Purnomo, H. and Hartanto, H.

C&I Tool No. 10 — Methodologies for Assessing Ecological Indicators for Sustainable Forest Management (Draft under development)

The Grab Bag: Supplementary Methods for Assessing Human Well-Being

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6 The Criteria & Indicators Toolbox Series

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Manuals for Assessing Human Well-Being in Logging Areas

These manuals are designed for use by individuals and organisations wishing to assess the sustainability of a timber operation. This includes a wide variety of potential users (certifiers, private or government timber companies, donor agencies, local people, governments, researchers, etc.). Although the manuals are appropriate for one-time assessments, they can also be used as part of a monitoring program contributing to the improvement of both forest and human conditions. Previous work by CIFOR and others has concluded that the well being of people living in areas where commercial logging is underway (as well as the maintenance/enhancement of ecological functions) is critical to sustainable forest management, for both pragmatic and ethical reasons.

The challenge of assessing human well being quickly, easily and reliably prompted CIFOR to initiate a comparative study of social science methods appropriate for use in such assessments (see Colfer 1997). These manuals have been developed, based on results from systematic methods tests in Cameroon, Indonesia, and Brazil, and supplementary work in Trinidad, Gabon and the United States. In evaluating sustainable forest management, we assume that assessors will visit timber company base camps and villages, ask pertinent questions of people in the area, and examine available data from the company and local government offices, as well as using the methods here suggested.

The assessment manuals are based on a foundation of criteria and indicators (or C&I), developed by CIFOR teams around the world. These global C&I are intended to serve as a template against which the sustainability of a given forest (including the well being of the people living in and around it) can be measured. Ideally, the global set will be

adapted to local conditions (see CIMAT and other components of CIFOR's C&I 'toolbox' for adaptation tools).

We focus on certain critical social issues, and assume that ecological and conventional forestry issues will also be addressed in any assessment of sustainability in a given forest. We also recommend including spatial reference data for use by others in possible GIS applications and to facilitate links to other census or household data. In order to facilitate users' ability to come to a decision about whether a particular forest is managed sustainably, we suggest a series of steps and a scoring system that weighs social issues differentially, based on our previous experience.

The best assessments of human well being are usually conducted by trained social scientists. However, because not all parties interested in doing such assessments will necessarily have regular access to such expertise, we have produced two separate manuals. The first, *The Basic Assessment Guide (The BAG)*, provides a 'cookbook' approach to assessment. It does not represent our ideal. We do, however, believe it can provide guidance in cases where assessors are not qualified social scientists. Any assessor will need skills in the following areas:

- An ability and motivation to communicate in an open and comfortable manner with a wide range of stakeholders, including particularly local people and workers;

- Access to translators as needed;

- Patience to encourage and solicit information from less visible groups, like women, pygmies, scheduled castes;

- Ability to weigh information in an unbiased manner, particularly eschewing an advocacy role for any particular stake-

holder group;

- Awareness of cultural differences and curiosity about local management systems; and

- Sufficient time in the field to make an assessment (ideally at least a month).

In *The BAG*, we outline five steps:

1. Identification of relevant stakeholders;

2. Assessment of security of intergenerational access to resources;

3. Assessment of rights and obligations to manage forests cooperatively;

4. Assessment of the health of forests, forest actors and cultures; and

5. An abbreviated scoring method.
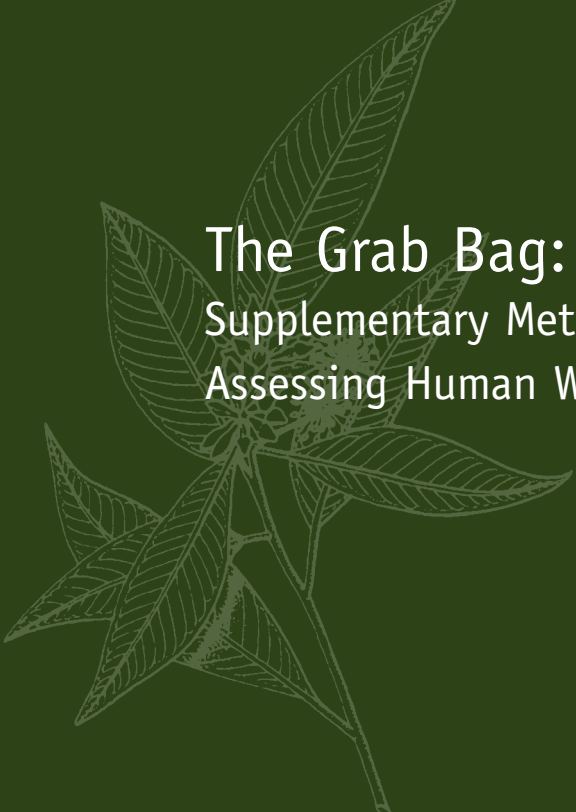
The subsequent discussion of each method provides sampling suggestions and materials required. Every effort should be made to reflect the diversity of stakeholders in the area, with their respective interests, conditions and concerns. This includes women, marginalised ethnic groups, underrepresented age groups, the poor, and others typically ignored. It is also important to consider the issues of representation, and ensure that you obtain the views of as wide a variety of actors as possible. The importance of using local languages whenever possible cannot be over-stressed. The assessment will be much easier and quicker if you can use a laptop computer. Each method has required materials, but most are inexpensive

(paper, pens, pebbles or nuts, large sheets of paper, coloured pens, flipcharts, etc.).

Please read the entire manual before beginning, as earlier steps can contribute to later steps, if you are sensitised and prepared.

The Grab Bag provides a number of supplementary methods we have found useful. Although they were found valuable by social scientists in our field tests, they have been removed from the 'cookbook' either because of overlap with other methods in the *The BAG* or because of their difficulty for non-social scientists. Qualified social scientists are understandably likely to prefer selecting methods they consider appropriate in a given situation; indeed, it would be a waste of their expertise to require them to follow a prescribed procedure such as that proposed in *The BAG*. The approach advocated in *The Grab Bag* allows for considerable exercise of professional judgement. Our intent is that trained social scientists would examine all the methods described and select those that were most appropriate for the area being assessed.

The third, closely related C&I tool is *The Scoring and Analysis Guide*. The section dealing with scoring provides a method for systematising qualitative judgements so that all the C&I are addressed and evaluated. The section dealing with analysis assumes only minimal computer literacy, and carefully guides the reader through the steps necessary for analysing quantitative data (e.g., from pebble or card sorting methods), beginning with initial data entry through statistical procedures the user may wish to conduct. The explanations assume use of Microsoft Excel and SPSS.

The Grab Bag:
Supplementary Methods for
Assessing Human Well-Being

Thishis supplementary manual has been written in recognition of the quite outstanding diversity that characterises human well-being in different settings. Some of the methods provided in *The BAG* will, in all probability, be found deficient in some locations. In that case, we would like you to have some methods available that can complement and/or replace those found lacking.

We also recognise the different qualifications and experience that assessors will bring to the task. The following methods have been tested in several locations in Cameroon, Indonesia, and Brazil. They were found useful, and may be more appropriate in particular contexts, or more appealing to users with more social science training or experience, than those offered in *The BAG. The Grab Bag* methods may also contribute to a more thorough assessment if time and resources permit.

The scoring process remains the same as in *The BAG*:

- Use of a master C&I spreadsheet (see *The Scoring and Analysis Guide*);

- Compilation of evidence/cases pertaining to relevant C&I; and

- Scoring, based on *The Scoring and Analysis Guide*, with 1 = least sustainable and 10 = most sustainable.

A Stakeholders Identification

Here, we offer two options for helping assessors identify relevant stakeholders: Wollenberg's (1997) matrices for ensuring representation of diversity in local communities and a neural network analysis package called CatPac. The first serves as a 'sensitiser', helping ensure that important local variation is acknowledged and noted. The second requires computer software (see folder) and computer literacy.

1 – SAMPLING STAKEHOLDERS
[ADAPTED FROM WOLLENBERG 1997]

We have found that within any defined group of stakeholders, there is usually considerable variation among the group's members. To understand the representativeness of a subset of stakeholders, we need a means of identifying whether differences exist among members of a stakeholder group, and if so, to pinpoint what those differences are. You can use such information to assist in the selection of a representative sample of stakeholder members — the expression of a full range of stakeholders' views is important for a good assessment.

Once important groups of stakeholders have been identified, a sampling matrix is one tool that can be used to develop the more detailed picture of the differences among members of a stakeholder group. The matrix can be adapted for many purposes. Its essential role is to assist in answering the question: **what are the differences among members of a stakeholder group?** Note that this level of analysis can be time consuming, and may not be necessary or appropriate for every stakeholder group. The need for such fine-tuned understanding should be weighed against the costs of acquiring the

information. The method can, however, be an opportunity to gain valuable contextual, qualitative information.

