

TOOLING UP FOR GENDER AND ENERGY

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Abstract

The paper is concerned with the development of better gender analytic tools to mainstream gender in energy project and programme planning. It begins by explaining why it is important to take a gender aware approach in the planning of energy projects and programmes, and why gender is so often ignored. One of the reasons is that women's energy is in many ways 'invisible', another is that there is a lack of gender tools which can easily be applied to the case of energy. It proposes that improved gender analysis tools could be designed which also make women's energy more visible. It then reviews at some length the general shortcomings of the standard gender tools as used in development planning, particularly their failure to identify the gender goals that underlie the intervention, and critiques a number of approaches have been proposed for the energy sector. This leads to suggestions for an improved model, which is then outlined. The paper was written as part of a process in which a training manual on gender and energy is being prepared.

1. Introduction

Most energy planners in developing countries, and in Northern countries too for that matter, have a limited understanding or interest in gender issues. However, the vast majority acknowledge that women in poor countries, and particularly in rural areas, are responsible for gathering fuelwood, and recognize that this is a heavy burden; also, perhaps, that the traditional cooking facilities that many women use to burn locally gathered biomass fuels are wasteful, unhygienic, and bad for their health. But, a few improved stove programme apart, this is as far as the matter goes. Not only is assistance to women's cooking problems very limited: there does not seem to be much awareness of the gender face of energy in other energy sectors, such as electricity, or of the potential of energy as a factor in supporting women's emancipation and empowerment (UNDP, 2001; Bathliwala and Reddy, 2003). In fact there are efficiency as well as empowerment reasons for dealing explicitly with gender issues in energy (Skutsch, 1998), and a recent paper makes the case that a gender approach in energy planning would also be valuable from the point of view of poverty reduction and livelihood support (Clancy et al. 2002), which also have gender dimensions. But gender has not yet been 'mainstreamed', despite the fact that gender blindness in the energy sector has been under attack for quite a number of years (Tinker, 1984, Cecelski 1987, 1995), and not least by ENERGIA, an international network which has been set up to encourage the 'engendering of energy' (www.energia.org).

This paper argues that one of the reasons why gender is not incorporated as a basic dimension in energy planning for projects and programmes in developing countries (such as projects promoting new and renewable energy technologies, programmes for grid extension and rural electrification etc) is because there are no adequate analytic tools at hand to gather and process gender related data in a way that makes mainstreaming in energy planning straightforward. The standard tools of gender analysis have a number of shortcomings, and are not easily adapted to incorporate energy data. A number of initiatives have been made recently to develop gender frameworks specifically for the case of energy, but so far these have not been fully satisfactory either.

The paper first reviews the reasons why it is important to incorporate gender as a factor not just in projects concerned with household energy but in mainstream energy project and programme planning, and then goes on to suggest why it has been more or less ignored up to now, concluding that lack of specialised gender analytic tools is a contributory factor. It then offers a critique of the gender tools which are standardly applied in development work, both from a feminist point of view and from an energy-technical point of view, before moving on to discuss the gender frameworks that have been proposed specifically for the energy case. From these critiques a number of guidelines are derived, and a set of gender-energy related questions developed. These may be mainstreamed in a normal project planning process, for example in a standard project cycle model.

2. Why bother with a gender approach in energy projects and programmes?

The first and most obvious reason for taking a gender approach in energy is that men and women have different energy needs, as a result of the current reality as regards their roles. This is not just a question of cooking energy being a special preserve of women. Energy for water pumping for example also has gender dimensions. Energy for pumping water for irrigation is more often than not related to men's work in agriculture, while energy for water pumping for domestic purposes is usually related to women's work. The choice of location of the light bulb socket (in the living room, where men relax after a day's work or in the kitchen where women are still cleaning up after the evening meal), and who makes that choice, is a gender question. Street lighting may make it for the first time safe and acceptable for women to go out at night time, something which men have always been able to do. The provision of mechanical power eg for grinding grain may solve a major energy need of village women, but have less impact on men's physical energy needs, which are more connected to labour in preparing the fields than to milling.

Secondly, the provision of new forms or modalities of energy may have quite unintended differential effects between men and women. A well-known case concerns the provision of powered agricultural equipment, which enables the cultivation of a much larger land area. The tractors are inevitably operated by men, and take over from the hard task of hand or ox ploughing, typically men's work. Many of the other agricultural tasks (particularly weeding and harvesting) are however still done by hand, and predominantly by women. Thus although the mechanization may improve the family's overall income, a new balance of work may arise in which women carry a heavier burden. Policy related to energy pricing may also have gender consequences. For example, for the case of water pumping: electricity to support irrigation in India is heavily subsidized, while electricity for domestic use, including domestic water pumping, much less so. Removal of the state subsidy on kerosene hits women's budgets hard where they are traditionally the ones who pay for this means of lighting. A switch to electricity, however –grid or solar – often means that men have to foot the bill instead, at least for the capital costs, since by tradition purchase of new equipment is more often their responsibility. Attention to gender in such questions may help to limit unintended effects, or to identify in time what steps may be needed to combat them.

