



Women, men and forest research

A review of approaches, resources and methods
for addressing gender

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Bolivian family collecting Brazil nuts from the forest

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Abbreviations

ACM	Adaptive Collaborative Management
C&I	Criteria and Indicators
CAPRI	Collective Action and Property Rights
CBD	Convention on Biological Diversity
CGIAR	CGIAR is a global research partnership for a food secure future
CIFOR	Center for International Forestry Research
FAO	Food and Agriculture Organization of the United Nations
GAAP	Gender, Assets, and Agricultural Programs
GAD	Gender and Development
GIS	Geographic Information System
GPS	Global Positioning System
IFPRI	International Food Policy Research Institute
IFRI	International Forestry Resources and Institutions
IIED	International Institute for Environment and Development
MDG	Millennium Development Goals
NGO	Nongovernmental Organisation
OECD	Organisation for Economic Cooperation and Development
OPHI	Oxford Poverty & Human Development Initiative
PAR	Participatory Action Research
PRA	Participatory Rural Appraisal
RAAKS	Rapid Assessment of Agricultural Knowledge Systems
REDD+	Reducing emissions from deforestation and forest degradation and enhancing forest carbon stocks
RRA	Rapid Rural Appraisal
SIGI	Social Institutions and Gender Index
SWOL	Strengths, Weaknesses, Opportunities, and Limitations
SWOT	Strengths, Weaknesses, Opportunities and Threats
VCI	Vulnerability Capacity Index
USAID	United States Agency for International Development
WEAI	Women's Empowerment in Agriculture Index
WID	Women in Development
WED	Women, Environment and Development

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1 Introduction

There is little point in reiterating the importance of gender in forests. We have all heard how ‘women hold up half the sky’ (though we’ve heard less about exactly how this is done by either sex). We have heard of the disadvantages that accrue to forest women (though less about the symbolic, relational and structural elements that keep such disadvantages in place). We have heard of forest women’s important roles in reproduction (both physical and social), population growth and health (though less about men’s roles in these spheres). And we’ve learned increasingly of the productive roles and forest-related knowledge of both men and women, as well as their respective use and management of forests.

Yet evidence continues to accumulate about the globally disadvantaged situation of women vis-à-vis men. We argue here that the time is ripe for both a shift in perspective and a stronger effort to redress this imbalance. The shift in perspective has been argued by a number of gender scholars (e.g. Leach 2007, Elmhirst 2011), and involves more serious attention to interactions, gender dynamics and power issues, as well as greater attention to men’s roles in inequity, household structure and social reproduction. These latter issues relating to men have been – oddly – largely ignored. We need to acknowledge and address issues of power in gender dynamics (from the household to the political arena), including men’s roles and behaviour.

The last few years have witnessed a dramatic increase in global attention to gender (e.g. World Bank 2011¹ and FAO 2010–2011, which grant considerably more credence to long-recognised gender inequities than has been usual). The Millennium Development Goals (MDGs) focused on women and girls directly in MDG 3 (‘Promote gender equality and empower women’) and

5 (‘Improve maternal health’). Given women’s typically direct involvement in family education and health care, MDG 2 (‘Achieve universal primary education’), 4 (‘Reduce child mortality’), and 6 (‘Combat HIV/AIDS, malaria and other diseases’) also imply serious female involvement. In the tropics, where women’s normally active involvement in food production has been under-acknowledged, their roles in realising MDG 1 (‘Eradicate extreme poverty and hunger’) and 7 (‘Ensure environmental sustainability’) take on added significance.

The recent emphasis on REDD+ (Reducing Emissions from Deforestation and Forest Degradation), and the potential role of forests in addressing climate change, have turned global attention to the agricultural practices of forest dwellers. Other research has already highlighted the potentially adverse effects of REDD+ programmes on forest dwellers, many of whom practise shifting cultivation. Women’s usual importance in such systems has also been amply demonstrated, catching the attention of some policy makers and researchers. Researchers have begun to examine the effects of climate change on women specifically (e.g. Brown 2011, Djoudi and Brockhaus 2011, Mustalahti 2011, UN-REDD Programme 2011).

The year 2011 was the International Year of the Forest, which witnessed growing interest globally in the links between people and forests. Some of that attention has been directed at women’s roles as well (e.g. Pottinger and Mwangi 2011).² This has been further encouraged by another international trend: the ‘human rights-based approach’, which

1 See also Razavi (2012), for a critical analysis of this report. While acknowledging a number of strengths, she also notes: ‘Women’s different relation to natural resources (forests, local commons) and greater vulnerability to environmental risks are hardly mentioned in the report...’ (p. 433).

2 Within agriculture, there have been significant recent efforts to address gender issues. Tripathi *et al.* (2012) note: FAO’s 2011 report on The State of Food and Agriculture; 2012 UN Commission on the Status of Women; a draft Global Strategic Framework for Food Security and Nutrition of the UN Committee on World Food Security and the 2009 UN International Assessment on Agricultural Knowledge, Science and Technology report, all of which ‘...emphasize the growth and changes in women’s involvement in agriculture and rural development’ (p. 1).

is supported by a whole raft of United Nations documents, covenants and declarations (Mata and Sasvári 2009). These authors specifically analyse the wording of the Convention on Biological Diversity (CBD) and the CBD's 'Gender Plan of Action', arguing for a central role of women in CBD efforts.

The development of a number of useful indices is further evidence of the growing interest in addressing gender more effectively. The OECD (Organisation for Economic Cooperation and Development) has developed the SIGI (Social Institutions and Gender Index), which measures 'how social norms affect gender equality in non-OECD countries' (OECD 2010). Its Atlas describes conditions in 124 developing and transitional countries. The Institute of Social and Environmental Transition in India has produced a Vulnerability Capacity Index (VCI) designed to assess women's and men's vulnerability to climate change and capacity to adapt to it (Ahmed and Fajber 2009). The International Food Policy Research Institute (IFPRI), the Oxford Poverty & Human Development Initiative (OPHI) and USAID have more recently developed the WEAI (Women's Empowerment in Agriculture Index), based on special surveys that also examine women's roles vis-à-vis men's (IFPRI *et al.* 2012). It has been tested in parts of Bangladesh, Guatemala and Uganda.

With all this attention (and more), the present seems an opportune time to provide some methodological guidance to improve our abilities at addressing gender in forests, in a practical, timely and useful way. Our intended audience includes researchers as well as natural resource, development and conservation managers. We are convinced that the diversity that characterises both the ecological and social worlds in and around forests means that no cookie-cutter methods or solutions are likely to have broad appeal or efficacy. There is no substitute for human judgment.

1.1 Our 'meta-method'

Colfer began our review of the literature on the internet in January 2012, using as key words 'woman'/'women,' 'forests,' 'woman and forest'/'women and forest,' 'men and forest,' and 'gender and forest,' prioritising the literature from

2000 onwards. In addition to the multitude of materials uncovered in this way, Colfer began mining her own 40 years of gender-related experience. She also traced leads from this literature outward to researchers with known relevant expertise, tracking down some of the abundant literature *not* uncovered by means of key word searches. In April, Minarchek joined the effort; as a doctoral student in development sociology, with a gender focus, she brought in-depth knowledge of more recent and more sociological materials to complement Colfer's anthropological leanings. This review cannot be considered truly comprehensive – indeed in this day and age we suspect that would be impossible – but rather provides a sufficient range of methodologies from which users can choose those appropriate to their resources and needs. We deviate from a rigid review in that we include some discussion of the substance and topics addressed, as an awareness-building strategy; besides methodological uncertainty, many researchers and managers express uncertainty about relevant *topics* relating to gender and forests.

We strive to make our methodological recommendations practical by linking them to what we imagine as potential readers' decision-making contexts. We have categorised methods based on the availability of resources, and on the kinds of hopes/uses researchers have for their findings. We assume that all researchers/readers seek to improve forest management, to enhance both the health of the environment and the well being, even empowerment, of the people who live in and near it. But we recognise that different people, in different situations, have constraints on the options they can pursue.

Before turning to the general methods and the three resource levels we consider most common within forestry, we provide one additional introductory section. Here we briefly highlight a differentiation within the social sciences that is less obvious in the biophysical sciences: that between the *means* of collecting data, and the *approach to interpreting* it (Mickel 2012). This second, interpretive element is particularly important in gender studies. All human beings are enmeshed in gender systems of their own; the possibility of being truly objective becomes moot. We view this differentiation between means

of collecting data (methods) and approaches to interpreting it (approach) as a continuum, with what is often a very fuzzy line dividing the two. In general, though, one can think of the approach as a conceptual framework, a theory, a broad umbrella-like intellectual world view, within which more concrete methods are applied. These broad approaches are likely to remain relatively constant over the course of a project, for instance, or within an institution. Methods, on the other hand, tend to be more flexible and useable within various methodological approaches. The differentiation, however, can be arbitrary.

1.2 Interpretive approaches or conceptual frameworks

In this section, we select a few particularly influential approaches or conceptual frameworks that have a bearing on the lives of women and men in forests. A thorough coverage of such interpretive approaches is not possible here,³ but we highlight a couple that are relevant and have become prominent in recent years. The most controversial has been postmodernism.

Postmodern and intellectual elites – The gap between ‘scientific’ production and communities has always existed to some extent, but has widened considerably, especially after the postmodern turn within social science in the 1970s. This ‘turn’ is important to consider in a methodological paper due to the focus of postmodernists, particularly in this case postmodern feminists, on the recognition of the marginalised viewpoint. Some postmodern feminist writers (Smith 1987, Haraway 1988, Yeatman 1994) attempted to call attention to the highly esoteric language used by academics, noting its reproduction of the power structures that thereby continue to marginalise. Others (Haraway 1988, Spivak 1988, Hartssock 1998) maintained the structure and language common to the academy in the midst of their calls for reconstruction of the ways in which researchers

view knowledge, power and opportunity in their studies. As a result, calls for recognition of the difference that gender, race, class and colonial histories can make have often gone unheard by those who could have benefited most.

The central features of postmodernism have been summarised by Rudel and Gerson (1999), which we paraphrase here: 1) rejection of grand social theories (no ‘metanarratives’), 2) ubiquity of change (‘social fluidity’), 3) existence of multiple truths (‘primacy of the local and vernacular’),⁴ 4) multiplicity of legitimate perspectives, the contested nature of meanings (‘polyvocality’), and 5) how meaning is mediated by language and by context (‘the importance of signs’).