USE OF THE SAMPLING MATRIX

1. Select a stakeholder group.

2. Disaggregate the stakeholder group according to commonly found sources of difference in the local society. These may include age, gender, religion and economic status (see row headings below). Depending on the context of the initiative, other disaggregations may be used as well. For example, in the table below, groups are disaggregated by their relationship to a local timber harvesting company. All subgroup categories may not apply in the case of any one stakeholder group.

3. For each subgroup of the stakeholder group, ask *assessment* questions (assessment questions are reflected in the column headings below). Depending on the problem, you can select any type or number of appropriate assessment questions. These questions may reflect different aspects of stakeholders' involvement in resource management or the impact of management on them. Porro and Porro (1998) suggest no more than 12, based on their experience with the method in Brazil. To simplify the analysis, questions can be phrased consistently such that all 'yes' answers indicate one end of a continuum of assessment (for example sustainable) while all 'no' answers indicate the opposite quality on that continuum (e.g., not sustainable).[1] An alternative would be to give 1–10 scores, consistent with other methods in this manual.

4. Groups with most 'yes's' or 'no's' or high or low scores may indicate a warning flag that these are important subgroups for further consideration.

Three examples, drawing upon a hypothetical village in East Kalimantan:

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[1] We recognise that the answers to these questions are likely to be complex, to derive from examples or cases, and that answering 'yes' and 'no' may in some cases be serious over-simplifications.

STAKEHOLDER GROUP: INDIGENOUS PEOPLE IN THE VICINITY OF A LOGGING OPERATION

A – Assessing Forest Benefits
1 = low, 10 = high

Categories of people within the stakeholder group	Claim rights to land or forest products?	Use forest products?	Receive income from activity related to forest (e.g., logging company)	High proportion of livelihood from forest/forest lands?	Cultural benefits associated with the forest
Age Groups					
Elderly	5	8	1	5	10
Adult	10	10	3	8	7
Youth	9	10	1	8	5
Gender					
Women	7	8	2	5	7
Men	10	10	5	10	7
Wealth					
Low	5	10	1	7	5
Avg	10	8	2	9	7
Better-off	8	5	5	5	8
Social Status					
High	7	8	5	7	8
Avg	7	8	2	9	7
Low	7	10	1	7	5
Period of Residence					
Long-term	9	9	5	9	8
New arrivals	4	6	1	6	3
Ethnic Groups					
Punan	5	10	1	10	7
Merap	10	9	3	9	7
Religious Groups					
Protestant	7	9	3	6	7
Catholic	7	9	3	9	7
Affiliation with Logging Company					
Management	5	3	10	1	3
Labour	7	9	8	5	5
Not employed	9	9	1	9	9

You can state criteria in positive (i.e. contributes to sustainability) or negative (i.e. contributes to unsustainability) terms, depending on the purpose of assessment. In many instances the negative case will be a more direct means of assessment. We have, therefore, phrased the table below in negative terms that reflect ways in which people do not have a voice in forest management. For example, the consistently low scores among women indicate the low level of input they have in decision-making *vis-à-vis* the local logging company.

B – Assessing Voice

1 = very true, 10 = not true

Categories of people within a stakeholder group	Cannot freely express views to logging company?	Does not receive information from logging company?	Not consulted in logging company decisions?	Is not familiar with forest management plans that might affect them?	Is not allowed to help monitor forest activities
Age Groups					
Elderly	7	6	5	6	2
Adult	5	5	4	5	3
Youth	2	1	1	3	1
Gender					
Women	1	1	1	2	2
Men	8	8	6	5	2
Wealth					
Low	1	3	1	3	2
Avg	5	5	2	5	2
Better-off	8	8	3	7	2
Status					
High	1	9	5	8	4
Avg	5	5	2	5	2
Low	8	3	1	2	2
Period of Residence					
Long-term	2	6	4	5	3
New arrivals	7	2	1	3	2
Ethnic Groups					
Punan	1	1	1	2	1
Merap	6	6	4	5	4
Religious Groups					
Catholic	2	2	1	3	1
Protestant	5	5	2	4	2
Affiliation with Logging Company					
Management	9	9	9	9	6
Labour	7	8	5	7	6
Not employed	2	2	2	3	2

Below is an example of a matrix for criteria and indicators related to people's role in forest management. In this table, the high scores indicate that that subgroup takes actions to manage the forest sustainably. Low scores indicate a weak role in forest management. The considerable diversity of scores in this table reflects the ways in which stakeholders vary in their management roles. For example, older members of a village may make little contribution to forest management inputs, but contribute greatly to village decision making by virtue of their status as elders.

C – People's Actions Affecting Forest Management

1 = not very often, 10 = very often

Categories of people within a stakeholder group	Respects and maintains village forest boundaries?	Provides necessary inputs for forest management? (labour, information, replanting)	Capacity to monitor the quality of the forest	Effective contribution to village decision-making
Age Groups				
Elderly	9	5	5	9
Adult	8	7	6	8
Youth	5	7	8	4
Gender				
Women	8	5	5	3
Men	7	8	8	8
Wealth				
Low	7	7	5	3
Avg	7	6	6	5
Better-off	4	4	4	8
Status				
High	6	6	6	10
Avg	7	7	7	5
Low	7	7	5	2
Period of Residence				
Long-term	7	7	8	8
New arrivals	3	4	3	4
Ethnic Groups				
Punan	5	6	9	5
Merap	9	8	6	9
Religious Groups				
Catholic	6	7	8	6
Protestant	8	8	6	7
Affiliation with Logging Company				
Management	3	4	3	7
Labour	3	5	7	5
Not employed	7	6	6	7

Although the results from this method are primarily designed to help in identification of important subgroups of forest actors, the informal discussion accompanying these interviews should provide valuable evidence and cases that can be used in scoring the C&I. Such information should be noted down and scored within the master spreadsheet of C&I.

2 – CATPAC

This is a computerised, neural network analysis package, introduced to us by Joseph Woelfel (one of its originators). It allows speedy analysis of people's speech (in text form), to ascertain clusters of concepts. It has been used in assessing consumer preferences and targeting advertising campaigns accordingly. By identifying the concepts that form linguistic and cognitive clusters in the minds of people involved in forest management, we may be able, ultimately, to improve management. At this stage, we are simply interested in using CatPac to illuminate differences among local stakeholder groups.

PURPOSE

- To ascertain the feeling of closeness that people have to the forest;

- To ascertain the level of culture-forest integration among groups in the area; and

- To determine whether or not the people have a 'conservation ethic'.

These issues were raised as important in our previous tests of criteria and indicators, as possible dimensions for determining 'who counts' in sustainable forest management (cf. Colfer *et al.* 1999 and *The BAG*). Feelings of closeness to the forest and tight integration of culture and forests have implications for people's well-being if forests are destroyed. The existence of a conservation ethic may facilitate sustainable forest management.

PARTICIPANTS

Identify 3–5 important and different stakeholder groups for this study. Select equal numbers of men and women participants (insofar as possible) within these 3–5

stakeholder categories. Interview at least 12–15 individuals within each category (i.e., 12–15 participants × two genders × 3–5 categories).[2] The greater the variety in stakeholder groups, the more obvious will be the cognitive differences among them, and the more clearly variations in both forest-culture integration and feelings of closeness to the forest can be reflected in the results.

MATERIALS

- a tape recorder;

- a computer that can run the CatPac program; and

- the CatPac program with its manual or with the instructions in *The Scoring and Analysis Guide*.

METHODS

This method, by examining clusters of concepts that people use together in their speech, provides insights into the ways people see their forest surroundings.

Select a broad, open-ended question pertaining to people's relationship to the forest in their area. Some that we have used include

- 'What is the forest, for you?' ('*Pour toi la forêt c'est quoi?*', Tchikangwa *et al.* 1998);

- 'What is the importance of the forest in your own life?' ('*Quelle est l'importance de la forêt dans ta propre vie?*', Tiani *et al.* 1997); and

- 'What does the forest around this village mean to you?' (Brocklesby *et al.* 1997).

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[2] We are not seeking proportional representation here, but rather an understanding of the human, conceptual diversity that characterises the forest in question.

Use of local languages is particularly important for this method, since important forest concepts may not be translatable into the national language. Record the question you ask and the demographic information you will need in the analysis (age, sex, occupation, ethnic group, etc.). Then, tape-record the answer to your open-ended question. Ideally, you will say nothing after the initial question, except for encouraging sounds like 'mmhmm' or 'anything else?' If you engage in a normal conversation, *this method will not work.*

Conduct the interviews in the local language, with the help of a tape recorder[3] (in contrast to what we have done) and, if needed, an interpreter. The interpreter should be the opposite sex of the researcher, to increase access to more varied segments of the population. Be sure that participants know that you are tape recording their responses and agree to this. This is important from an ethical perspective.