Thirdly, energy may be part of a deliberate strategy to help to raise the position of women in society. As noted above, it is known that it is women who are in most places responsible for provisioning their households with biomass fuels (wood and charcoal, agri-wastes, dung), which in many developing countries account for over 50% of the total energy used nationally, and over 90% in most sub-Saharan countries. The ill effects of this on women's quality of life (heavy physical and time burdens, health risks from smoky fires) were long ago described in the literature (Agarwal, 1986; Smith, 1987). Obviously, improved cooking technology, as well as powered water supply and grinding facilities, would save women time and improve health conditions, and offer a way out of much of the drudgery of rural daily life. But

energy could be an element in transforming women's lives in other ways too. Provision of power supply (electrical or mechanical) could be a component in helping women set up businesses and start productive enterprises to earn income which they may control themselves. Electric light may make evenings available for production, or for education and training, or for leisure. Electricity may bring with it for the first time television and phones and contact with the outside world – which has always been less for women than for men because of restrictions on their movements and because of their longer working hours. None of these things can be assumed, but energy offers a line of hope which could be used, in combination with other measures, to help women escape from the strict confines of traditional life. Energy could be a source of empowerment for women.

A fourth reason why gender should be mainstreamed in energy is simply the fact that projects frequently fail as a result of not understanding gender differences, treating households as if they were units, and not consulting women but implicitly assuming that male heads of households can answer all the necessary questions. An example is a tree planting project for firewood which FAO planned in Thailand. After visiting the village and consulting with the (male) leaders of the village about a suitable schedule, the seedling were delivered – and dried up as they remained unplanted for weeks. The reasons being that women are responsible for planting, and the time selected for seedling delivery coincided with rice planting time (FAO nd, video). Men felt it beneath their dignity to plant the trees, women were too busy. A World Bank guide to gender in agriculture is quite open about this kind of inefficiency as a primary reason for adopting a gender approach, pointing out that ignoring gender concerns can often lead to project failure (Fong and Bhusan, 1996).

Despite the now widespread understanding that a demand-oriented approach to project planning is likely to be much more successful than a supply-oriented approach, demand is not usually disaggregated in gender terms in energy projects. There have been a number of high profile attempts to bring the importance of gender to the attention of energy planners (e.g. *Energia News*, which has been available since 1997; a book from UNDP with case studies about how women are able to use energy to start small businesses (UNDP 2001), and a special edition of *Energy for Sustainable Development*, (volume VII, no. 3, 2003)), which have undoubtedly raised awareness of the need to address gender at project and programme level, but in practice, in the daily work of planning projects, not much has changed.

3. Why is gender so often ignored in energy project planning?

Part of the explanation for the neglect of women's use of energy even within demand based planning approaches is undoubtedly its *invisibility* (Clancy et al. 2003). Much of women's energy use involves biomass. Biomass fuel (firewood, charcoal dung, agri-wastes), unlike fossil fuel, remains in the informal sector even where it is commercially traded in cities. Its sources are diffuse and there is little quantitative data either on supply or on demand. Moreover it does not fall within the purview of the Energy Departments since it derives from forests or agricultural areas. The size of the turnover of the biomass fuel trade is rarely understood or appreciated (for

example, turnover in the trade in woodfuels can exceed that of the trade in electricity in some cities (Skutsch, 2002)). This is because these flows are not recorded, let alone taxed, and so they remain invisible.

But women have a lot of *non-cooking* energy needs, and a number of studies show that cooking energy by no means the most important of women's energy needs (Mehretu and Mutambira, 1992; Clancy, Oparaocha and Roehr, 2003). Much of women's energy use is *metabolic* (human physical). This is also invisible in the sense that (like all metabolic energy) it is nowhere measured or accounted for, and substitution of human energy by other sources is not conventionally considered an energy question at all, but rather a technology question. Thus women's demand for a flour mill so that they do not have to hand pound grain on a daily basis, is not counted as an energy need or included in energy plans. But as Cecelski has pointed out, it is rather strange that electric pump is considered to be using energy, but a woman hauling up a bucket on a rope is not (Cecelski, 2003).