These theories, rather than being written off as inaccessible, do offer methodological guidance in the selection of useful tools for the forest researcher, especially those with a focus on gender. Possible solutions to the inaccessibility of the literature may include finding authors who write in accessible language, such as Yeatman (1994), though the accessibility of writings by one author may vary considerably and readers’ repertoires, in terms of jargon, will also vary. Another approach is to identify an intermediary or ‘knowledge broker’ to serve as a bridge in linking theory with application in forestry research. While not easy or quick to apply to methodology, postmodern feminism should not be ignored. The potential benefits to marginalised communities (particularly women) can be worth the effort.

Eco-feminism – This approach was initially developed by Shiva (1989). Although widely criticised for ‘essentialising’ the relationship between women and nature (e.g. Leach 2007), the approach has also stimulated a considerable amount of research on women in their natural environments; see collections by Diamond and Orenstein (1990) or Roszak *et al.* (1995).

³ Manfre and Rubin (in press), for instance, list seven such approaches (Harvard Analytical Framework; Social Relations Approach; Women’s Empowerment Approach; Moser Gender Planning Framework; Gender Analysis Matrix; Gender Dimensions Framework; and Women’s Empowerment in Agriculture Index), p. 41. Or see Meinzen-Dick *et al.* (in press) on the Gender, Assets and Agricultural Programs (GAAP) framework.

⁴ Sadly, this element, which is one of the most relevant for forest-related issues, is often discussed in the most inaccessible language. Postmodernists write usefully, for instance, of the ubiquity of ‘alterity’, of ‘the other’, both alien concepts for most biophysical scientists. These concepts recur throughout such writings and describe the connotations of exoticism, and related less than full humanity for marginalised folks (so common in forested settings). Consider what is written about pygmies, for instance – a beautiful example of alterity.

Adherents argue that women have an inborn affinity and caring relationship with nature (found by some researchers, not by others). Their work, however, has sensitised many to cultural and spiritual values of relevance in forests.

The history of conceptual frameworks within which gender issues have been addressed traces back at least to Boserup (1970), and progressed through Women in Development (WID, with a strong emphasis on women's economic roles) to Gender and Development (GAD, recognising the social nature of differing sex roles and the relevance of men, at least in theory) to Women, Environment and Development (WED, expanding attention to the environment). One concept particularly useful for forested areas is 'gendered landscape' (see various analyses by Rocheleau and colleagues, e.g. 2001).

In parallel, more academic fashion, there have been Marxist Feminism, Third World Feminism, and Feminist Political Ecology (Rocheleau 2008). Rocheleau *et al.* (1996) describe ecofeminists, feminist environmentalists, socialist feminists, feminist poststructuralists and environmentalists (see also Kurian 2000, or Sachs 1996, for useful summaries of varying approaches). The particular intellectual current within which one's research results are interpreted can result in widely varying policy implications. Given our own interest

in participatory approaches, we have found Rocheleau's (2008) discussion of the new 'political ecology in the key of policy' a useful combination of concepts to guide gender-relevant research.

In addition to these more philosophical frameworks, we mention here a more mid-level conceptual framework that has been helpful in gender studies. Pandolfelli *et al.* (2007) situate their work in an 'institutional analysis and development' conceptual framework that addresses gender in collective action and builds on an intra-household bargaining model.⁵ 'At the heart of this framework is the action arena, which is shaped by a host of initial conditions, including asset endowments, vulnerabilities and legal and governance systems that influence a range of outcomes' (p. 2). These authors provide guidance conceptually, in terms of global evidence, and with pragmatic questions pertaining to gendered motivations, effectiveness and impact.

A final warning relates to the willingness within forestry to ignore certain gender-related issues that foresters (and others) may find uncomfortable to discuss, study or even acknowledge. These include issues like HIV/AIDS (Lopez 2008), prostitution (Enloe 1990) and childbirth (Wan *et al.* 2011) – all of which have serious implications for women's (and men's) lives in and near forests, and need research attention.

5 A bargaining model of the household – popular particularly with economists and political scientists – builds on the idea of 'cooperative conflict', where members cooperate so long as it improves their individual position to do so. '[C]ooperation depends on members' contributions to the household, access to asset endowments and the consequent strength of their "fall-back" position' (Pandolfelli *et al.* 2007, p. 9).

2 Approaches and methods for use in the world's forests

Part 2 comprises four sections: the first (2.1) introduces some general purpose methods that can be applied within almost any conceptual framework or approach. Section 2.2 reviews methods for those with few resources (time, money, expertise); Section 2.3 reviews more 'academic' methods for those with access to more resources; and Section 2.4 looks at methods for participatory approaches (our recommendation, whenever the needed longer term resources are available).

In selecting among these approaches and methods, four general considerations are important to bear in mind. First, we need to consider who controls the research questions, process and findings. There will be instances where the researcher will control all of these (as is usual with biophysical research); but often in research with human beings, particularly when there are development, conservation and/or sustainability considerations, the more control that can be devolved to community members, the better.⁶ With care, research can have both capacity building and empowerment functions, and careful involvement of community members can seriously strengthen the quality of one's findings.

Many share our concern that sharing control with community members has an ethical element as well; people have a right to a say in how to represent their systems and in creating their own futures. Universities in the United States have stringent (sometimes overly stringent) ethics procedures and monitoring boards to ensure that researchers comply with ethical standards. Although we have mixed feelings about the American academic approach, we urge people in the forestry realm to consider this issue more

seriously than has been done to date. Behaving in an ethical manner toward the people with whom we work should be one of the most serious requirements of any research. Some minimal requirements include:

- developing a systematic process for ensuring free, prior and informed consent from those involved in the research – this means a *meaningful* process, not just lip service
- protecting people's anonymity or confirming their willingness to 'go public'
- taking care about issues of indigenous knowledge (which may mean a series of discussions with local people to determine their own wishes – some want to share, some do not)
- using pseudonyms for locations whenever one's research could conceivably endanger local people's rights or well being.

The second general consideration has to do with the notion of participation. Methods that are termed 'participatory' can mean very different things. Various authors, from Arnstein (1969) to Agarwal (2010), have put forth typologies of participation. These range from very passive forms of involvement (attending a meeting, answering a survey) to something approaching serious empowerment and (shared) decision-making power. In selecting methods for working with women (and men), we recommend approaches that tend towards the latter; see Manfre and Rubin (in press) for focused discussion of participation in the forest context.⁷

Thirdly, as noted above and throughout the collection by Bannon and Correia (2006), men are part of the problem – but the degree to which they can be part of the solution also needs attention. Hints can be found in a broad range of studies.

⁶ A fair amount has been written about the issue of 'free, prior and informed consent': Colchester and Ferrari (2007) provide a succinct and useful summary, with specific suggestions for implementing a reasonable process to protect people's rights to self-determination.

⁷ See Cooke and Kothari (2002) for some ways in which attempts to facilitate meaningful participation can go astray.

Mwangi *et al.* (2011), for instance, uncovered the advantages of mixed membership in forest user groups; Noss and Hewlett (2001) write of gender complementarity in hunting strategies among some hunter gatherers. Miller (2009) describes the birthing practices of the Raramuri of Mexico, and men's integral part in the process, which traditionally took place by a birthing tree in the forest. Sommers (2006) concludes his depressing account of Rwandan men's life experience by noting the '...energy, enthusiasm, creativity, resourcefulness and adaptability' that young men potentially have to offer.

The fourth consideration has to do with the strengths and weaknesses of each method. No method or approach is perfect; and different contexts require creativity and responsiveness in one's choice of methods. The most practical advice for overcoming known methodological weaknesses is to use multiple methods, to triangulate on the subject of interest (Behrman *et al.* forthcoming). In the subsequent sections, we organise our discussion of individual studies and methods into somewhat more abstract clusters, which can be called 'approaches,' though in a somewhat informal manner. These clusters are mid-level methodological abstractions.

2.1 Widely applicable methods⁸

We begin with four common, all-purpose methods (surveys/questionnaires, interviews, case studies and reviews of existing literature) that can be helpful within any conceptual framework or approach.

Surveys/questionnaires as a method can be quantitative or qualitative, although they predominate as the territory of the former. Strictly speaking, questionnaires are the quantitative form of surveys and are intended to be completed by the respondent. The qualitative form of surveys – the interview – is discussed below and is intended to be completed by the interviewer based on the interviewee's responses to questions.

Questionnaires can also fall into the analytical or descriptive category – a descriptive questionnaire describes the situation of survey respondents, whereas an analytical survey compares results among respondents to understand why a particular situation exists.

The benefits of questionnaires include the large amount of standardised data that can be collected from many respondents with relatively few resources. Questionnaires are less time consuming than other methods with regard to quantitative data collection. However, questionnaires are less flexible than other methods, for the questions are pre-determined. Such questions can be extremely difficult to write so as to accurately obtain the information needed and desired; pre-testing (and needed revision) in the appropriate context is critical. Researchers using questionnaires, unlike those using interviews, only get one chance to ensure that respondents understand their questions. Especially for sensitive topics, a level of anonymity – encouraging freer sharing of personal information – can be achieved through this method, which can also make it an appealing choice as a research method.

Interviews are closely related to questionnaires but allow researchers to overcome some of the drawbacks of questionnaires. They are useful as either a stand-alone method or used in tandem with questionnaires. One of the main benefits of interviews is the capacity to capture emotion and opinion. A striking example is the book by Townsend *et al.* (1995), which captures the difficulties of being a pioneer in the rainforest areas of Colombia and Mexico, by use of extensive quotes from women's interviews. In another extraordinary example of the difference that interviews can make in research, Willis (1981) follows several groups of working-class males within a largely working-class town in England. Although the context differs significantly for our own focus, the methodological value comes through clearly in this study, in which Willis uses the youths' own words from interviews to make sense of the common trajectory for youth from working-class families toward working-class jobs. The narrative of both these contributions illustrate the power that a research subject's own words can have in describing their situation, oftentimes much

⁸ A simple reminder: a gender lens requires that interviews be conducted with, surveys be administered to and cases be documented for both women and men. Male household heads cannot 'sit in for' or speak for women's responses, desires, needs, capabilities or interests (similarly, dominant ethnic groups cannot represent marginalised groups).

more powerful than the researcher's second-hand account of the same situation.