Short interviews of 2–5 minutes are satisfactory, and there are some advantages to keeping them all within a reasonably similar length (so the views of wordy people do not dominate the overall results). The only other serious problem with long interviews relates to the time required for typing the text, since computer analysis itself is fast.

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[3] Some researchers found local people to be afraid of the tape recorder (Tiani *et al.* 1997 and Porro and Porro 1998). In this case, you can substitute careful, word for word transcription of their speech.

TIME REQUIRED

Tiani *et al.* (1997) reported recording ten interviews in 35 minutes, spending 30 minutes on the translation. Once the interviews are recorded and entered into the computer, data analysis takes seconds.

Colfer and two assistants completed one CatPac study, start to finish, in a day in Cameroon (November 1996).

ANALYSIS AND SCORING[4]

Divide the responses into the categories by which you want to analyse (men/women; different ethnic groups; occupations; etc.). Enter the verbatim interviews into a word processing program on the computer. Colfer simply put interviews from each stakeholder group into separate files (cutting and pasting, with reference to hard copy transcriptions, when new categories were to be analysed).

For some, the CatPac computer format is simple.[5] Type in the text from each participant, followed by 'enter' and '-1' at the beginning of the next line. This is how the computer knows it is dealing with a new participant. Save the file as a 'text only' ('.txt') file.

Develop and include codes for the demographic data about the participant (e.g., sex, ethnic group, stakeholder group, etc., by which you may later want to disaggregate responses). Keep a list of the meaning of the codes. Salim suggests putting codes like 'fm' for female, 'o' for old, before each interview text in the computer file, and then entering those codes in the exclude file (described below) so that they do not become part of the analysed data. This will still require cutting and pasting. The CatPac program does not have a convenient sorting mechanism.

[4] Additional guidance is available in *The Scoring and Analysis Guide*.

[5] By contrast, Brocklesby *et al.* (1997) consider it 'neither quick nor simple', summarising the problems of some of our collaborators with this method.

Develop a list of words appearing in the text of your interviews that have a primarily grammatical meaning (in the local language), and that do not contribute significantly to understanding of concepts related to forests. These will be needed for the 'exclude' file in the CatPac program. Clustering of words like 'is' and 'his' are not particularly helpful in our attempts to understand forest-human interactions. Examples of such terms include pronouns (except 'me'), 'to be' verbs in all their forms, modifiers like 'very', 'many', 'most', helping verbs like 'can' or 'could'. The default.exc file on your CatPac programs shows the English ones excluded within the original program. You can call up this file, and begin by translating the English words into the relevant language, though many may be untranslatable, and you will probably come up with others in the local language that do not occur in English. You can then save the revised default.exc file *under a new name* (like french.exc). It will probably be necessary to exclude some additional letters and gibberish that will emerge in your initial analyses (reflecting 'bugs' in the program). You must also exclude the demographic codes you have developed, as mentioned above.

Analyse and interpret. The program clusters concepts that occur together, and can create plots representing cognitive maps as well. It is based on a type of artificial intelligence called 'neural network analysis'. Sample output (called a 'dendrogram') is shown below.

The dendrograms showing the clusters of concepts represent the ways in which the participants speak of their forested environment. Since 'I' and 'forest' are together within one cluster in the Cameroon data sets, this suggests that there is a close, locally perceived relationship between the people and the local forest. The fact that a number of other concepts related to subsistence (life, trees, manioc, peanuts, food, etc.) emerge in response to the question on forests also sug-

gests a close relationship between people's culture and the forests. One of the interesting differences between the Cameroonian results and the Indonesian results is the central place of the State in many of the Cameroonians' discussion of the forest.

We have put this method in *The Grab Bag* rather than *The BAG* for two main reasons: The necessity for considerable judgement on the part of the assessor in interpreting these findings; and the varying reactions to dealing with the computer program by those who tested the method. Porro and Porro (1998) strongly recommend pairing this method with the Iterative Continuum Method (ICM) and/or participant observation. Still, the method remains appealing because it is firmly based in the culture and speech of the participants; the computer analysis is, to some, easy and quick; and it is replicable.

Sample dendogram from the Dja Reserve for all respondents
(Tchikangwa *et al.* 1998)

```
TOTAL WORDS            1070    THRESHOLD          0.000
TOTAL UNIQUE WORDS       25    RESTORING FORCE    0.100
TOTAL EPISODES         1321    CYCLES                 1
TOTAL LINES             524    FUNCTION         Sigmoid
                               CLAMPING             Yes
```

```
    DESCENDING FREQUENCY LIST                 ALPHABETICALLY SORTED LIST
                          CASE  CASE                            CASE CASE
WORD              FREQ PCNT FREQ PCNT    WORD          FREQ PCNT FREQ PCNT
---------------   ---- ----- ----- ----  ------------  ---- ---- ---- ----
FOR T (forest)    432  40.4 1275  96.5   AIDE           16  1.5   88  6.7
MOI (me)           53   5.0  363  27.5   ARBRES         18  1.7  142 10.7
MIEL  (honey)      44   4.1  319  24.1   BAS            19  1.8  158 12.0
TROUVE (find)      43   4.0  317  24.0   CHOSE          30  2.8  228 17.3
GIBIER (game)      42   3.9  308  23.3   CHOSES         16  1.5  161 12.2
MANGE (eat)        38   3.6  309  23.4   CUEILLE        21  2.0  158 12.0
SAUVAGES (wild)    34   3.2  256  19.4   CULTIVE        17  1.6  129  9.8
VIE (life)         33   3.1  222  16.8   DONNE          18  1.7  136 10.3
CHOSE (thing)      30   2.8  228  17.3   FOR T         432 40.4 1275 96.5
SE [self]          27   2.5  182  13.8   GIBIER         42  3.9  308 23.3
VIVRE (to live)    27   2.5  214  16.2   MANGE          38  3.6  309 23.4
VILLAGE (village)  25   2.3  225  17.0   MIEL           44  4.1  319 24.1
CUEILLE (gathers)  21   2.0  158  12.0   MOI            53  5.0  363 27.5
NOURRITURE (food)  21   2.0  173  13.1   M ME           18  1.7  124  9.4
RAM NE (bring back)21   2.0  155  11.7   NOURRITURE     21  2.0  173 13.1
UTILE (useful)     20   1.9  136  10.3   RAM NE         21  2.0  155 11.7
VIT (lives)        20   1.9  155  11.7   SAUVAGES       34  3.2  256 19.4
BAS (low)          19   1.8  158  12.0   SE             27  2.5  182 13.8
ARBRES (trees)     18   1.7  142  10.7   TROUVE         43  4.0  317 24.0
DONNE (give)       18   1.7  136  10.3   TUE            17  1.6  127  9.6
M ME  (same)       18   1.7  124   9.4   UTILE          20  1.9  136 10.3
CULTIVE (cultivate)17   1.6  129   9.8   VIE            33  3.1  222 16.8
TUE (kill)         17   1.6  127   9.6   VILLAGE        25  2.3  225 17.0
AIDE (help)        16   1.5   88   6.7   VIT            20  1.9  155 11.7
CHOSES (things)    16   1.5  161  12.2   VIVRE          27  2.5  214 16.2
```

WARDS METHOD

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A V A G V N M M U V C C D M S S T B C C R T F V M
I I R I I O I   T I U H O A A E R A H U A U O I O
D L B B V U E M I T L O N N U . O S O E M E R E I
E L R I R R L E L . T S N G V . U . S I   .   . .
. A E E R . . E . I E E E A . V . E L N . T . .
. G S R . I . . . . V . . . G . E . S L E . . . .
. E . . . T . . . . E . . . E . . . . E . . . . .
. . . . . U . . . . . . . . S . . . . . . . . . .
. . . . . R . . . . . . . . . . . . . . . . . . .
. . . . . E . . . . . . . . . . . . . . . . . . .
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(B) Security of Intergenerational Access to Resources (SIAR)

This is the single most consistently identified topic in CIFOR teams' assessments of social criteria and indicators over the past few years. For that reason, we have expended considerable effort trying to develop C&I that will be easily measurable and reliable. Although we have made some progress, we still feel that too large an amount of personal judgement is required to make these assessments. We present three additional methods we have found useful: The Iterative Continuum Method (ICM); Benefit Sharing among Stakeholders; and Historical Transects of the Landscape. For ease in scoring, we reprint the relevant C&I here:

PROPOSED PRINCIPLES, CRITERIA AND INDICATORS
ON SECURITY OF INTERGENERATIONAL ACCESS TO RESOURCES

P1	**Forest management maintains or enhances fair intergenerational access to resources and economic benefits**

C1.1   Local management is effective in controlling maintenance of and access to the resource.