A further reason for invisibility of women's energy needs is that where detailed data on energy use is collected, for example where the project planning is done on a demand driven basis, this is usually accomplished by using household surveys with questionnaires. This approach assumes that the fundamental unit of analysis is the household, and does not see that that men and women within the household may have different needs, priorities and constraints as regards energy. Moreover, such questionnaires are almost always administered to the (male) head of household, who himself may not perceive that men and women in the household have different energy requirements, and gives generalized answers which do not reflect women's particular needs.

Thus for example gender is almost never considered in programmes for grid extension, even where a marketing analysis has been made at the local level. The fact that electricity may have different implications for men and for women is generally unrecognised. There have been hardly any studies on the actual impacts of electrification or gas availability on women, although the EnPoGen programme, described in section 4 of this paper, is a valuable step forward in this direction. Instead the literature refers only to a number of intended benefits (lighting at night will allow women to participate in more productive enterprises and study in the evenings), but without any hard evidence that such benefits really occur. What few impact studies have carried out, have not been disaggregated in gender terms.

Invisibility of women's energy is of course not the only explanation for lack of attention to gender in energy project and programme planning.. Gender issues were until recently totally ignored in mainstream development theory (eg Scott 1995), and it may take before the unconscious, unspoken, unrecognized, belief that energy (apart from cooking energy, which is 'obviously' a women's issue) is gender neutral. Perhaps because of its high technology content, energy is seen as a technical matter without social implications, unlike for example health, where the need for changes in behaviour (hygiene, nutrition etc) imply that a sociological approach may be needed. Thus to a great extent the problem is a perceptual one: the lack of perception that energy has a gender face. It may also be relevant that there are almost no energy

‘extensionists’, while in agriculture and in health, such staff are regularly in contact with rural populations and have come to recognize gender issues by exposure to them.

The explanations above may go some way to explaining why gender analysis is not regularly applied, for example in rural electrification projects, when today it is standardly used in health, and agriculture planning. There may be other reasons, and the lack of a clear gender vision in overall energy policy is probably both cause and effect of lack of gender consideration at the project level. However, a contributory factor may be the lack of availability of appropriate gender analysis tools, to respond to the particular data requirements in the energy sector, and in particular to make women’s ‘invisible’ energy, more visible¹.

Standard gender approaches were developed 15 years ago, but are in many cases too general for application in a specific sector such as energy. Major donors in the agriculture, health and water sectors have developed tailor-made procedures and tools for gender analysis which reflect the actual contexts and real concerns of their planners. The energy sector in contrast has scarcely begun to do this, and any energy planner looking for off-the-shelf models (of the sort which are normally taught in ‘gender in development’ training sessions, and contained in manuals of procedures by donor agencies) will be confronted with schemes which simply do not focus on issues of concern as regards energy.

While raising perceptions about “the gender face of energy” in a general sense is undoubtedly essential, it can be argued that a *sine qua non* for furthering the mainstreaming of gender issues in energy planning is the development of an appropriate set of gender analytic tools, which energy planners can relate to. These tools could show how energy needs of women relate to women’s more general development needs, highlighting the needs that are different from men’s, both at the household level and in terms of community activities and for work outside the home. They could bring attention to the barriers that women as a group may face in obtaining energy services, and also to the impacts that energy services have on women’s lives (a monitoring function). Such a set of tools would not be sufficient, on its own, to revolutionise energy planning from a gender perspective, but is certainly a necessary step towards doing so².

This paper is aimed at developing some guidelines for energy specific gender tools. Before making suggestions for what such a set of tools might consist of, however, it might be wise first to look at what is available in this area and particularly at what the shortcomings of existing gender tools are, in view of the needs of energy project and

¹ This is of course a classic chicken-and-egg situation. There are no appropriate tools for gender in energy because the awareness of the importance of gender is not present, but at the same time the awareness is not there because there is no systematic analysis of the gender situation in practice. The availability of tools can be a major stimulus to such awareness.

² A parallel might be drawn here with the introduction of PRA tools 20 years ago. PRA, although certainly not the be-all and end-all as regards participation in project planning, has certainly changed the way that planners work, and made some kind of exercise in consultation at local community level almost standard in planning practice.

programme planning. In the following section, the general weaknesses of gender analysis tools are considered, to draw out some general lessons.

3. A critique of standard gender tools

There are dozens of manuals available on gender tools for development planning; apart from general texts, almost every development agency has produced its own (Derbyshire, 2002, for DfID; GTZ, 1998; WB, nd; CIDA, 1999; SNV nd; NORAD, 1999; FINNIDA, 1995; Lingen, 1997 for DGIS etc). These are general, non-sector specific approaches, although there are a number of specialised sector based models too (Wilde and Vaino Mattila (1995) for forestry; Fong and Bhushan (1996) for agriculture). There are also several overviews and critical reviews, both from development agencies (ILO/SEAPAT, nd; March et al, 1999; Miller and Razavi, 1998) and from the academic side (Halsema, 2003; Wieringa, 1998; Molyneux, 1998).