While there are many how-to guides for conducting interviews, there are few that push researchers not to just 'do' interviews, but to do them really well. Hermanowicz's (2002) article on interview techniques is one of a few published articles that attempt to push researchers past the normal conventions of social science interviews. He pushes the interview away from science and towards art, claiming that stringent procedures can stifle 'intellectual playfulness, making a method overly procedural and a researcher too shy, too polite'. In fact, this fluidity of the interview, its capacity to elicit surprising and insightful understandings, is one of its main benefits and one of the qualities that sets it apart from the questionnaire.

Interviews can also be undertaken with groups, often called focus groups. This method can be used in combination with the other methods described here, in order to gain a more nuanced understanding of community opinions and realities. Often, answers from a questionnaire, personal responses in an individual interview and group sentiments from a focus group will vary greatly, even when composed of the same individuals. The comparison of the answers received from these varying methods highlights the important role of the researcher/moderator in discovering 'the truth' within the research (Morgan 1996).

The third general purpose method we introduce is the case study, which has been used in a variety of ways. Within sociology, for instance, a case study method may be used to obtain in-depth, longitudinal data. Such cases can be singular or multiple in their focus, but regardless, the cases highlight a particular set of dependent variables that interest the researcher. Geddes (1990) highlights a problem with choosing cases based on the dependent variable, especially when doing qualitative work. She points to its leading to cases that can only be compared to each other rather than to cases that do not contain the dependent

variable, which may emerge as important in the course of the research. For example, for a case study analysis on gender and conservation within forestry, a researcher may select cases of successful and unsuccessful female-led forest conservation efforts; however, these selected cases all contain the dependent variable of female-led forest conservation efforts and therefore cannot be compared to communities where conservation is not taking place or even to communities where it is taking place but being led by male community members. Geddes questions whether one can assume that similarities between cases with the dependent variable would remain connected if they were compared to cases without the dependent variable.

Anthropological uses of cases tend to approach local systems in a holistic manner, seeing the interconnections among parts, rather than identifying dependent/independent variables. The more qualitative anthropological uses may include life histories, which provide insights into changes that have occurred in a particular context over time, as was done by Townsend *et al.* (1995). Selection and quality of such cases depend on the level of rapport between the researcher and a person willing to share his/her life history. In participatory research, one might, for instance, select cases based on community characteristics that are thought to impinge on possible adaptive management (e.g. Colfer 2005).

Cases can also be selected randomly. But outlier cases are often selected, to show the range of variation and/or to reveal insights unlikely to emerge by looking at typical cases. Case studies are an important method in the researcher's toolkit; they are often one of the best methods that researchers have at their disposal to break down the binaries that so often plague their work – binaries such as successful/unsuccessful, forest/agriculture, male/female, rural/urban, etc.

The utility of conducting a review of the relevant literature as an early step in any research process almost (but not quite) goes without saying.

2.2 Methods for those with few resources (time, money and expertise)⁹

In this section, we imagine several situations in which relatively quick methods may be selected:

A small team of biologists and ecologists are managing a wildlife reserve. They realise they need to incorporate men's and women's concerns into their project. But they have no training in social science, no access to a suitable collaborator and no funds to hire someone to undertake such research.

A new graduate in anthropology is hired to join an interdisciplinary team on a short-term basis. She has been well trained, but in a very academic anthropology department and therefore has very little idea of what issues may be important to the foresters and ecologists with whom she's working. Nor has she ever visited the field site prior to the project's start.

A biologist who works for a donor has a minimal amount of money available for evaluation at the end of a project. She wants to get some idea of how well the project performed, and she knows that her colleagues will only accept some quantified results.

Each of these persons has very limited time and money available. Each may be floundering, unsure of how to proceed. Sadly, this is a common situation in today's tropical forests – and goes a long way toward explaining our lack of progress in addressing the oft-recorded and analysed gender problems.

Before suggesting some of these quick and widely-available methods, however¹⁰ – sometimes called participatory or rapid rural appraisal techniques – we stress some of the dangers of using them on their own (i.e. without longer term, contextual knowledge); still, we do feel that *some* information on gender issues is in most cases better than *none*.

⁹ There are personality factors involved in the choice of methods and approaches as well. Those who thrive on action and seek adventure may prefer these quicker methods to the longer-term ones we advocate below. The choice of methods also has an ethical dimension: in this case, wrong understandings can lead to bad policies/decisions that have adverse effects on local women and men. We only include methods in this review that we consider worth doing.

¹⁰ We do not list all the methods because of their large numbers. Many are given as examples in the subsequent text.

- *The likelihood of misunderstanding and error is much higher with a quick visit than with sustained involvement.* Conducting interviews is often seen as simple – ‘you just ask people’ – by those trained in fields other than the social sciences. In reality, the ability to gather accurate information, in ways that do not harm people, and that reflect the variety extant in any community, takes sustained training and is a difficult skill to acquire. Behrman *et al.* (2012) describe some of the dangers.
- *Diving into a new community without knowledge of the existing social structure (the different ways that people group), including possible political factions, can raise barriers difficult later to overcome.* It can mean the researcher fails to gain the views and perspectives of whole segments of the community (the women, marginalised ethnic groups, the poor, the poorly connected). These other axes of marginalisation apply to women as well as men and need consideration. Women do not form a homogenous mass, and their views are often more difficult to access for male researchers. Such social structural differences – not typically immediately apparent to newcomers – often coincide with differing long-term goals and uses of the forest; they can also have inequitable implications for benefit sharing.
- *Beginning work in a new community without first establishing trust and rapport can easily lead to lies and misrepresentation* from community members, particularly if there is a likelihood or possibility that you ‘come bearing gifts’. Lack of understanding of local symbolic and value systems can result in serious misunderstandings – both in terms of the quality of your research results and in your relationships with/impact on local people.

The advantages of these methods can include their speed, their inexpensiveness and how they provide a quick look at community realities. Such methods can also serve as entrées, ways to meet a few community members, establish early levels of rapport and explain your own purposes in being there.

There are many names (RRA, rapid rural appraisal; PRA, participatory rural appraisal; RAAKS, rapid

assessment of agricultural knowledge systems),¹¹ for these quick assessment techniques, which we will simply call PRA henceforth. There are a large number of excellent compilations describing them.¹²

The interest in assessing men's and women's relationships with natural resources gained prominence in the context of WID and farming systems research in the 1980s and 1990s. Two of the best early compilations focus on agriculture:¹³ a two-volume set by Feldstein and Poats (1989) focused on cases, while a follow-up book (Feldstein and Jiggins 1994) listed many of our favourite PRA tools. Many of the more general-purpose methods collections include methods of relevance to gender in forested contexts. Geilfus (2008), for instance, succinctly describes 80 useful PRA tools, including a 20-page section on participatory appraisal in natural resource management, as well as introductory commentary on skills needed and care required in implementation.

One fairly quick but often useful method that came from this earlier period is the *sondeo* (Hildebrand 1981), a technique in which an interdisciplinary team divides itself into pairs, and wanders the community, fields, and potentially, forests of a community of interest for perhaps a week.¹⁴ The groups reconvene each evening to discuss their findings. The variety of disciplines ensures that the local reality will be examined through different conceptual lenses and with differing bodies of knowledge. Field visits of any kind, together with policy makers or other decision makers, can be valuable learning experiences,

making rural realities more evident and more likely in future to be taken into account (a topic about which Robert Chambers and his colleagues at the Institute for Development Studies in Sussex have written extensively; see e.g., <http://www.pnet.ids.ac.uk/prc/>).

Insofar as gender concerns have been addressed within forestry, the use of these quick methods has been most common. One of the best of these, dealing particularly with forests and the people who inhabit them, was published as a set of eight short volumes by the Food and Agriculture Organization (Wilde and Vainio-Mattila 1995). The set begins by explaining 'how forestry can benefit from gender analysis'. It then goes through a series of steps (and associated booklets) involving training of management, and then field level personnel. The set provides case studies and guidance on planning and carrying out participatory training workshops, and on using RRA techniques to develop further case studies. Their booklet *How to use RRA* has particularly clear descriptions of the following valuable and quick tools: transect walks, mapping, seasonal analysis, trend diagramming, matrix/wealth ranking, Chapatti [or Venn] diagramming, and SWOL analysis (more often called SWOT; Strengths, Weaknesses, Opportunities and Limitations/Threats).

The Center for International Forestry Research (CIFOR) has also produced a number of short methods booklets of relevance. Two early ones were *The BAG* (Colfer *et al.* 1999a) and *The Grab Bag* (Colfer *et al.* 1999b). These were developed for use in quick assessments: to define and evaluate human well being in forests, with the former containing simpler methods than the latter. Each book is divided into categories designed to assess particular issues that CIFOR had defined as integral to human well being, specifically on stakeholder identification, security of intergenerational access to resources and rights, and means to manage forests cooperatively and equitably.¹⁵

11 IIED (1994) has a listing of 46 such participatory methods.

12 These range from Hildebrand's (1981) *sondeo* method to a 468-page compendium (Mukherjee 2012), advertised in Practical Action Publishing (2012), with a steady stream of such contributions in between.

13 The omnipresence of agricultural systems within tropical forests is as clear as the relevance of these books.

14 See Colfer (1991) for descriptions of two *sondeos* performed iteratively to guide research emphases in a farming systems project in West Sumatra, Indonesia; they resulted in a shift of some research effort to home gardens where women (and, in some cases, trees) dominated. On an earlier occasion (during a trip in 1982), Colfer participated in a *sondeo* on the Big Island of Hawaii, in which agricultural scientists originally from that island gained insights they considered shocking into women's roles and farming systems they had assumed they knew well.

15 In 'tests' of these methods, CIFOR teams did not necessarily address gender concerns well, despite the leaders' encouragement to do so. Interestingly, and reflective of the difficulties in securing attention to gender in forests, in this second-stage research, only 5 of the 11 chapters emanating directly from the methods research addressed gender – all chapters led by women: Colfer *et al.* (2001), Colfer and Wadley (2001), McDougall (2001), Porro (2001) and Tian (2001).