I1.1.1   Ownership and use rights to resources (inter- and intragenerational) are clear and respect pre-existing claims.

I1.1.2   Rules and norms of resource use are monitored and enforced.

I1.1.3   Means of conflict resolution function without violence.

I1.1.4   Access to forest resources is perceived locally to be fair.

I1.1.5   Local people feel secure about access to resources.

C1.2   Forest actors have a reasonable share in the economic benefits derived from forest use.

I1.2.1   Mechanisms for sharing benefits are seen as fair by local communities.

I1.2.2   Opportunities exist for local and forest-dependent people to receive employment and training from forest companies.

I1.2.3   Wages and other benefits conform to national and/or International Labour Organisation (ILO) standards.

I1.2.4   Damages are compensated in a fair manner.

I1.2.5   The various forest products are used in an optimal and equitable way.

C1.3   People link their and their children's future with management of forest resources.

I1.3.1   People invest in their surroundings (e.g., time, effort, money).

I1.3.2   Outmigration levels are low.[6]

I1.3.3   People recognise the need to balance numbers of people with natural resource use.

I1.3.4   Children are educated (formally and informally) about natural resource management.

I1.3.5   Destruction of natural resources by local communities is rare.

I1.3.6   People maintain spiritual or emotional links to the land.

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[6]   Indicators 1.3.2 and 3.1.2 contain a potential contradiction. Low levels of outmigration (I1.3.2) indicate that people link their and their children's future to maintaining the forest; yet recognising the need to balance numbers of people with natural resource use (I3.1.2) may lead them to favour outmigration. This contradiction would likely occur when conditions are deteriorating.

1. ITERATIVE CONTINUUM METHOD (ICM)

We have found this method to be straightforward and helpful for people trained in anthropology; it is less familiar and thus more difficult for biological scientists. It requires the assessor to function as a sensitive and complex *tool*, and to be aware of his/her observations and conclusions about the local systems being assessed. The more experienced and skilled the assessor is at participant observation, the more reliable the results will be. Useful guidance in participant observation can be obtained, for instance, in Fetterman (1993); Kleinman and Copp (1993), Spradley (1979, 1980) and Wolcott (1995).

PURPOSE
To help systematise the collection of qualitative data about SIAR (including tenure, use rights, and sharing of benefits, Principle 1).

SAMPLE
The assessor records his/her own observations that pertain to access to resources, on a daily basis. An effort is made to 'sample' as many local contexts and experiences as possible over the period of fieldwork.

MATERIALS
See ICM form below (bring as many copies as you will spend days in the field + one).

METHOD
This method seeks to document the process of increasing understanding that comes with each day of fieldwork. In doing this, you can document your increasing understanding of people's feelings of security about their and their children's access to resources. The method builds on the skills used in participant observation.

The ICM requires recording one's observations on security of intergenerational access to resources, at the end of every day in the field, over the course of a one week to one month field visit. Use a new form every day. The space below the continuum on the ICM form is for recording evidence that supports your judgements about SIAR. *The Scoring and Analysis Guide* (on Security of Intergenerational Access to Resources) provides some help in anchoring your perceptions of people's rights and responsibilities.

After the final day of observations, review all your notes and then specify the following:

- Your 'best guess', or your conclusions based on all your days' observations, for **placement**, **direction** and **speed of change**, on this continuum. For speed of change, use red if fast, yellow if intermediate, and green if slow/stable.

- Consider the **variation** in your notations over the days of observations.

TIME REQUIRED

The assessor should spend at least a week in the field. Each day's entries take about 20 minutes to a half hour, depending on how productive the day was, in terms of observations.

ANALYSIS AND SCORING

You now have a body of materials — cases, evidence, examples — that you can plug into the master spreadsheet of C&I. As with the other methods, you will want to score this new material (1 = unsustainable; 10 = most sustainable), and type a shorthand version under the appropriate criterion or indicator, recording source, as well.

See related discussion of the ICM, in Section C, on 'Rights and means to manage forests cooperatively and equitably'.

SAMPLE ICM FORM

Iterative Continuum Method (ICM) Form
'Security of Intergenerational Access to Resources'

insecure_____4_____secure

3 July 1996 [sample from Emily Harwell's fieldnotes]

Considerable evidence (of various forms – ladang [upland ricefield] regrowth, old longhouse sites, antiques given as treaty, oral history) can be marshalled in support of Kelayang's long term residence and rights to the resources in its territory. Interaction with the HPH [timber concession] is mediated by the HPH owner's local ties and local residence and resulting pressure to be responsible to local needs.

However, cutting practices which take more trees and extend to the river edge (where ladang is) contrary to official regulation and local complaints suggest the relationship is not as considerate of local rights and access as the owners would like to argue. Official level (sub-district, police, forestry) apathy to these complaints also bodes badly for continued local access.

3 July 1996 [sample from Carol J. Pierce Colfer's fieldnotes]

This village appears to still be functioning regarding rights of access. Saw my household member share out her paku [ferns] consistent with a common adat [custom].

The headman showed reasonable savvy in dealing with me (an outsider).

He found me three local men (one was KN [head fisherman]) who could help me, thus sharing benefits locally.

People are going off to clear their fields (like others in the area).

Women are weaving goods for sale by project — conservation.

Consider at least security of land/tree tenure, use rights, employment, and other possible forest-benefit-sharing mechanisms, for self and for children in the future.

2 – BENEFIT SHARING AMONG STAKEHOLDERS:
PEBBLE DISTRIBUTION METHOD

We consider benefit sharing to be part of 'intergenerational access to resources', though some researchers prefer to address it separately (e.g., Perez 1996). In any event, it has been considered an important issue in sustainable forest management, by all CIFOR teams.

PURPOSE
To assess different stakeholders' perceptions of the distribution of forest benefits among stakeholders (**Criterion 1.2**).

PARTICIPANTS
Select 12–15 participants from each of the most important stakeholder groups in the area. Be certain to use the method with approximately equal numbers of men and women; and attend to other locally important social differences (age, ethnicity, etc.). Whether to conduct the pebble sorting individually or in homogenous groups depends on local conditions and your experience to date with other methods in this area. In any event, whether you work with groups or individuals, be sure to record the relevant demographic data (age, gender, ethnicity, occupation, etc.).

MATERIALS
Forms similar to the sample 'benefit sharing' form below, revised for local conditions (i.e., with locally relevant stakeholders and forest resources, local languages). We suggest limiting the number of stakeholders to as small a number as possible (3–10) without compromising the analysis. A large matrix, for group use, may be useful, or plates representing stakeholders or resources in which participants can distribute pebbles.

METHODS

If at all possible, use the local language in your interviews. The idea is that the main benefits from the forest are listed across the top of the form, as columns (a–f, in the Kalimantan example below). Be sure to recognise the important subsistence uses to which the forest may be put in your area. The first column lists the relevant stakeholders/user groups among whom forest benefits may be divided.

Using the revised form, ask each participant or group of participants to allocate 100 pebbles among the stakeholders, *within each of the columns*, a–f, according to which groups currently have the greatest share of benefits. Remember that each column must sum to 100. Ask the participants to consider the forests in their area and record their perceptions of the division of the listed forest benefits. You are less interested in an accurate portrayal of the actual division of benefits than in their perceptions of that division.

If the participants are sophisticated, percentage points are fine. If not, you can reduce the number of pebbles and later convert to percents. Participants can allocate their 100 pebbles without counting (subsequently counted by the researchers). This may be less tedious for all concerned.

TIME REQUIRED

Brocklesby *et al.* (1997) report spending 3 person hours in training and adapting the form, 26 hours to conduct 40 interviews with 95 participants, and 12 hours in data entry and analysis.

Sardjono *et al.* (1997) reported spending about 15 minutes per person on these interviews (> 10 hours in each of two sites interviewing 44–50 participants).

ANALYSIS AND SCORING[7]

Analyse the data. These data can be entered directly into a computerised, benefits sharing spreadsheet. You are interested both in the distribution of access to specific products, and in overall, averaged access. For a given group of 12–15 interviews/participants, compute average scores for each forest product by stakeholder or user group listed on the forms. This provides a good idea of that group's perceptions of the distribution of benefits — though the distribution of monetary benefits may well carry extra weight. You will then want to repeat this procedure for the different groups of participants, and compare the results. By computing a mean score across each row (last column in the form), you can get a gross range of general access, which may also be informative.

