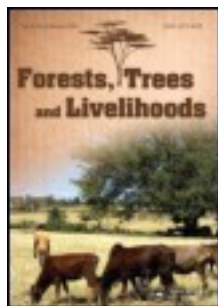


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Forest research and gender: a review of available methods for promoting equity

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Recognising widespread uncertainty about how to address gender within the forestry world (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 the ‘quick and (more or less) dirty’ studies, ‘academic’ studies and collaborative studies. We argue that although there is legitimate space for all three approach, the last is most likely to result in meaningful and long-term improvements in forest and human well-being.

Keywords: resources; approach; women; collaboration

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 have 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 have 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. 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 2011 and FAO 2010–2011) – both of which grant considerably more credence to the long-recognised gender inequities than has been usual. The Millennium Development Goals focused on women and girls directly in MDG 3 (‘Promote gender equality and empower women’) and 5 (‘Improve maternal health’). Given women’s

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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 often been under-acknowledged, their roles in realising MDG 1 ('Eradicate extreme poverty and hunger') and MDG 7 ('Ensure environmental sustainability') take on added significance.

The recent emphasis on REDD β (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 β programmes on forest dwellers, many of whom practise shifting cultivation; and 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, Mustalahti 2011, UN-REDD Programme 2011).

The year 2011, the International Year of the Forest, 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 & Mwangi 2011). This has been further encouraged by another international trend: the 'human rights-based approach', which is supported by a whole raft of United Nations documents, covenants and declarations (Mata & Sasvári 2009). These authors specifically analyse the wording of the Convention on Biological Diversity and the CBD's 'Gender Plan of Action', arguing for a central role of women in CBD efforts.

It thus 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 judgement.

This methods' 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 prioritised literature after 2000, but also built on pre-2000 materials and the personal experiences of both authors. We deviate from a rigid review by including 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, this section will briefly highlight a differentiation within the social sciences that is less obvious in the biophysical sciences: 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, 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.

Approaches and methods for use in the world's forests

Here, we divide our discussion into four sections: the first section introduces some general purpose methods that can be applied within almost any conceptual framework or approach. The second section reviews methods for those with few resources (time, money, expertise). The third section reviews more 'academic' methods for those with access to relevant social science expertise and to more resources. And the final section looks at methods for participatory approaches (our recommendation, whenever the needed long-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. 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, like us, recognise 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 USA 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 towards the people with whom we work should be one of the most serious requirements of any research. Some minimal requirements include the following:

- 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. Note that 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.
- 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 (Cooke & Kothari 2002; Manfre & Rubin 2012).

Third, as noted above, men are part of the problem (Cleaver 2002; Bannon & Correia 2006), 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 (see Sommers 2006; Miller 2009; Mwangi et al. 2011).

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 the 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.

Widely applicable methods

A simple reminder first: 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).

We begin with three common, all-purpose methods (surveys/questionnaires, interviews and case studies) that can be helpful within any conceptual framework or approach. An initial literature review is assumed here and is not covered further.

First, surveys/questionnaires as a method can be quantitative or qualitative. 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 usually on the interviewee's responses to questions. The benefits of questionnaires include the large amount of standardised data that can be collected relatively inexpensively from many respondents. Questionnaires are less time consuming than other methods with regard to quantitative data collection. However, they are also less flexible, as the questions are pre-determined. Such questions can be extremely difficult to write so as to obtain accurately 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. Rocheleau (1995) discusses the use of formal questionnaire surveys using random samples in order to gauge the efficacy of quantitative and qualitative methods when exploring gender in a forest context. This mixed-methods approach is a useful study in understanding the difference that survey construction, audience and setting can make within the same research as her team used a series of surveys testing these factors. Her study reminds researchers that especially for sensitive topics, a level of anonymity – encouraging freer sharing of personal information – can be achieved through surveys, which can also make it an appealing choice as a research method.

Second, 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, especially when using the interview subject's own words. Research subjects' own words in describing their situation can be much more powerful than the researcher's second-hand account of the same situation (see Townsend et al. 1995). In general, the 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. A (somewhat provocative) guide to conducting interviews can be found in Hermanowicz (2002).

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 a case study, which includes the analysis of an individual unit (often a person, project or location within forest research) rather than a sample of units or every unit in the study. Case studies have 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. 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 the changes that have occurred in a particular context over time. 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. 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). 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 and rural/urban.