As research interests have moved towards the landscape level and climate change concerns – expanding the scale¹⁶ and geographical scope of our purview from a single community or forest type – local people’s interests and goals for the future become even more central. Excellent and quick methods for assessing such hopes among forest communities are available in Wollenberg *et al.* (2000), Nemarundwe *et al.* (2003) and Evans *et al.* (2006). Cronkleton (2005), for instance, used future scenario methods in Bolivia, and found real differences in the preferred and imagined futures among men and women, as did Djoudi and Brockhaus (2011) in Mali (see Section 2.4).

CAPRI (Collective Action and Property Rights, a system-wide initiative within the CGIAR) has coordinated a wide range of relevant research, with particular sensitivity to land tenure and common property resources. Its recent book, *Resources, Rights and Cooperation* (CAPRI 2010), highlights a range of issues and experience of relevance in the management of natural resources, including a long chapter specifically on gender; see also Pandolfelli *et al.* (2007).

2.3 Methods for those who have relevant social science expertise easily available¹⁷

These methods are clustered by mid-level ‘approach’: use of existing documents, quantitative and qualitative analyses, computer-dependent methods, ethnography and interpretive methods. We anticipate using these, for instance, in one of the following scenarios (among others):

A graduate student or professor seeks to conduct research that will contribute to knowledge/understanding that will eventually provide benefit to forest people. The most likely pathway for such benefit will be through

16 Scale issues have also been addressed in the more systematic research discussed in the next section (e.g. Paulson and Gezon (2004); or the special issue of *Geoforum* edited by Elmhirst (2011)).

17 We initially framed this kind of study in terms of ‘academia’. However, we realised that many people outside academia have these same kinds of expertise and may have the same kinds of research inclinations. One potential ethical issue is the possible time lag between conduct of the research and its availability for use by policy makers and decision makers. Use of local people’s time without immediate positive advantage is another important issue.

publication in peer-reviewed journals, and subsequent use in training of others, who may eventually be able to use it directly in policy making or in interaction with communities.

A consultant is given sufficient resources (time and money) and asked to provide good scientific analysis on a specific topic for which quantitative data are already available. She is asked to analyse the data and put it into a qualitative context, in order to guide decision making within a project or policy within a ministry.

There are a number of key differences between this range of methods and the previous, PRA type set. These include:

- the existence of a widely accepted theoretical and methodological grounding for the research
- focused training or past experience by the researcher on the topic to be addressed and the methods to be used
- evidence of either the replicability of the findings or the production of evidence-based, key insights into historical trends or the interactions among parts of key systems
- a high likelihood that the results will be publishable in accepted scientific journals¹⁸
- a sufficient time frame in which to conduct the research (often, though not always, considerably longer than that required for PRA approaches).

We acknowledge that there can be considerable methodological overlap; researchers often use more than one method¹⁹ in an attempt to triangulate and provide more believable evidence – evidence that is more likely to be correct and usable.

Although each of these methods has advantages and disadvantages of its own, we first list here some general constraints:

- *Individuals with the skills to conduct these methods may use conceptual frameworks and terminologies that are alien to foresters.* This

18 In the phrase ‘accepted scientific journals’ we include journals from the social sciences.

19 We support Mai *et al.* (2011), who strongly urge such ‘methodological pluralism’ in attempts ‘to understand the drivers of gender-differentiated outcomes in order to inform policy and practice’; also urged by Behrman *et al.* (forthcoming).

can result in an inability or unwillingness by foresters to make use of the results.

- *The results from these studies are likely to be publishable in social scientific, refereed journals, which typically means long lag times between conducting the research and using the results. Use in practice may have to wait until a policy maker encounters the materials in a course of graduate study or by a practically oriented grad student. By the time they are used, it is also possible they will no longer be relevant.*
- *The in-depth training social scientists have gained often reduces their exposure to biophysical sciences. Although there has been considerable progress in academic openness to interdisciplinary approaches, the problem has not yet been fully solved. Many social scientists are still likely to need to learn how to be alert to the issues of relevance for actual forest management.²⁰*

On the plus side, these kinds of in-depth research yield more believable results: some can clarify interconnections among parts of systems; others may be able to establish causal relationships among variables. Such methods can contribute to a strong scientific reputation for the group conducting the research (via publication in high impact journals).

2.3.1 Use of existing documents

Extant materials on gender can be mined, often in new ways, based on our growing understanding of gender dynamics. The main disadvantage to this approach is our inability to overcome biases in what has been recorded. The views and experience of the marginalised (women, other forest dwellers) are likely to be under-represented ('history is written by the victors') – a point well noted and illustrated in Wardell's (in press) study of shea in Ghana. But important historical, contextual and legal insights can still emerge.

²⁰ Meinzen-Dick *et al.* (in press) noted there has been increasing 'cross-training' in water resources and, perhaps to a lesser extent, in agriculture. Within forestry, a few universities have begun to make such links (e.g. Yale University in the US; the University of British Columbia, Canada; Wageningen in the Netherlands; and Swedish Agricultural University in Umea, Sweden), but these remain insufficient. The flip side of this concern is that foresters may be equally 'clueless' about the important issues in gender studies. For that reason, in addition to strictly reviewing the available methods here, we strive also to give some sense of the issues to address.

Perhaps the most traditional form of this method is archival research. Many countries have national archives that are open to researchers. Especially within formerly colonised countries, exceptionally detailed records have been maintained documenting the progression of forest management, conservation and creation of national forest spaces. Far from being spaces of stagnant or obsolete knowledge and documents, archives have become 'an arsenal of sorts that were reactivated to suit new governing strategies' (Stoler 2009). Working in the forests and plantations of northern Sumatra, Stoler points out that archives are not only still important for current policies, but were just as important when they were being written; they contain not only copies of official documents, but also letters, narratives, personal notebooks and diaries. Stoler (2009) is quick to point out that there is no one viewpoint to be discovered in the archives, but many waiting to be unravelled by the researcher. Oral histories, which represent opportunities to hear more directly from individuals, can sometimes be found in such archives (or in other written sources; Wardell 2004), though women's voices are rare.

Existing policies can be analysed for their intended and unintended gender-related consequences. Kurian (2000) examined the World Bank's environmental policies through a gender lens. One of her central conclusions was that the effort to 'mainstream' women was marred by fundamental contradictions among the World Bank's own policies on women, the environment and development (hopefully improved for the 2012 World Development Report). Kurian's analysis was strengthened by follow-up examination of the documents from a World Bank project in India, where she found, for instance, an unwillingness of elites to share information with communities; lack of recognition of women's active economic roles; adverse effects on women emanating from forced interactions in resettlement locales between the comparatively egalitarian tribal groups and the dominant Hindu caste society (also noted more recently in India's forests by Bose's more ethnographic 2011 study).

Another method is the analysis of legal code to better understand the rules and regulations that govern the lives of research subjects. Bandiaky-Badji (2011), for example, examines Senegal's laws,

seeking to understand the effects of recent reforms on women's access to land and forest resources. Her findings contribute to our understanding of both the background and the current barriers at the national level that confront those in search of gender equity (see Nussbaum *et al.* 2003, for a collection of similar studies in India). Mata and Sasvári (2009) examine the Convention on Biological Diversity, analysing its real and potential impacts on women's rights/equality, particularly relating to access and benefit sharing.

Many authors review the available literature on a particular ethnic group or locale to illuminate key contextual factors that lead to discrimination against men or women, constrain the behaviour of one or the other or lead to leadership and self-actualisation (see e.g. Stoler 1992). Shanley *et al.* (2011) integrate gender-related data from the records of the National Council of Extractivist Populations with gender-, health- and forest-focused workshops and interviews to trace the evolution – from insignificance to significance – of women's involvement in Brazil's rubber tappers movement. Meola (2012) complements her ethnographic study with careful examination of the records (from the local communities and from the NGO managing a 'sustainable development reserve' in the Amazon) to assess the reserve's impacts on local gender relations. Or see Chevannes (2006), who uses historical documents to examine (and critique) ethnographic, demographic and sociological analyses from the 1900s as they portray gender roles in the Caribbean – with a rare emphasis on men, demonstrating these men's day-to-day marginalisation.

2.3.2 Quantitative and statistical analyses

One of the most popular (and globally prestigious) approaches within many of the social sciences is statistical analysis. Such analyses are a particularly preferred method with large databases, though such databases have often failed to address gendered patterns (discussed in Behrman *et al.* 2012).

Quantitative or statistical analyses may be warranted when seeking, for instance,

- a sense of national or global patterns, with appropriate representation

- determination of causal links among factors²¹
- comparative assessments (e.g. of impacts, coverage or incidence)
- greater acceptance of the findings within fields particularly devoted to quantification.

Such methods can also be used with smaller data sets, though significance may be more difficult to establish with small numbers of observations ('n's).

Some of the disadvantages can include:

- a lack of comparably relevant factors from group to group or context to context and resulting ambiguity in responses/results²²
- great distance between the models used and reality
- difficulty for some users understanding the complex, statistical formulae used
- analyses valid at an aggregate level, but less valid at more local levels (though collecting intra-household data or further analysis of subsamples – 'drilling down' – can often address this issue)
- a shortage of relevant large-scale data sets.

But some excellent examples do exist. Mabsout and Van Staveren (2010) aim to identify the determinants of negotiating power within marriages – an issue as relevant to gender studies in forests as elsewhere (discussed also in Colfer 2011). The authors use the 2005 Ethiopia Demographic Health Survey, which sampled 14,500 households and was representative of all Ethiopian adult women. Their selected subset of households, in which husbands were also interviewed, yielded a couples sample size of over 3,000 households.²³

21 The appropriateness of concluding causation is the subject of some controversy within social sciences (thanks to Meinzen-Dick for reminding us of this). Correlation and causation can easily be confused.

22 One quantitatively sophisticated study of Ghana's matrilineal Akan, for instance, investigated transfers of wealth (land, education) from parents to girls and boys. Yet it lumped the mother's brother, a typically crucial actor in land distribution in matrilineal societies, into a less-analysed category called 'extended family' (e.g. Otsuka and Place 2001; Quisumbing *et al.* 2004), seriously undermining the utility of the study.