Since different numbers of stakeholders on the form will result in different average scores and different locales have different notions of equity, we cannot provide a 'cut off' point that will indicate a local perception of 'fair distribution of benefits'. However, if average scores differ widely across stakeholder categories, this represents a 'red flag' for **Criterion 1.2**. An obvious imbalance in monetary benefits is also a cause for concern.

In the Cameroon example below, 'Mbongo natives' are perceived by the respondents to receive more than twice the overall benefits of any other stakeholder. This level of access to benefits suggests a high degree of dependency on these forest resources. Looking at the column for 'money' though, one sees a different pattern. Government officials, the timber company and Cameroon Development Corporation (CDC) are seen as benefiting most.

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[7]   Additional guidance on analysis can be found in *The Scoring and Analysis Guide*.

SAMPLE FORM AND ANALYSIS

Benefit Sharing — Pebble Distribution Method

For each Column (a–f) divide 100 pebbles among the stakeholders or user groups below. Each column should sum to 100.
The final column is summed and divided by six to give an overall average share.

Stakeholder/User Group	Forest Benefits						
	Money (a)	Timber (b)	Wildlife (c)	Forest Foods (d)	Forest Medicines (e)	Fibers & Other NTFP (f)	Total ÷ 6
Dayaks (indigenous)							
Kutai (indigenous)							
Transmigrants							
Timber co. workers							
Base camp prostitutes							
Independent contractors							
Company officials							
Government officials							
Traders							
General consumers							
Total	100	100	100	100	100	100	

Overall Average Scores from Benefits by Stakeholders in Mbongo

(Brocklesby *et al.* 1997)

	Forest Benefits						
Stakeholder/User Group	**Bushmeat**	**Forest chop (foods)**	**Forest medicines**	**Money**	**NTFP (sold)**	**Stick (timber)**	**Grand Total**
Hunter	42.93	7.98	2.60	6.02	10.75	1.57	**11.97**
Traditional doctor	2.22	3.29	45.12	6.00	3.89	4.36	**10.81**
Government officials	12.82	5.49	5.42	17.73	2.31	16.73	**10.08**
Timber company	2.81	2.79	1.14	15.42	0.64	30.13	**8.82**
Sawyers	2.74	3.33	1.54	8.24	4.25	14.04	**5.69**
Mbongo natives	15.69	47.68	16.34	12.83	61.31	10.83	**27.45**
Nigerians	8.60	20.58	7.85	7.82	13.67	4.40	**10.49**
Cam. Dev. Corp.	2.20	5.31	1.73	17.56	0.81	9.85	**6.24**
Mt. Cam. Proj.	9.99	3.60	18.27	8.38	2.37	8.09	**8.45**

The following bar charts (from Diaw *et al*.'s methods tests, 1998) show the distribution of forest benefits in a forest rich and a forest poor area. The importance of the government and the timber companies in access to cash and timber are reflective of a more general pattern on all our research sites.

**Benefit Sharing among Stakeholders,
Mbeka'a (Fragmented Area), Cameroon**
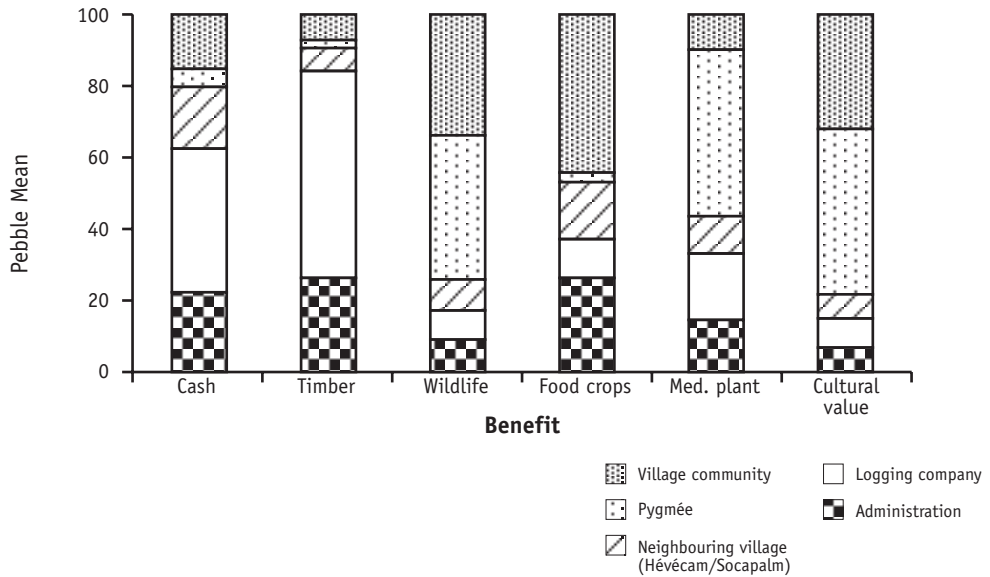
**Benefit Sharing among Stakeholders,
Mengomo (Rich Forest Area), Cameroon**
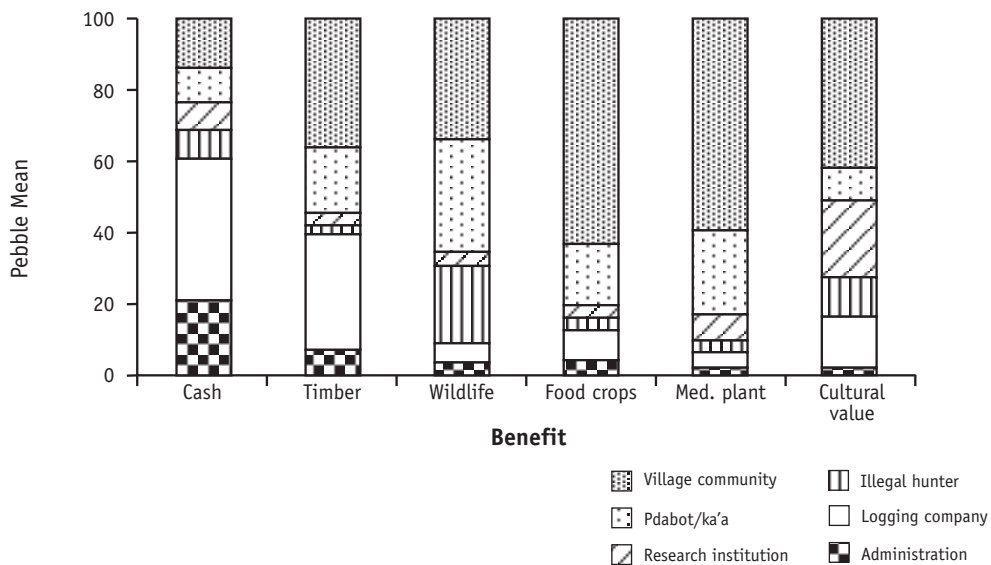
3 – HISTORICAL TRANSECTS OF THE LANDSCAPE[8]

Purpose
- to determine the past and future trajectory of resource management and use in the area (**Criteria 1.1** and **1.3**); and

- to shed light on people's feelings of security, justice, and concern for the future (**Criteria 1.1, 1.2**, and **1.3**).

PARTICIPANTS

Again you will need a facilitator and a note taker. Based on your experience with the previous two kinds of groups (homogenous and heterogeneous), select the kind of group that offers the best communication between yourselves and the group members. Small groups of 5–10 people are best; equal representation by gender is best — probably in separate groups.

MATERIALS

You will need large pieces of paper on which to draw transects, and a number of coloured pens for drawing different entities on the transects.

METHODS

You will have to review the C&I about which you need more information, and consider issues that you want to bring up before you meet with the group. Continue to record information on all C&I as it emerges. You will be interested at least in changes in amount and kinds of forest cover, agricultural lands, population, roads and rivers.

Ask your group to select an appropriate area near the village, or their places of work, that most of them know well. It can be useful to go there with the group. Start out drawing a transect of the present situation. This is eas-

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8   See Poffenberger and McGean (1993a,b), for examples of past and present transects of landscapes in two areas (Philippines and Thailand); or the *Participatory Rural Appraisal Handbook* (WRI 1990) for African examples. Another method, Access to Resources by Generation: Pebble Distribution Method, was popular in our tests. It is described in *The BAG* (SIAR) and could substitute for the historical transects of the landscape.

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iest and helps to situate people concretely. Then ask the older people to draw a transect of the same area when they were young (20 years ago, 50 years ago). Then return to the whole group and get their vision — in the form of an imagined transect — of what the future holds 20 years from now. You will need transects of at least three time periods, including past, present and future.