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

In this section, we imagine several situations in which a person has very limited time and money available. Sadly, this is a common situation in today's tropical forests – and goes a long way towards explaining our lack of progress in addressing the oft recorded and analysed gender problems.

Before suggesting some of these quick and widely available methods – 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*.

- The likelihood of misunderstanding and error is much higher with a quick visit than with sustained involvement.

- 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.
- 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'.

The advantages of these methods can include their speed, their inexpensiveness and the provision of 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), for these quick assessment techniques, which we will simply call PRA henceforth (see IIED 1994: <http://www.caledonia.org.uk/prah.htm>).

One fairly quick but often useful method is the *sondeo* (Hildebrand 1981), a technique in which an interdisciplinary team divides itself into rotating pairs, and wanders the community, fields (and potentially forests) of a community of interest for perhaps a week. 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, often leading to unexpected results (e.g. Colfer 1991).

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 & Vainio-Mattila 1995). 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).

Methods for those who have relevant social science expertise easily available

These methods are clustered below by mid-level 'approach': use of existing documents, quantitative and qualitative analyses, computer-dependent methods, ethnography and interpretive methods. There are a number of key differences between this range of methods and the previous PRA type set. These include the following:

- 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 scientific journals.
- A sufficient time frame in which to conduct the research (often, though not always, considerably longer than that required for PRA approaches).

In the discussion below, we acknowledge that there can be considerable methodological overlap; researchers often use more than one method in an attempt to triangulate and provide more believable evidence, which is more likely to be correct and usable.

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’.

Although each of these methods will have 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.
- The results from these studies are likely to be publishable in social scientific, refereed journals, which typically means long lag times between the conduct of the research and the use of the results.
- The in-depth training social scientists have gained can reduce their exposure to biophysical sciences.

On the plus side, such in-depth research yields 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).

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.

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, she 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 Bank’s own policies on women, the environment and development (hopefully improved for the 2012 World Development Report).

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].

Table 1. Quantitative and statistical analyses (advantages and disadvantages).

Advantages	Disadvantages
Greater acceptance of the findings within fields particularly devoted to quantification	A shortage of relevant large-scale data sets
Allows a sense of national or global patterns, with appropriate representation	A lack of comparably relevant factors from group to group or context to context and resulting ambiguity in responses/results
Possible determination of casual links among factors	Great distance between the models used and reality
Useful for comparative assessments (e.g. of impacts, coverage or incidence)	Difficulty for some users understanding complex, statistical formulae
	Analyses valid at an aggregate level, but less valid at more local levels

Finally, many authors also 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, for example, Stoler (1992), Chevannes (2006), Shanley et al. (2011) and Meola (2012)].

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) (Table 1).

A method requiring less statistical expertise, but still quantitative and unusually flexible for descriptive gender analysis, is observational time allocation studies.² 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.

Table 2. Computer-dependent methods (advantages and disadvantages).

Advantages	Disadvantages
Speed of data input and processing	Risks of power failures or computer crashes
Ability to turn numbers into pictures ‘worth a thousand words’	External control, and a potential inaccessibility, of the needed data
New possibilities only available through computers	Technological angst for those who fear technology
	Potential possibility of researchers warping reality to fit with the technological requirements

Computer-dependent methods

There is, of course, a growing awareness of the potential of computer assists for improving our research (Table 2).

Meinzen-Dick et al. (2012) have mapped patterns of gendered farm management using GPS coordinates and GIS technology, supplemented by a variety of approaches (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, though 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'.

Another method is system dynamics modelling, discussed in its participatory mode in the next section. It can, however, also be used as an extractive method.

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 6 months to 2 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 (e.g. surveys, interviews and recordkeeping). 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; 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.

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, for example, Townsend et al. (1995)], present new outlooks on events previously dominated by male ‘representatives’ or circumvent issues of illiteracy (Wardell 2004). One of the main drawbacks to oral histories includes the often inevitable influence of the biases that researchers carry (Clifford & Marcus 1986; Kim 2008). Situating such stories within an ethnographic context can address some of these critiques.