23 A subsample of forested areas of Ethiopia could be analysed. This study, like many, does not indicate the habitat from which the subsample was drawn.

After specifying their conceptual framework,²⁴ the authors examined factors related to women's status and bargaining power (educational achievements, access to resources, individual and ethnic attitudes toward wife beating and female circumcision) at individual, household and institutional levels. Among their conclusions were the importance of looking at ethnic and other sorts of variation (one size does *not* fit all); and among groups with high levels of gender inequality, institutional (or group) approaches to change are likely to work best.

Two additional exemplary gender analyses (reported in Sun *et al.* 2011 and Mwangi *et al.* 2011) attempt to assess the relative value of different gender combinations in user groups designed for forest management. Using IFRI's (International Forestry Resources and Institutions) excellent, long-term dataset from 15 countries, these authors used data from Kenya, Uganda, Mexico and Bolivia. The studies investigated the relationships between gender composition (all male, all female or mixed) of user groups and forest management, between 1993 and 2008. They specifically investigated issues like rule-making, enforcement and exclusivity of access to forests (Sun *et al.* 2011); and monitoring/sanctioning, regeneration activities and technological improvements (Mwangi *et al.* 2011). In both cases, the studies complemented use of descriptive statistics and regression analysis of the IFRI data with focus group discussions.

On a small scale, Lyon and Hardesty (2012) studied knowledge of medicinal plants among the Antanosy of south-eastern Madagascar. After their census identified 1800 households, the authors statistically determined an appropriate sample size (159 each, men and women over 18 years of age), stratified across 7 villages. Their research was based first on free listing by each respondent of the plant species he/she knew to have medicinal properties (239 species from all respondents in total). A second phase, with a new respondent

sample, asked respondents to name one or more health conditions treatable by each of 14 most commonly mentioned individual plants. Using regression analysis, the authors found, for instance, that although there were no statistically significant gender differences in the initial free listing results, there were highly significant differences in terms of medicinal use knowledge. Men knew more uses of medicinal plants from the forest; women knew more uses of plants from the village and the buffer area between village and forest.

A method requiring less statistical expertise, but still quantitative and very flexible for descriptive gender analysis, is observational time allocation studies.²⁵ These were first described by Johnson (1975), who developed the method among the Machiguenga in Amazonian Peru; it was used repeatedly thereafter by Colfer (1991, 2009) and Colfer *et al.* (1999c) in Sumatran and Kalimantan forests. This method ideally follows a full year (to capture seasonal variation), with random or rotating visits to families throughout a particular community (or landscape), according to a schedule that covers the usual waking hours. The activities of each family member are then observed and noted, with gender, age and any other demographics of interest. Assistants can be trained to conduct the interviews/observations.

Perhaps because of the newness of gender-oriented attention to men, several such studies have been descriptive and based largely on existing government or international statistics: Jacobsen (2006) on men's issues globally, for example, or Alcaraz and Suárez (2006) in the Americas. For women, the SIGI index mentioned earlier also relies heavily on existing descriptive statistics. But rarely are such data clearly linked to forests.²⁶

²⁴ Lack of a conceptual framework in the use of quantitative methods can result in 'fishing trips' among statistics (picking and choosing variables that demonstrate statistical significance likely to be spurious) – not an approach we recommend.

²⁵ See Whitehead (1999), for some of the dangers of using pre-identified classifications of activities in time audits (a somewhat different method than the one proposed here). Her study shows significant under-estimation of rural Zambian men's work, based on time audits. She also notes a double standard: when Zambian men do little domestic work, they are labeled 'lazy'; not so Western men with the same failing.

²⁶ One possibility is that such data do exist in government ministries/departments, unknown to gender scholars; however, a focused attempt to assess women's involvement in Africa found a real dearth of available data (FAO 2007).

2.3.3 Computer-dependent methods²⁷

There is, of course, a growing awareness of the potential of computer-assists for improving our research.

Potential problems include logistical risks of power failures in the field or computer crashes; external control of – and resulting potential inaccessibility of – needed data; and two emotional elements pertaining to users: a potential love affair with the technology that can result in the users ignoring or warping reality to fit with the technological requirements, or ‘cyber-angst’ for those who fear such technology.²⁸

Advantages are abundant too, however. Computers are speedy, capable of processing vast amounts of data quickly. Software can turn numbers into pictures ‘worth a thousand words’. Computers open up new possibilities. We highlight four studies that have been used in connection with forests and gender.

Meinzen-Dick *et al.* (2012) have mapped patterns of gendered farm management using GPS coordinates and GIS technology, supplemented with workshops, internet surveys and interviews. The relevance of this mapping effort for forestry and trees includes the centrality of swidden agriculture in many forested settings, and the important, under-recognised roles that women tend to play in such systems (see Boserup 1970, for an earlier, less refined, gendered map of farming systems in Africa). Meinzen-Dick *et al.* (2012) stress the importance of identifying/selecting the scale at which to map, differentiating ideal from actual behaviour, and attending to the personal characteristics (gender, nationality, experience) of individuals contributing their expertise to map construction.

Kelly (2009) combined remote sensing, ground truthing, participant observation and regression analysis in El Salvador to assess the gendered implications of forest cover change. She found that, although reasons differed by region of

the country, ‘in all regions, the increase in the proportion of women working in agriculture had a positive effect on forest cover change’.

The Galileo method (Woelfel and Fink 1980) provides another kind of mapping, in this case, *cognitive* mapping. It has been used repeatedly in gender studies in Indonesia’s forests.²⁹ Neuroscientists consider that people’s concepts have a physical basis as clusters of interconnected neurons, while social scientists generally consider these to be cultural, transcending individual brains, forming clusters of neurons distributed across many brains, and interconnected by social networks (Woelfel 2010). Identifying which concepts are relevant for any given topic begins with a few interviews on that subject (see spinoff software, CATPAC, used in gender analysis by Tiani (2001) in Cameroon’s forests). Distances among these concepts (representing the interconnections) are measured by a survey instrument that pairs 10–20 key local terms, each with every other, followed by computer analysis using Galileo software.

The method is particularly useful in comparing cognitive features from one group to another (men to women, as was done in the US by Woelfel and Fink in 1980, who measured emotional states), and/or over time. The visual outputs (maps) are convenient for rendering the computer’s complex mathematical calculations clear to those interested in the results; the resulting data (means matrices) are flexible and fruitful for subsequent analyses – whether disaggregated by gender of respondent or by terms for men and women included in the survey instrument. Besides the mapping function, these results can also be used to fashion extension messages more effectively based on local concepts and world views.

A final approach within this methodological realm is system dynamics modelling, discussed in its

²⁷ Additional discussion of modelling is provided in Section 2.4.

²⁸ At the risk of betraying prejudices, the first failing seems more often to afflict men than women researchers; and the second, the reverse.

²⁹ These studies have clarified forest-related gender (and age) differences in values and perceptions in two communities in East Kalimantan (Colfer 1981); documented gender (and ethnic) differences among indigenous and transmigrant farmers in forested West Sumatra (Colfer *et al.* 1989; Colfer 1991); and in West Kalimantan, described elements of gender and forest management first (Colfer *et al.* 1997), then gender differences related to forest conservation (Colfer *et al.* 2001).

participatory mode in the next section. It can, however, also be used as an extractive method.

2.3.4 Ethnography

Ethnography has been one of the least utilised methods within the world of forestry, yet its potential contribution is enormous, doubly so in gender studies. This advantage derives from its utility in clarifying interactions (such as gender dynamics) and previously unrecognised links among elements of social systems (e.g. the interplay among men's and women's varying group memberships – within age, kin, ethnic, religious and other social groupings). Ethnography's capacity to document and provide evidence of value systems – the meanings that so powerfully influence people's decision making – is another under-recognised strength.

Ethnography relies normally on participant observation as its central method – typically supplemented by others. One 'given' is the requirement for a long period in the field – from six months to two years or even longer – to ensure attention to seasonality and other relevant cycles; another is competence in local languages; yet another is strong rapport with the people under study and testing of one's growing understanding (gained by serious attention to one's own cultural assumptions, as well as constant checking and re-checking about assumptions and evidence). One checks one's observations by small hypotheses tested through continued observation, or by other methods (surveys, interviews, recordkeeping, etc.). Careful, daily note-taking on one's observations is also important. This compendium of often year-long notes may form the bulk of one's evidence, one's 'data', in anthropological terms. Emerson *et al.* (1995) provide a helpful guide on how these notes should be taken, how often, their content, and periodic review for progress of the research and for final analysis.

The disadvantages to ethnography include its usually micro-level scale – ethnography cannot cover large numbers of people or vast geographical areas. It is not intended to provide a 'representative sample'. It takes time; it requires language skills that may be difficult to acquire; and in forests, it is likely to involve physical discomfort, health hazards and sometimes other dangers. The strong

anthropological tradition of often harsh *critique* has alienated some potential users. Other potential users may be put off by the need to read whole books or long articles rather than being able to access results in short or graphic form.

Several such studies are briefly described here to provide a partial sense of its value to those seeking to understand gender dynamics in forests. Schroeder (1999) examined two historical shifts in relative power between men and women in a Gambian community, over a five-year period. The women first gained in status (by growing profitable gardens), followed by men's reassertion of their authority, as these areas became men's orchards. Schroeder details the complex negotiations, use of cultural symbolism and tricks played by all, including a significant role for international research and development (shifting from an emphasis on gardens to agroforestry). Other recent, exemplary gender- and forest-relevant ethnographies from Africa include Gezon's (2012) study of *khat* in Madagascar; Veuthey and Gerber's (2010) description of gender-differentiated experience with and perceptions of the timber species Moabi in Cameroon; and Chalfin's (2004) focus on shea in Ghana, which traces the woman-dominated commodity ethnographically, historically and geographically in a remarkably wide-ranging manner. Barker and Ricardo's (2006) study, though not technically an ethnography, builds on ethnographic understandings to convey the dilemmas and expectations pertaining to men in southern Africa (findings echoed by Silberschmidt 2001).