Porro and Porro (1998) note the inappropriateness of doing transects in some flooded areas. Diaw *et al*. (1998) and Tchikangwa *et al*. (1998) point out the added precision obtainable when you *visit* the transect site; and conversely the greater ease of involving more participants if the participants *imagine* the transect site. In some areas, where people make fields along a river or along a road, it may be important to make the transect back (at 90° angles) from that transportation route, to reflect the landscape diversity adequately. McDougall (1998) noted the similarity of land use following along a river, for instance, in East Kalimantan.

TIME REQUIRED

The facilitator and note taker will need an hour or two to prepare their thoughts. The further along you are in your assessment, the more important it is to return to the master spreadsheet of C&I and see what kind of information is missing. The meetings should take about an hour per group.

ANALYSIS AND SCORING

The same procedure pertains. First, prepare a transect spreadsheet with the relevant C&I listed. Note down the information you received bearing on specific C&I, scoring each case or bit of evidence from one (least conducive to sustainability) to ten (most conducive to sustainability). If, for instance, local people have built a new school, this could be evidence for **Indicator 1.3.1**, or if there is an area
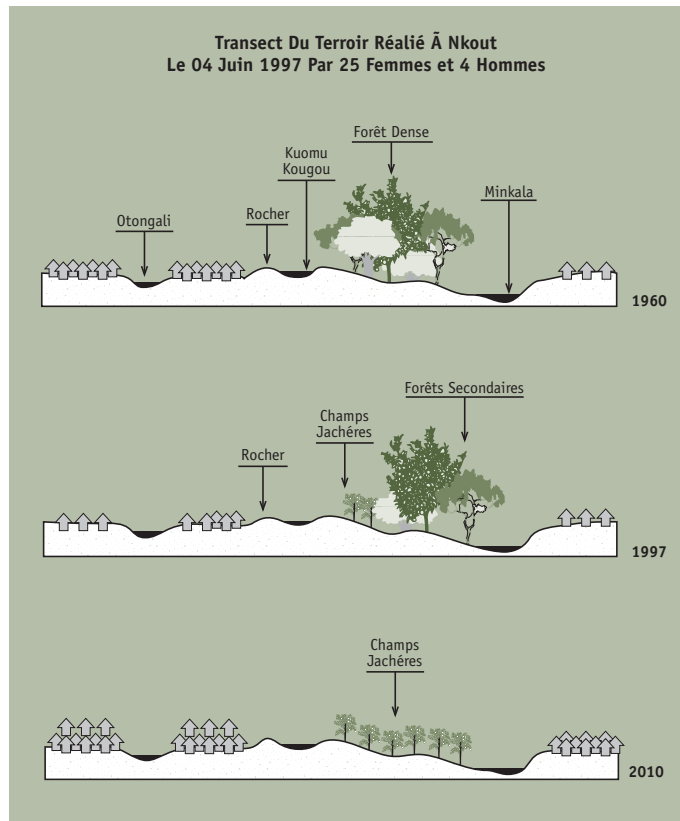
where the forest has been burned by local people, that would be relevant for **Indicator 1.3.5**.

After you have assessed all the information, you can slot it, in abbreviated and scored form, into the master list of C&I.

SAMPLE TRANSECT

Past, Present and Future Transects, Nkout, Cameroon
(from Tiani *et al.* 1997)

**Transect Du Terroir Réalié Ã Nkout
Le 04 Juin 1997 Par 25 Femmes et 4 Hommes**

Forêt Dense

Kuomu
Kougou

Minkala

Otongali

Rocher

1960

Forêts Secondaires

Champs
Jachéres

Rocher

1997

Champs
Jachéres

2010

C Rights and Means to Manage Forests Cooperatively and Equitably

'Rights and means to manage cooperatively and equitably' is our replacement for the phrase, 'participation in forest management', used in earlier stages of C&I template development. As mentioned in *The BAG*, we found an unwarranted assumption that local people should participate in the management systems of logging companies or government agencies (Colfer and Wadley 1996). In fact, local people were typically doing much of the management themselves. It, therefore, became necessary to re-conceptualise and rephrase our principle.

In this section, we offer three supplementary methods: Participatory Card Sorting; the Iterative Continuum Method (or ICM); and a Researcher Guide to Assessing Participation. For ease in scoring, we reprint the relevant C&I here:

PROPOSED PRINCIPLES, CRITERIA AND INDICATORS
ON MANAGING FORESTS COOPERATIVELY AND EQUITABLY

P2	Concerned stakeholders have acknowledged rights and means to manage forests cooperatively and equitably
C2.1	Effective mechanisms exist for two-way communication related to forest management among stakeholders.

I2.1.1	> 50% of timber company personnel and forestry officials speak one or more local language, or > 50% of local women speak the national language.
I2.1.2	Local stakeholders meet with satisfactory frequency, representation of local diversity, and quality of interaction.
I2.1.3	Contributions made by all stakeholders are mutually respected and valued at a generally satisfactory level.

C2.2	Local stakeholders have detailed, reciprocal knowledge pertaining to forest resource use (including user groups and gender roles), as well as forest management plans prior to implementation.

I2.2.1	Plans/maps showing integration of uses by different stakeholders exist.
I2.2.2	Updated plans, baseline studies and maps are widely available, outlining logging details like cutting areas and road construction, and include temporal aspects.
I2.2.3	Baseline studies of local human systems are available and consulted.
I2.2.4	Management staff recognises the legitimate interests and rights of other stakeholders.
I2.2.5	Management of NTFP reflects the interests and rights of local stakeholders.

C2.3	Agreement exists on rights and responsibilities of relevant stakeholders.

I1.3.1	Level of conflict is acceptable to stakeholders.

1 – PARTICIPATORY CARD SORTING

PURPOSE
- Assess the respective involvement of local stakeholders in forest management (**Criteria 2.1**, **2.3**, and **Indicator 2.2.4**); and

- Assess the level of interaction among stakeholders locally (**Criterion 2.1**).

PARTICIPANTS

You will need to conduct this method with four to six groups of stakeholders (typically including timber workers,[9] forestry and other officials, and various user and community groups). Insofar as possible, get equal numbers of male and female participants. You can conduct the interviews singly or in groups of 5–15 people. You will need at least 12–15 participants from any stakeholder group you wish to draw conclusions about. Be sure to include timber company managers as you will need to understand their views for **Indicator 2.2.4**.

MATERIALS

You will need some coloured cards,[10] pencils and erasers. Write the names of up to six stakeholders active in the area, each on a different coloured card. You will also need a form (see example below).

METHOD

Prepare a Participatory Card Sorting form, similar to the example provided below. The list of stakeholders you have selected should be the first column on the left side of the sheet. Based on your recently acquired understanding of local conditions, **modify the four questions** in the sample form, so that they represent important management issues in

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[9] Don't forget the small scale private and informal sectors (restauranteurs, suppliers, prostitutes, transportation services, etc.).

[10] Some researchers in Cameroon have dispensed with the coloured cards and simply had people fill in the form. Diaw *et al.* (1998) converted this form into a 'pebble sorting' method.

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your area. These questions serve as a proxy (when combined) for 'forest management'. The usefulness of your results will depend on the appropriateness of the proxies. Ask informed local people for help.

Sardjono *et al.* (1997) prepared questions about the following four topics: *knowledge* of medicinal plants, *sanctions* for illegal harvesting of forest fruits, selecting an area of forest to cut for a ricefield, and *solving problems* with timber companies. In Cameroon, Tiani *et al.* (1997) substituted questions about knowledge of wildlife, permission to cut a timber species, and sanctions for fishing with poison. In selecting your questions, try to reflect the **variety** of aspects of forest management in the area (relevant products, local users of both sexes, and different management functions[11]).

Before beginning the meeting with your group, review the C&I listed in the box above, so that your information needs are clear in your own mind. Ideas and perceptions expressed as people discuss the form may be as useful to you as the quantified results. You will need to record the demographic composition of your group (ethnicity, gender, age, occupation, educational level, etc.) for use in your subsequent analyses of the data.

Show the cards to the respondent or the group, and explain that each card represents a group of people with an interest in the local forests. Ask your first question, and ask them to order the stakeholders (represented on the cards), from 1 to 6 (if there are 6 stakeholders), based on the **importance** of each stakeholder's role in that particular aspect of forest management.[12]

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[11] Some important management functions pertain to people's knowledge (traditional equivalent of a 'management plan'), regulations, conflict resolution and sanctions.

[12] In earlier tests, participants were asked to develop separate forms and rank by importance and by *frequency of interaction*. We had varying views on the utility of the latter, partly because the concept was difficult to explain.