Interpretive methods

Interpretive methods progress a step further along the science-to-art continuum, and as such the forestry community may be more resistant to using them as a guide in managing forests more effectively. Yet such methods can provide key insights into 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 folk songs of North India, for instance, builds on over 5 years of research on a variety of topics. She collected songs sung usually in groups by women and men.² Women, particularly lower caste women,³ sing routinely about their lives – at home, at work, with their mothers-in-law, with their husbands and brothers. Jassal’s approach produced abundant and 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 can lead to useful insights into culture change in Indonesia’s forests. Such a reading provides a broad historical development of women’s and men’s positions in society. For example, *Saman* (Utami 1998) 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 such 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.

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

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

The use of ‘beneficial’ in the above subtitle is intended simply to emphasise the greater potential for long-lasting positive effects of the methods/approaches dealt within this section; it does not imply that other approaches are malevolent! We see long-term

Table 3. Collaborative approaches (advantages and disadvantages).

Advantages	Disadvantages
Allows for attention to multiply intersecting elements of people's lives and environment	Long periods of time
Able to build on local knowledge and marry it to externally derived knowledge	Qualified/trained persons needed to be regularly involved in village life
Recognises the human and environmental propensity for change, and provides a mechanism for dealing with such change	Possible (perceived) loss of control by researchers, managers and donors
Recognises the flexibility needed to respond to change and a greater likelihood of responding appropriately	The need to recognise the superior (though not unequivocal) rights of communities in determining their own collaborative actions

participatory⁴ or collaborative research and management with communities, as the approach 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 (Table 3).

The most central and valuable, general method for collaborative work is participatory action research (PAR). 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 USA. 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'. The lengthy period needed to implement this approach is crucially important in establishing the needed rapport/trust with women in forests. PAR is also the most fundamental method in adaptive collaborative management (discussed below; for recent assessments, see Ojha et al. 2012). 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.⁵ Another noticeable effort has been made by 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.

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,⁶ 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 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 eventually to take on facilitation roles themselves [see Pokorny et al. (2005) and Nakro & Kikhi (2006)].

Approaching equity

Gender and equity concerns are an obvious pairing. One methodological conclusion is that part of the 'method' for attending to it 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.⁷

Obtaining high-level support for such attention can help. 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, Nepal. 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. 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.

Having a 'voice' in decision-making requires a degree of self-confidence. In some cases, it has been necessary to build such self-confidence 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.

Power and its relationship to equity in collaborative forest management have been stressed repeatedly (e.g. Leach & Fairhead 2001; Wollenberg, Anderson, et al. 2001). 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, Edmunds, et al. (2001) for a general description]. A vision is an image of an 'ideal future' for the community or group.⁸ 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

towards a common goal [see Nemarundwe and Mutamba (2008) for a Zimbabwe example; or Tiani et al. (2009) in Cameroon].

Participatory photography (Belcher & 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.

Planning and monitoring

One stream of interest in planning and monitoring derived from CIFOR's (1999) work on criteria and indicators (C&I). There has recently arisen more interest in developing indicators that help measure improvements related to gender (e.g. World Bank 2009; Njuki et al. 2011; FAO 2012). 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, including 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. Altogether 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.

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* (2003, Vol. 2) 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. 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 identifies the study as gender relevant in title or key words.

Risks in collaborative approaches to forest management

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 example, see Fennella et al. (2008) in Cambodia, Watts et al. (2011) in Laos or Colfer et al. (2011) for five African and Asian countries.

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 (see Vernooy & Zhang 2006).

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 discovered in our review into four categories (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 and scientific validity. Our concern is that they often suffer from naïve expectations about how policies are made, seriously underestimating the power of politics in such decision-making and the resultant improbability of scientific discovery having an immediate salutary effect.

Our ultimate preference, for many of the 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 other approaches presented above – (PRA style) and ('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 – if done carefully – has the unique advantage of strengthening capabilities at the local level, and providing an avenue through which local people can continue themselves 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.

Notes

1. 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 underestimation 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 labelled 'lazy'; not so Western men with the same failing.
2. 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.
3. 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 of day-to-day self-determination.

4. 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).
5. See <http://www.cifor.org/acm/>
6. For extensive materials on collective action, see the website of CAPRI (Collective Action and Property Rights), within the CGIAR (Consultative Group for International Agricultural Research): <http://www.capri.cgiar.org/>. Pandolfelli et al. (2007) provide particularly pertinent guidance.
7. 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.
8. 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).

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