In a 2005 book called *Friction*, Tsing builds on her long term, ethnographic knowledge of the Meratus in the forests of southern Borneo (Tsing 1993) to show how global trends and external policies impinge on local men and women, but are also influenced by them. Tsing notes how a wheel 'spinning in the air ... goes nowhere ... As a metaphorical image, friction reminds us that heterogeneous and unequal encounters can lead to new arrangements of culture and power'. Such encounters are eminently relevant to life in tropical forests. Other useful forest- and gender-related ethnographic analyses from Asia include Gupte's (2004) comparison of the differing gender effects of India's Joint Forest Management in communities that differed with

regard to NGO involvement and ‘... traditional societal constraints, gendered institutions and lack of interest on [the] part of the implementing agencies’; see also Agarwal (2001) on India and Nepal; or the comparison of gendered roles in and attitudes toward forest management in India and Sweden (Arora-Jonsson 2005, 2009). Cairns (2007), in examining the use of alder trees in a swidden system among northern India’s Naga, also discusses the differences between men’s and women’s roles and related changes over time. Yen (2009) shows how Chinese government actors, in cahoots with local Shan men, use widespread myths about minority Shan women’s abilities to control their fertility to reinforce family planning policies, with adverse effects on local women’s health and lives.

One of the earliest studies of gender and forests was undertaken in 1952, by Murphy and Murphy (1974) in Brazil. It documented the changes in gender relations – these authors were far ahead of their time – as the Mundurucu moved from a forest life into towns. Townsend *et al.* (1995), who focused on the lives of women pioneers in Colombia and Mexico, portray the views and feelings of these women, effectively using life histories to convey their experience.³⁰ Meola (2012) assesses the conduct of long-term, collaborative management on men and women in the Mamirauá Sustainable Development Reserve in Brazil, with particular attention to the development of women’s leadership. Boyd (2009), based on a shorter period of fieldwork, examined the impacts of a climate change project in/near Bolivia’s Noel Kempff National Park, concluding that the project had addressed some practical, but no strategic, gender needs.³¹

Oral histories, mentioned above as a possible archival approach, can also mesh relatively

seamlessly with ethnographic methods. Within the past two decades, the use of oral histories has grown in popularity. Users of this method view it as a way to obtain greater authenticity. Such methods can be used to help marginalised research subjects find their voice (see e.g. Townsend *et al.* 1995). Oral histories of women’s lives can present a new outlook on the same set of events that may previously have been presented by male ‘representatives’ of female research subjects. Wardell (2004) also suggests oral histories as a way to circumvent issues of illiteracy, a common problem for researchers working in rural or developing areas, such as tropical forests.

Especially interesting for forest researchers is the work of Walker and Peters (2001) and Peluso (1995), who use oral histories from forest communities in ‘countermapping’ – a technique that attempts to understand local communities’ perceptions of land use rights and territory. Walker and Peters point out that local perceptions may differ significantly both within a community and between various segments of that community and powerful outsiders. Oral history as a method has many benefits, but even early on, researchers were also concerned about the inevitable biases that researchers carry and how that might affect the story they receive. Clifford and Marcus (1986) defined oral history as a ‘morally charged story’ about an ethnic minority group, of which many forest communities are members. More recently, Kim (2008) also criticised the oral history method and oral historians for the reason that they ‘... are surprisingly silent on the fact that their research programmes are socially situated and thus profoundly influenced by the cultural biases on the basis of race/ethnicity, gender and class that researchers inevitably carry’. Situating such stories within an ethnographic context can address some of these critiques.

Symbolic analyses, a kind of bridge between ethnography and the interpretive methods discussed in the next section, have been widely used in gender research. Alcaraz and Suárez (2006), for instance, though building on statistical and other descriptive material, analyse elements of a system of values that maintains and encourages male violence in Colombia – also common, of course, in forested contexts. Correia and Bannon (2006) stress the ubiquity of ideals of ‘hegemonic

30 These authors also express the inherent contradictions or inevitable misrepresentations in outsiders such as themselves portraying the views of forest women; they describe their book as a co-production between themselves and the women they interview.

31 By ‘practical needs’, Boyd refers to e.g. health, education, income-generation and food production. ‘Strategic needs’ are efforts that could empower women, challenge existing gender roles and bring about gender equality.

masculinity',³² or expectations that men will be strong, good providers, in control of their households – often in contexts where such roles are impossible to fulfill³³ – cf. the low wages received by loggers and prostitutes in tropical forests. Leve (2007) examines women's involvement in Nepal's Maoist uprising (conducted from forests), and concludes by questioning the usual economic and political explanations, suggesting instead that Gorkhali women's support for the rebels is '... based on morally-grounded ideas about social personhood in which self-realisation is bound up in mutual obligation and entails personal sacrifice'.

2.3.5 Interpretive methods

Interpretive methods progress a step further along the science-to-art continuum, and as such the forest community may be more resistant to using them as a guide in managing forests more effectively. Yet such methods can provide key insights about gender relations and values relating to natural resources. Novelists and artists can often capture touchy subjects, relatively inaccessible by conventional means.

The disadvantages include the subjectivity of the approach; and one's uncertainty about how widely the findings may apply. Forestry researchers may find the use of such methods just too alien.

Jassal's (2012) book on folksongs of North India, for instance, would almost certainly never be found by a forester in search of gender methods – indeed, we almost discarded it before reading it ourselves. Jassal's book builds on over five years of research on a variety of topics in North India. She collected songs sung usually in groups by women and men.³⁴

32 Not all systems manifest 'hegemonic masculinity' as an ideal: cf. the Raramuri in Mexico (Miller 2009); the Kenyah in Borneo (Colfer 2009); or the Qhawqhat Lahu of southwest China (Du 2000).

33 Hegemonic masculinity has been addressed from numerous perspectives: see Moore (2009) on symbolically masculine images of sperm; or Açıkoş (2012) on related implications for injured Turkish war veterans.

34 In this research, the author regrets her own reduced access to men and their songs – just as men are likely to suffer in trying to understand women's lives.

Women, particularly lower-caste women,³⁵ sing routinely about their lives – at home, at work, with their mothers in law, with their husbands and brothers. Jassal's approach produced abundant, potent images and findings about local gender relations and gender dynamics. An older, more forest-focused study of the Temiar of Malaysia analyses local 'healing sounds', and also includes abundant insights on gender relations as well (Roseman 1991).

Another area that researchers may find methodologically useful is a careful reading of a country's artistic literature on gender and forests. For example, within Indonesia, the expected role of women in society has changed considerably over the decades. Comparing these changing roles as they are presented in classic Indonesian novels such as *Sitti Nurbaya* (Rusli 1922), *Dibawah Lindoengan Ka'Bah* (Hamka 1962), *Le Barka* (Dini 2000), *Bawuk* (Kayam 1975) and/or *Saman* (Utami 1998), leads to useful insights about culture change in Indonesia's forests. Such a reading, whether in Indonesian or in English translation, provides a researcher with a broad historical development of women's and men's positions in society. For example, the earliest novels, *Sitti Nurbaya* and *Dibawah Lindoengan Ka'Bah* show the nascent displeasure with arranged marriages within traditional communities in Indonesia, including forest communities, and the strength it took for those who initially resisted the practice. Interestingly, the authors of both these books were male, writing about women who were opposed to forced marriage. The later books connect the politics within Indonesia to the changing gender dynamics that were taking place within Indonesia and abroad. *Saman* provides an especially poignant example of the changes that have taken place within Sumatran forest communities recently, in connection with palm oil development. A reader of these novels starts to understand the fluidity of gender relations throughout time within one geographical area and gains a better understanding of the historical progression of those relationships.

35 Surely among the most difficult groups for foresters to access – because of their low status, low educational levels, shyness before strangers (particularly educated men), lack of time and lack of day-to-day self-determination.

Another approach, perhaps less alien to the forestry profession, is the use of participatory photography, discussed in Section 2.4.

2.4 Methods/approaches for those with adequate resources (money, expertise), striving for long-term and beneficial development³⁶

We are imagining here a scenario resembling one of these:

An interdisciplinary team has just received a generous grant to conduct participatory research on adaptation to climate change. Its funding is for a 5 [to 100]³⁷ year period in one or more rural, partially forested landscapes. The researchers have access to social science expertise, but remain uncertain about how to address gender most effectively and productively.

A forest scientist, very committed to involving communities in formal forest management and aware of indigenous management currently practised, has been hired by the Ministry of Forestry to help them manage local forests in a more harmonious and collaborative fashion. He has had no experience working with communities nor has he had training in social scientific methods, but he has been given funds and told to 'be creative'.

We see long-term, participatory³⁸ or collaborative research and management with communities as the

36 The ethical issues here are addressed in the last subsection, including difficulties of getting long enough funding for effective follow-through, unanticipated potentially adverse culture change, and possible increased involvement of outsiders uninterested in the well being of local women and men. The use of 'beneficial' in this subtitle is intended simply to emphasise the greater potential for long lasting positive effects of this approach; it does not imply that other approaches are malevolent (thanks to Cynthia McDougall for pointing out this possible interpretation).

37 A 100-year cycle was suggested recently by Karim-Aly Kassam, at the Cornell Law School's international workshop on '*Women, sustainable development and food sovereignty/ security in a changing world*' (31 March 2012). His argument was that this would allow genuine monitoring of climate change and adaptation to it; and minimise the problem of scientists' egos getting in the way (since the conclusion of the project would be in the future for any but the very last involved).

38 By 'participatory' we refer to the intensive, collaborative decision-making model, designed to empower local users and communities – called 'interactive (empowering) participation' by Agarwal (2010).

approach³⁹ most likely to result in improvements over the long haul, both for the environment and for people's welfare and empowerment. The diversity that characterises both forests and their human neighbours, and the resulting improbability of successfully using pre-determined, standardised methods to solve local problems, have already been mentioned. When we add to that diversity the dynamism – the propensity for change – that characterises our world, it becomes clear how unlikely externally derived solutions are to work. Such solutions are, in most cases, too distant in time and space to remain viable long enough to be benignly implemented.

Advantages that collaborative approaches are likely to yield include:

- possibility to use systems thinking, allowing for attention to multiply intersecting elements of people's lives and environment
- opportunity to build on local knowledge, and marry that with externally derived knowledge
- recognition of the human and environmental propensity for change, and a mechanism for dealing with that
- recognition of the flexibility needed to respond to these changing circumstances, and thus a greater likelihood of responding appropriately.