One problem we have encountered derives from the analytical need for each participant to rank every one of the six stakeholders — for analysis needs later. Researchers found that some people considered two stakeholders to have equal ranks; others encountered cases where the respondent knew nothing about one or more of the stakeholders. Scores for two stakeholders with equal ranks (e.g., two stakeholders of rank 3) can be averaged (3 + 4 = 7 divided by 2), yielding a score of 3.5 for each. Or if, for instance, three stakeholders are unknown to the respondent, those stakeholders can be assumed to be unimportant from the respondent's perspective. Each can be assigned the average of the last three ranks (if there are six stakeholders, the scores of these unknown stakeholders would be 5 — the mean of rank 4, 5 and 6).

Record the ranks on the form. Proceed to your next question, until you have rankings of stakeholders for all four questions. If there is important disagreement within a group, fill out separate forms for those with different perspectives. Keep track of the number of participants represented on each form.

ANALYSIS AND SCORING[13]

You want to determine whether or not there is a shared perception of the relative importance of the different stakeholders. That means comparing the results on the form from the different stakeholder meetings you have conducted. You will want to enter the results of your meetings into a card sorting spreadsheet. This will require a four step process.

Step one: Categorise groups/individuals into stakeholder/user groups or social categories. For instance, you might have results from three meetings of women (from two ethnic groups and a workers' group). To ascertain women's views more generally, you might want to combine all

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[13] Additional guidance on analysis of these data is available in *The Scoring and Analysis Guide*.

women's responses, and compare these with men's responses generally. Or you might have a series of meetings with people from a given ethnic group, along with a few single interviews. These can be combined to represent that ethnic group's overall view. You will definitely need to examine the results from the timber company management personnel.

Step two: To begin entering the data, take a completed form (the results from one meeting or one participant). Average the responses from the four questions from that form, to get a mean ordering of stakeholders, representing the participant(s)' view of each stakeholder's importance in forest management more generally. This same process will be repeated for each form, because you will ultimately be averaging these means, by relevant local groups of responses.

Step three: Transfer the mean scores from the individual forms into a separate computer file (or folder) for each important category (user group, social category or stakeholder). You can then come up with a 'grand mean' from all the meetings or individuals representing that particular stakeholder/user group or social category.

Step four: By looking at the respective ordering of different stakeholders/participants, you can tell whether or not there is a shared vision of rights and responsibilities among them (**Criterion 2.3**). If all participant groups give roughly the same order of importance, there is agreement. If the ordering differs substantially, there would appear to be insufficient agreement.

You can make an estimated score in your master spreadsheet for **Criterion 2.3** by allocating a score of 1 for no agreement on ordering and 10 for perfect agreement. Most scores will fall between these two extremes, though in the

cases we have examined, there has been considerable agreement among stakeholders (in Cameroon and Kalimantan).

In the Cameroonian example below, every ethnic group except the Bamileke agreed on the rank order of the groups listed.[14] The Bamileke are the only tribe coming from a different area, with values that are locally recognised as different. So this is a reasonable outcome from the study. On the question of agreement on the rights and responsibilities of relevant stakeholders (**Criterion 2.3**) then, we could give a fairly high sustainability score (perhaps 8) in the C&I master spreadsheet.

You can also ascertain whether or not forest managers acknowledge the roles of other stakeholders in forest management (**Indicator 2.2.4**). This will require looking at the views of timber company managers (not done in the example reprinted below) to see how they perceive other stakeholders' importance. If they assign a very low importance to local communities and forestry workers, a sustainability score of 1 or 2 might obtain. The highest sustainability score (10) on this indicator would obtain when local stakeholders (e.g., local communities, local forest workers, local timber company managers) all receive fairly high importance ranking from formal forest managers.

You will then average your scores within each criterion on the master spreadsheet to get an overall sustainability score pertaining to Principle 2.

TIME REQUIRED

In Cameroon, Tiani *et al.* (1997) reported using seven researcher days and ten assistant days in conducting a longer version of this study. Sardjono *et al.* (1997) reported an average of between 7 and 11 minutes per participant

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14 This was not the case near the Dja Reserve, although rankings were not terribly different among the groups. Traditional chiefs were consistently considered the most important and administrative authorities held an important position with every group except the pygmies (Tchikangwa *et al.* 1998).

(totalling 540 minutes in one location, and 230 minutes in another). Brocklesby *et al.* (1997), who conducted group interviews, found them to take between 25 and 45 minutes per group, with women's groups taking longer.

SAMPLE PARTICIPATORY CARD SORTING FORM AND ANALYSIS

Sample Form – Participatory Card Sorting
[translated and revised from Danau Sentarum Pre-Test]

Card Sorting Exercise

Gender: .... Village: ....
Ethnicity: .... Interview: ....
Occupation: .... Date: ....
Age: ....

1. Who is most important when you need information about fish?

2. Who is most important if want to look for rattan?

3. Who is most important to contact if the regulations need changing?

3. Who is most important if you have a problem with the timber company?

[1 = most important, 2 = second most important, etc.]

Stakeholder	Who is most important...				
	Q.1 (fish)	Q.2 (rattan)	Q.3 (rules)	Q.4 (prob.)	Average Rank
Your village					
Other villages					
Government					
Timber company					
Conservation project					
Trader					

Participatory Card Sorting Results (Cameroon example)
M. Edouga Christine, Bassanaga Simon and François Tiayon at Wijma Sawmill (30 October 1996)

Average Order of Importance	Overall (n=14)	Bulu (n=4)	Fang (n=3)	Bassa (n=3)	Kwassio (n=3)	Bamileke (n=1)
Forestry Administration	**1.95**	1.69	1.58	2.58	1.83	2.50
Your (Bantu) village	**2.80**	2.75	2.92	2.67	3.42	1.25
Timber company	**3.75**	3.75	3.75	3.33	3.67	5.25
Tropenbos	**4.02**	4.00	3.67	3.75	3.83	6.50
Other (Bantu) village	**4.25**	4.13	4.42	3.92	4.67	4.00
Pygmy camps	**5.21**	5.44	5.42	5.58	5.00	3.25
Traders	**5.96**	6.19	6.17	6.08	5.58	5.25

2 – ITERATIVE CONTINUUM METHOD (ICM)

As described in Section B of this manual, we have found this method to be comfortable and helpful for people trained in anthropology; it is less familiar and thus more difficult for biological scientists. It requires the assessor to function as a sensitive and complex *tool*, and to be aware of his/her observations and conclusions about the local systems being assessed. So the greater the assessor's familiarity with and skill at participant observation, the more reliable the results will be. Useful guidance in participant observation can be obtained, for instance, in Fetterman (1993); Kleinman and Copp (1993); Spradley (1979, 1980) and Wolcott (1995).

PURPOSE

To help systematise the collection of qualitative data about rights and responsibilities to manage forests cooperatively and equitably (especially Principle 2).

SAMPLE ICM FORM

Iterative Continuum Method (ICM) Form
'Rights and Means to Manage Forest Cooperatively and Equitably'

insignificant_____5_____significant

21 June 1996 [sample from Carol J. Pierce Colfer's fieldnotes]

The current system seems to me to show some signs of deterioration. They've more or less abolished their boundary with _____ and with _____ in the interest of 'kesatuan' [unity]. Could mean a standardisation of management by river system???

Also no KN [head fisherman], so their 'voice' may be muted or scattered.

There don't appear to be any powerful outsiders at the moment. Virtually no interaction with conservation project, HPH's [timber concessionaires] have all stopped work.

3 July 1996 [example from Emily Harwell's fieldnotes]

The local system of management and rights to access are given at least lip-service recognition at most levels. HPH is held in check more than other HPH relationships in the area due to local pressure on owners as kin and mouth-pieces of local rights. Local discontent, however, with HPH practices and lack of follow through on promises suggest a less-than-egalitarian ideal of forest use (cutting practices to river's edge, burning of camp in _____).

On the other hand, a visit to the HPH B Camp showed much progress on production of rubber trees for local use. Planting of rubber would presumably secure local rights to that land as a more 'sustainable' use of land than ladang (in official eyes). The seemingly well-ordered state of the camp suggests that someone is monitoring its activities.

HPH obsession with 'wild cutting' emphasises its rights to forest resources over other (pre-existing or otherwise) local rights.

Consider at least women and men's roles in monitoring compliance with regulations, conflict resolution, incorporation of indigenous knowledge, and control over direction and speed of social change.

3 – RESEARCHER GUIDE TO ASSESSING PARTICIPATION

We initially designed this method based on an inaccurate assumption: That local people would participate in the forest management of the timber company. In our test areas, however, most day-to-day management was in the hands of local people. Some team members found the questions listed on the researcher guide to be helpful in keeping them focused on important issues. The questions can also alert assessors new to an area to issues that can impinge on sustainability and on human well-being. Some team members used the method in connection with the ICM (described above).