Disadvantages, discussed further at the end of this section, include:

- the need for long periods of time⁴⁰
- the need to have qualified/trained persons regularly involved in village life (often remote, uncomfortable, perhaps dangerous)
- genuine understanding and acceptance of the impossibility of ensuring that original plans will come to fruition, and the resulting need to be humble and prepared for change – this means a sometimes uncomfortable loss of perceived control by researchers, managers and donors

39 The methods/approaches in this section, by and large, represent the earlier-mentioned fuzzy area along the continuum from broad scale, conceptual 'approaches' to specific, practical 'methods'.

40 From our perspective, this is less of a unique disadvantage than might be expected. We believe that good outcomes in most cases *require* fuller understanding of local contexts and the ability to adapt with altered plans – all of which take time and effort. Thus this 'constraint' is simply an advance recognition of what is, in fact, typically the case.

- the need to recognise the superior (though not unequivocal) rights of communities in determining their own collaborative actions.

2.4.1 Elements of collaborative approaches

Experience and lessons from people conducting participatory research in forests has grown in recent years. Excellent compendiums on methods exist, although the effective methodological treatment of gender is spottier.⁴¹

The most central and valuable general method for collaborative work is participatory action research (PAR).⁴² PAR is also the most fundamental method in adaptive collaborative management (discussed further later in this section). German *et al.* (2010), who clearly integrate gender (and other social categories), succinctly describe PAR as ‘... a reflective process of progressive problem solving led by individuals working with others to improve the way they address issues and solve problems’. The method consists of a series of iterative steps: problem identification (or goal setting) that involves facilitated self-analysis by would-be actors; planning; and then monitoring of the process designed to reach the goal or solve the problem, with ongoing revisions as needed.

In the forest context, this method has built on work in community forestry. One of the most ambitious efforts to link PAR and forest management has been CIFOR’s adaptive collaborative management programme.⁴³

41 The otherwise excellent, three-volume, methodological collection by Gonsalves *et al.* (2005) is divided into three topics: ‘Understanding’, ‘Doing’ and ‘Enabling’ participatory research and development. But despite the utility of many of the 79 methods/approaches collected in these volumes, only 4 focus specifically on gender.

42 One of the best general references on this approach is Greenwood and Levin (1998), who prefer the term ‘action research’. Their work has, however, been primarily in Europe and the US. In CIFOR training, we used excerpts from Kemmis and McTaggart (1988). Another practical guide is Malla *et al.* (2001), who prefer the name ‘participatory action and learning’.

43 See also Vernooy (2006). He, with Liz Fajber, conducted training, supervised, supported and encouraged ‘social and gender analysis’ through action research in India, China, Nepal, Mongolia and Vietnam, early this century.

Definition of adaptive collaborative management^a

Adaptive collaborative management (ACM) is a value-adding approach whereby people who have interests in a forest agree to act together to plan, observe and learn from the implementation of their plans while recognising that plans often fail to achieve their stated objectives. ACM is characterised by conscious, facilitated efforts among such groups to communicate, collaborate, negotiate and seek out opportunities to learn collectively about the impacts of their actions. Work with a given group of people requires involving actors at multiple scales – usually at least one level down and one level up (e.g., user groups within a community and district officials above). CIFOR’s ACM team, e.g. Colfer *et al.* (2011), jointly developed this definition.

a Buck *et al.* (2001) offer an excellent introduction to ACM at an early stage (oddly there’s hardly any mention of gender). Berkes (2009), who has approached collaborative issues from a more academic context, notes the key roles of ‘... accessing resources, bringing together different actors, building trust, resolving conflict and networking. Social learning is one of these tasks, essential both for the co-operation of partners and an outcome of the co-operation of partners. It occurs most efficiently through joint problem solving and reflection within learning networks’.

2.4.2 Widely used methods for gender analysis in collaborative research

Here we discuss five main methodological approaches that have proven useful in collaborative work on gender in forests: facilitation of collective action,⁴⁴ equity, visioning, monitoring and modelling.

Facilitation of collective action

Being able to catalyse collective action has emerged as one of the most important factors in successful, forest-related participatory approaches. Some practical steps and attitudes are briefly described straightforwardly in Colfer (2007, 2010) and Sayer *et al.* (2008). Such guidance is important in any

44 For extensive materials on collective action, see the website of CAPRI (Collective Action and Property Rights) within the CGIAR: <http://www.capri.cgiar.org/>. Pandolfelli *et al.* (2007) provide particularly pertinent guidance.

dealings with rural peoples, but particularly so when trying to incorporate women in self-directed change processes.

The long-term sustainability of this kind of participatory method depends upon the community's abilities to eventually take on facilitation roles themselves. Pokorny *et al.* (2005) describe their successful training of community facilitators in Brazil. Nakro and Kikhi's (2006) team hired and trained local facilitators from the beginning of their action efforts among female Naga vegetable growers in northern India.

Approaching equity

Gender and equity concerns are an obvious pairing. One methodological conclusion is that part of the 'method' for attending to equity effectively begins with simply acknowledging it as an issue. The decision to include 'all stakeholders' can open the door for women's involvement, as their existing forest management activities come to light.⁴⁵

Obtaining high-level support for such attention can help. Nepal's Forestry Department reinforced the Nepal ACM teams' emphasis on equity at the field level; this was further strengthened by the more recent Maoist revolt (McDougall *et al.* in preparation, Khadka 2012). Dangol (2005) nicely describes the variety of PRA methods she used (wealth-ranking, Venn diagrams, social resource mapping, histo-ecological matrices, historical time lines, various kinds of interviews) to supplement PAR and encourage the involvement of women (and other marginalised groups) in forest management in Bamdibhir. McDougall *et al.* (2007) describe how 'heterogeneity analysis' helped to clarify *to the community* the differences in access to resources and decision-making power among them and strengthen their interest in improving equity.⁴⁶ In this case, the monitoring process itself (see below) contributed to the willingness and ability of lower-status folks, like

women, to speak up and be heard.⁴⁷ In similar fashion, Diaw and Kusumanto (2005) describe the empowering effects of the methods they used (pebble games and rights and means discrepancies among stakeholders) in Cameroon and ('learning diversity') in Indonesia.⁴⁸ Nakro and Kikhi (2006), who also used a variety of methods in north India, found that women's success at increasing their incomes via growing and selling vegetables encouraged husbands to take on home gardening, as well as domestic and childcare tasks the men had previously considered beneath their dignity (also noted by Sen and An (2006) in Vietnam).

Having a 'voice' in decision making requires a degree of self-confidence. In some cases, it has been necessary to build such among women (and, to a lesser extent, men). Permatasari (2007) stresses the importance of providing Sumatran women with training in public speaking, in leading discussions and in voicing their opinions. This training began with the women's decision to better manage and more equitably share the benefits from a local mini-fishery. This process in turn strengthened women's capabilities to engage with the broader community on a range of topics, including forest management. Mutimukuru-Maravanyika *et al.* (2008) describe a similar need among both men and women in Zimbabwe, and the authors' successful use of 'Training for Transformation' (inspired by Paulo Freire's work 'Pedagogy of the Oppressed' (1974)) to solve this problem. Sen and An (2006) note that simple involvement in facilitated action groups increased the confidence of women (and the poor) in Vietnam.

47 Evidence of the importance of the governance *process* as much as outcomes is provided in McDougall *et al.* forthcoming.

48 See Greene *et al.* (1989), who assessed 57 mixed methods studies, and found five advantages to such approaches: triangulation, which 'seeks convergence, corroboration, correspondence of results from the different methods'; complementarity, which 'seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method'; development, which 'uses the results from one method to help develop or inform the other method'; initiation, which 'seeks paradox and contradiction, new perspectives'; and expansion, which 'extends the breadth and range of inquiry'. Such mixed methods approaches are also recommended by Behrman *et al.* (forthcoming), who refer to them as Q², emphasising the combination of qualitative and quantitative approaches.

45 Wollenberg *et al.* (2005) provide an excellent discussion of the rationale for involving all relevant stakeholders in forest management, in Chapters 1 and 2 on pluralism and social difference.

46 Among 30 ACM sites, the 4 in Nepal were far and away the most diverse internally (Colfer 2005).

Power and its relationship to equity in collaborative forest management have been stressed repeatedly (e.g. Leach and Fairhead 2001, Wollenberg *et al.* 2001a, McDougall *et al.* forthcoming). Nemarundwe (2005) and Sithole (2005), for instance, use participant observation as their prime method to look at cross-gender allocation and use of power in forest areas of Zimbabwe. In another contribution, Sithole (2002) provides methodological guidance, using case materials from Indonesia and Zimbabwe. Tiani *et al.* (2005) supplement their long-term, collaborative involvement in Cameroon's Campo Ma'an National Park with pebble games, focusing on time use and income from various livelihood activities, as well as women's community meetings.

Developing a 'vision'

An early step in much collaborative work has been the facilitated development of a community (or action group) vision (see Wollenberg *et al.* 2001b for a general description). A vision is an image of an 'ideal future' for the community or group.⁴⁹ Such a shared image (or understanding that such images vary by group) is useful as a 'guiding star,' once collaborative actions begin to occur; and helps keep the group working together toward a common goal. Cronkleton's (2005) Bolivian experience was described in Section 2.2; see also Nemarundwe and Mutamba (2008) for a Zimbabwe example; or Tiani *et al.* (2009) in Cameroon.

Participatory photography (Belcher and Roberts 2012) was used among an upland group in Laos to determine the people's desired future land uses, with real advantages for incorporating women's concerns. It reduced the common problem of women's shyness in public settings, partly by having each participant take his/her own pictures and explain the meaning of the resulting photographs.

Djouidi and Brockhaus (2011) investigated men's and women's (and farmers' and pastoralists') preferred future scenarios, with regard to climate change in Mali. They combined long-term

knowledge of the local cultures with sex- and age-segregated meetings focused on climate change. These authors found significant differences in men's and women's preferred strategies, with serious policy and life implications for policy makers.

Planning and monitoring

One stream of interest in planning and monitoring derived from CIFOR (1999)'s work on criteria and indicators (C&I):⁵⁰ ACM project planners expected that such C&I, if adapted locally, could prove to be powerful instruments in the hands of local men and women – both a) serving useful learning/adaptive purposes locally and b) strengthening external appreciation of local efforts (given a general global approval of C&I as 'scientific' approaches to forest management). Hartanto *et al.* (2003) in the Philippines and McDougall *et al.* (2008, 2009) in Nepal made extensive use of C&I and developed methodological materials that clearly demonstrate their uses, advantages and some challenges; these authors paid consistent attention to gender. Cunha dos Santos *et al.* (2007) describe a Brazilian case focused almost exclusively on men: the topic selected for attention was timber management, a thoroughly masculine affair in that context (as noted by Porro and Stone 2005; and Bolaños and Schmink 2005 in nearby Bolivia). Tiani *et al.* (2009) used C&I extensively in Cameroon, and included women in the C&I selection process.

Other researchers developed alternate monitoring methods. Cronkleton (2005), for instance, found that the leaders of a forest management project in a Bolivian village had kept accounts on the work done by individuals, but that this information had not been shared with the community (which was plagued by mutual suspicion). He worked with both local men and women to build on this locally available information. Together, they developed a transparent approach to the sharing of information about income dispersals among both men and women, a form of transparent and equitable monitoring system (see also Cronkleton *et al.* 2007). Both men and women were pleased with the results, but for different reasons.

49 Evans *et al.* (2006) break this idea down into four potential elements that communities might consider in thinking about their futures: scenarios, projections, visioning, and pathways (see also Wollenberg *et al.* 2000).

50 There has recently arisen interest in developing indicators that help measure improvements related to gender (e.g. World Bank 2009; Njuki *et al.* 2011; FAO 2012).

A research team in three sites in Indonesia used a qualitative, participant observational approach to learning (Kusumanto *et al.* 2005, Kusumanto 2007). Kusumanto and her colleagues facilitated recurrent 'reflection' meetings to assess their progress toward the goals they had identified early on, along with PRA tools to complement their long-term participant observation and facilitation of social learning. Paudel and Ojha (2007) also developed a qualitative approach to monitoring, based on PAR and learning, combined with PRA techniques.⁵¹ One effective change they – along with other Nepal-based collaborative researchers – facilitated was a shift from forest management at the community level alone to a step-wise, tiered management that began at the hamlet (*tole*) level, where both men and women felt more at ease speaking their minds.

The work of Ahmed and Fajber (2009) in India used well-facilitated, multi-stakeholder learning dialogues and their previously mentioned Vulnerability Capacity Index to strengthen local capacity to understand and cope effectively with climate change, at various levels. Like many others, they found barriers to women's involvement in decision-making committees and greater female vulnerability due partly to insecurity of land tenure and comparative lack of access to information, financial resources and social support networks. See also the commodity-based, iterative 'learning groups' facilitated in Vietnam by Sen and An (2006), which they supplemented with on-farm (farmer-conducted) experimentation and participatory monitoring and evaluation that included indicators to measure the involvement of women and the poor.

Participatory modelling

Some researchers have profitably used participatory system dynamics modelling to help people analyse their own systems. Ravera *et al.* (2011) provide a

thoughtful, critical and instructive assessment of such efforts. They

... discuss opportunities and obstacles, specifically: (1) incorporating uncertainty and surprises; (2) combining epistemologies; (3) dealing with representativeness and power dynamics; (4) creating opportunities for improving stakeholders' agency; and (5) facilitating dialogue and negotiation by using models as heuristics ... The participatory modelling experiences show that stakeholders' involvement throughout the process, epistemological plurality, flexibility, and sensitivity to context-dependent socio-cultural processes need to be considered by researchers who wish to enhance the adaptive capacity of the communities they work with.

Standa-Gunda *et al.* (2003) describe such a use in Zimbabwe, where researchers worked with rural women to assess and improve their use of patches of broom grass (from which they gained income via broom making and sale). The special issue of *Small-Scale Forest Economics, Management and Policy* (Vol 2, 2003) documents some of the modelling efforts of researchers involved in long-term, collaborative research in Zimbabwe, Indonesia and Cameroon; and Vanclay *et al.* (2006) provide a simplified guide to its use, with examples from India and Zimbabwe.

The experience with this method and its representation in print, however, highlights one problem that has become more evident recently. Efforts to mainstream gender, as was done in CIFOR's ACM programme, can have the result of rendering it invisible.⁵² Neither the articles mentioned above, nor the longer, fuller description of the project's collaboration with the women on broom grass (and men on beekeeping and timber) in Mutimukuru-Maravanyika's (2010) analysis, identify the study as gender relevant in title or key words.

51 These included resource and social mapping, village and forest walks, situation analysis using web diagrams, visioning, wealth ranking, focus group discussions, forest resource assessment and even sample plots.

52 One interesting example of participatory modelling, about firewood in India (definitely a *concern* of many Indian women), fails to mention who from the community participated. When asked, Yadama acknowledged that women were integral to their efforts (Yadama and Chalise 2011).

2.4.3 Risks in collaborative approaches to forest management⁵³

Above, we have highlighted useful collaborative gender methods. Not all the news is good, however. There are trade-offs, as in any approach.

Researchers have documented capacity building among women and men: enhanced self confidence, analytical capacities, negotiation skills, conflict management, networking and collective action – all key to empowering local women and men to improve local forest management and their own lives. Yet researchers, policy makers and administrators in forestry institutions are not accustomed to measuring such changes (nor are these changes particularly easy to capture).

Such changes raise other ethical questions. Meola (2012) examined collaboration in a successful ‘sustainable development reserve’ on the Amazon. But she came away with some ambivalence about this ‘success’; she saw that besides the skills and other advantages people were gaining (including striking increases in women’s leadership, for instance), they were also losing cultural elements of value. Women’s increasing involvement in wage labour meant changes in family structure and less attention to children. Nakro and Kikhi (2006) noted Indian men’s increased involvement

in domestic tasks as women increased their involvement in selling vegetables as a positive development. The same behavioural changes can have both different impacts and different valuation.

A number of researchers have considered collaborative approaches politically naive. Mutimukuru-Maravanyika (2010), for instance, argued that her own ACM team should have taken a stronger political stance against the government of Zimbabwe (though such an action would have been genuinely life-threatening under the circumstances). Some have seen collaborative approaches as ‘window dressing’, increasing the ‘reach’ of corrupt government and other external actors into community affairs, or creating institutions that function only on paper; see Manor (2005) on ineffective forest user groups. There is sexism at all levels, including in traditional systems. Collaborative efforts require difficult ethical juggling between global concerns for equity and the integrity of (changing) cultures.

Collaboration that addresses gender effectively requires genuine commitment to involving both women and men in forest management. It can be done; but it requires effort, an often-uncomfortable change in what foresters and policy makers are used to.⁵⁴

53 Some general risks apply equally to men and women: decisions with serious impacts on local people’s lives are in many cases simply taken out of their hands – by governments, projects or industry. When this occurs, one of the central strengths of a collaborative approach can evaporate: the sense of ownership women and men have over their own visioning, planning and monitoring processes is lost, along with their enthusiasm and commitment to sustaining the effort involved. For examples, see Fennella *et al.* (2008) in Cambodia, Watts *et al.* (2011) in Laos, or Colfer *et al.* (2011) for five African and Asian countries.

54 Vernooy and Zhang (2006) recognise this and note that ‘continuous awareness raising efforts, dynamic communications, incentives, active “champions”, examples of good practice and an effective monitoring system are some of the elements required to make sound social and gender research part of the everyday practice of a research organisation’.

3 conclusions

In this article, we have attempted to respond to a need expressed by many involved in forest-related endeavours: while there has been widespread and growing recognition of the importance of addressing the concerns, needs and goals of both women and men, there remains considerable uncertainty about how to go about it. Here we have divided the methodological options we have discovered in our review into four categories (Section 2) in recognition of the differing resources people may have available to them (along with differing information needs/goals). We note the likelihood that many will have sufficient resources available for only the quicker, more convenient, but less reliable PRA-type tools. We consider their use significantly better than not attending to gender at all.

We note the probability that there will also be researchers who have the incentives and the resources to conduct systematic, extractive studies *of* local people, rather than *with* local people. These too have value, particularly in terms of reliability, accuracy, scientific validity. Our concern is that they often suffer from naïve expectations about how policies are made, seriously under-estimating the power of politics in such decision making and the resultant improbability of scientific discovery

having an immediate salutary effect.⁵⁵ Our ultimate preference, for many of the tropical forest contexts we have seen, is a broad, multi-level participatory approach. Such an approach would involve selection of methods consistent with the needs identified by researchers/managers in cooperation with women and men in local communities and at middle levels (such as counties or districts). Such an approach would likely include both the use of participatory and non-participatory methods – depending on the needs and desires that emerged.

A participatory approach – and in most cases, participatory methods – are likely to address the specific constraints of women better than the two approaches presented in Section 2.2 (PRA style) and 2.3 ('academic' style). Like the extractive studies, a participatory approach and the specific methods selected also take time to gain believable results, and also bear significant risks if not undertaken appropriately. However, such a methodological approach has the unique advantage of strengthening capabilities at the local level, and providing an avenue through which local people can continue to influence policies and decisions that affect their lives and their environments — something absolutely vital if we want to address gender inequity in a realistic manner.

⁵⁵ We cannot resist noting some issues that need additional attention, issues we have not dealt with sufficiently here: security of land tenure (for both men and women, but entailing different constraints); population (and the win-win possibilities for population stabilisation, raising women's status and improving family health); and domestic division of labour (with sometimes unrealistic, though differing, cultural expectations of both women and men).

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Recognising widespread uncertainty about how to address gender within the forestry world (from researchers, as well as natural resource, development and conservation practitioners), this paper strives to provide targeted guidance. We divide gender methods into three main approaches, based on the availability of resources. In the first section, we provide a brief discussion of theory and method. Then, after discussing some all-purpose methods, we classify methods loosely into categories of 'quick and [more or less] dirty'; systematic 'academic' studies; and collaborative studies. We argue that although there is legitimate space for all three approaches, the last is the most likely to result in long-term and meaningful improvements in forests and human well being.

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