PURPOSE
To guide the assessment pertaining to Principle 2, on rights and means to manage forests cooperatively and equitably.

PARTICIPANTS
Although some researchers have given the form (see below) to intellectually inclined people at the assessment site, most have reserved it for their own use.

MATERIALS
Form below ('Researcher Guide Pertaining to the Four Proposed Functions of Participation')

METHOD
The method consists in reading the researcher guide, keeping the questions in mind, and filling in the answers as understanding grows. Information collected informally in the context of the previous methods can be of use in answering these questions. It is also possible to use the researcher guide to conduct interviews with people in the area. We have also given the researcher guide to local intellectuals.

ANALYSIS AND SCORING

As with the other methods, one must keep in mind the criteria and indicators being assessed. The questions, if answered, are very helpful in coming to conclusions about the C&I (illustrative C&I are shown in brackets after each of the questions — though these may vary by location). Evidence and cases can be entered in the master spreadsheet under the appropriate criterion or indicator and scored (as before, from 1 for unsustainable to 10 for sustainable).

TIME REQUIRED

This method assumes a one-week to one-month field period, during which an understanding of the issues listed can be gained. The actual answering of the questions typically takes an hour or so.

SAMPLE RESEARCHER GUIDE

[Example adapted from Danau Sentarum Pre-Test, West Kalimantan, Indonesia]

The questions below are followed by examples pertaining to them in parentheses; and related criteria and indicators in brackets.

Researcher Guide Pertaining to the Four Proposed Functions of Participation

Reducing non-compliance with regulations

1. Are people (men, women, old, young) **aware of the regulations** that timber companies are supposed to follow?
   e.g., boundaries, allowable cut, minimum diameter, replanting, minimum wages, safety rules, distance from streams, waste, planning requirements)
   [I1.1.2; C2.2; I1.2.3; I1.3.5; I.2.3.1; I3.2.3]

2. Do local people observe or hear of infractions by the timber companies in the area?
   [e.g., note boundary infractions, note logs that are too small or of the wrong species, wasteful practices, environmentally damaging practices, use of chemicals; knowledge of company plans before implementation]
   [I1.1.2; C2.2; C2.3; I1.1.1; I2.2.1]

3. Do people **report infractions**? To whom?
   [e.g., to village leader, to temenggung, to Forestry officials, to local government, to KSDA, to fisheries dept. official, to NGO's]
   [I1.1.2; C2.3]

4. Are there predictable **sanctions**, in case of infractions? By whom?

> [e.g., fine, work stoppage, withdrawal of concession license, payment of damages; by courts, agreement among stakeholders, forestry personnel]
> [1.1.3; I1.1.4; C2.3; I1.2.4]

Reducing conflict about forest resources or converting it to mutual accommodation

1. What **kinds of problems** occur between timber companies and local people?

> [e.g., chemicals in water supply, overstepping boundaries, use of sacred sites, adverse effects of outsiders' presence on local culture; effects on fishing/hunting; noise]
> [I1.1.3;I1.1.4;I2.2.4; I2.2.5; I3.3.1; I3.3.2; I2.2.1; C3.2]

2. What **kinds of problems** occur between timber companies and workers?

> [e.g., minimal employment for local people, unsafe working conditions, non-payment of salary/fees]
> [C1.2; I2.1.1;I3.2.3]

3. Are problems successfully and satisfactorily **resolved**? How and how reliably?

> [e.g., courts, negotiations, arbitration; agreement on rights and responsibilities of each stakeholder]
> [I1.1.4;I1.2.1;I2.3.1; I1.1.3]

[Issues of Voice]

1. Can local people name the **decision-makers** in the timber company? (men, women, old, young)
    [e.g., one or two key individuals, many individuals]
    [C2.1]

2. In what contexts do people from the community **interact with** key timber company personnel? Who? How regularly?
    [e.g., formal meetings, frequent chance encounters, neighbours, supply of goods to company, at work as employees]
    [C2.1; C2.2; I1.1.3; I1.2.2; I3.2.2; I3.3.2]

3. How can local people **convey their wishes**? (men, women, old, young)
    [e.g., formal meetings, delegation to company, 'village guidance program' from concessionaire, forestry agents]
    [C2.1; I2.2.5; I.1.2.1]

4. Are the **attitudes** of timber personnel conducive to local input?
    [e.g., respect expressed, knowledge of local languages, verbal valuing of input, signs that input was sought, convincing acknowledgement of local men and women's rights to participate; fear on either side; expressions of appreciation of timber personnel by local people]
    [I2.1.3; I2.2.4; I3.3.1; I3.3.2]

Controlling the direction or speed of change in local forest-based ways of life

1. What, connected with the timber company, is perceived to **adversely affect** local ways of life?
    [e.g., in-migration of different ethnic groups (increased inter-ethnic strife, competition), prostitution, marrying out by local

women, exposure of youth to alien cultures and new temptations, complete dependence of local economic system on company, loss of economic alternatives, increase in dependence of company, loss of diversity in subsistence base]
[I1.1.5; I1.2.4; I3.3.3]

2. What **mechanisms** exist for addressing adverse affects?

[e.g., regular meetings, receptive personnel at concessionaire's 'village guidance program', forestry officials with mandate to address such problems; fair laws and accessible courts]
[I1.1.3;I1.2.1;I2.1.2]

**Providing knowledge for use in forest management**

1. What **local knowledge** exists that can be used in forest management?

[e.g., recognition of local species, knowledge of patterns of growth of local species, understanding of local people's subsistence system and 'social capital', experiential awareness of historical environmental trends],
[C1.1; I2.2.3; I3.3.2]

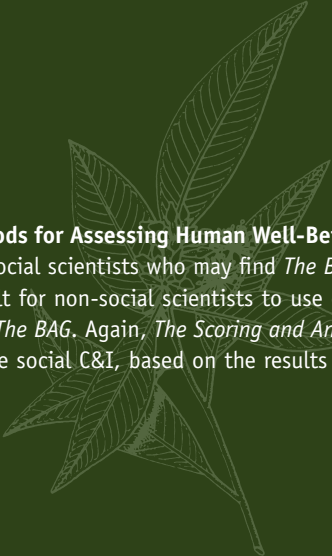2. How is that knowledge **integrated** into forest management?

[e.g., local people know company plans (boundary maps, cutting plans, road building plans); companies have baseline surveys or other indicator of knowledge of local systems; management staff/forestry officials recognise people's rights to benefits and a voice; use of forest products reflects compromise between people's and company's needs (if they conflict)]
[C2.2; C3.3]

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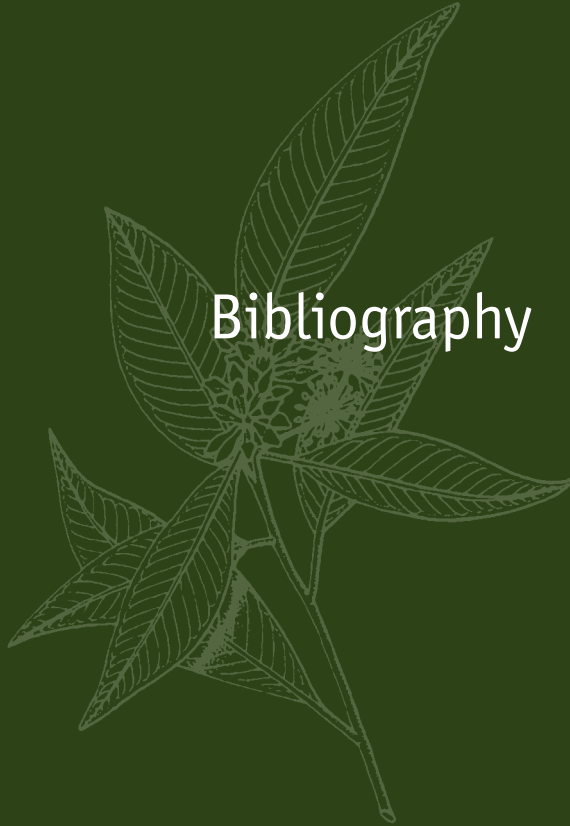
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The Grab Bag: Supplementary Methods for Assessing Human Well-Being is designed to complement *The BAG*. *The Grab Bag* is designed for use by social scientists who may find *The BAG* overly prescriptive. The eight methods presented are either more difficult for non-social scientists to use or, in a couple of cases, can substitute for one or more method presented in *The BAG*. Again, *The Scoring and Analysis Guide* provides the user with help in making an actual assessment of the social C&I, based on the results of these methods.

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