Basically, the concepts which are in use in practice, and which are recommended by the development agencies in their own manuals of procedure, have their roots in two models; the Gender Roles Framework (otherwise known as the Harvard Method, Overholt, Anderson, Cloud and Austin, 1991) and the Development Planning Unit model (Moser, 1993). The first of these introduced the idea that in planning development projects, the primary variables that need to be disaggregated from a gender perspective are: work roles and time inputs on different tasks, divided between productive and so-called reproductive activities (which are housekeeping and caring tasks, which are necessary but which do not contribute directly to wealth creation), and access and control over resources and benefits. The second uses these same concepts but introduces also the notion of gender practical needs (the things women need to improve their daily tasks) and strategic interests (the things they need to change their social position and roles). These concepts, which were originally set up in a matrix format, form the cornerstone of almost all the approaches now in common use, and are so well accepted that their origins are often not acknowledged.

A number of points about these general models will be discussed below. The first concerns the issue raised by many feminists, that the tools do not address what they consider to be the central gender problem, *empowerment* of women. This section ends with some discussion of how access to energy might in fact support efforts of women to become empowered, and illustrates how the empowerment question can be a relevant one in energy terms. This leads on directly to a discussion of whether empowerment is or should in fact *always* be the aim. It is clear in reality that many energy interventions are not made with empowerment in mind, but rather for efficiency or other reasons. One of the shortcomings of standard gender models is that they do not come clean on what the gender goals in fact are, but leave this vague and undefined. A number of other weaknesses of standard gender tools are also discussed.

3.1 Gender tools do not address the empowerment issue

Gender analysis tools have been heavily criticised in the literature (and characterised, derisively, as the ‘add and stir’ recipe for gender), on the basis that they fail to deal with the underlying issues of subordination of women and fail to highlight these empowerment issues (Wieringa, 1998; Halsema, 2003). Although most of them claim to be promoting empowerment, they do not really look at gender relations (ie the structural aspects of power imbalance between men and women), or at the reasons for women’s low status and lack of power³. Moreover they do not look at issues such as violence, sexuality, or women’s control of their bodies, let alone at how these things could be changed. Instead, they focus on qualitative and quantitative descriptions of how work is divided, and at who has access and who has control of various resources, taking these as ‘givens’. The gender ‘needs’ or interests (practical or strategic) that are identified are standardised and as noted do not touch on some of the more sensitive issues.

Many feminist writers therefore call for a completely different approach which takes a more radical political position (Wieringa 1998). Halsema’s (2003) analysis of the different stand points is enlightening on this. In the literature there are however a number of conceptual approaches which do address empowerment concerns and which could in principle be mainstreamed, such as the Social Relations Model (Kabeer, 1994), and Young’s concepts of gender contracts (Young, 1993). It could be argued that these more complex models are not utilised by the planning profession because their complexity makes them unwieldy and difficult in practice. But this does not explain why other rather simple, practical models, which also highlight these central gender concerns, such as Longwe’s Empowerment Framework (in Williams, 1994), which explicitly tries to measure or assess the real extent of empowerment, have not been taken up as a mainstream gender tool. Rather, this seems to imply (as feminist critics claim) an aversion on the part of development agencies, to really open the empowerment issue to scrutiny. This could be considered a paradox, considering the explicit and heavy emphasis given by many donors to equality and empowerment in their policy statements, and indeed in the preamble to their gender procedures manuals (e.g. CIDA, 1999; NORAD, 1999; Derbyshire, 2002, for the case of DFID).

It is evident that there is some confusion in fact about what ‘empowerment’ means, and whether this is the same or different from ‘equality’ (the Millennium Development Goal on gender is “promote gender equality and empower women”). ‘Empowerment’ is an abstract concept, so many of the donors prefer to speak in terms of gender equality, which is more concrete. However, gender equality as a policy is controversial, and is not accepted in many societies, particularly where this is seen as counter to fundamentalist religious doctrine under various denominations. Empowerment on the other hand can be seen both as a means to reach equality and a result of achievement of equality; it is a process as well as a state.

³ To be fair to the original authors of these models, the approach they recommended was not quite so simplistic as the critics sometimes claim. For example, the Harvard Method includes a step which looks into the reasons and influencing factors for the inequitable position of women, but this is a complex matter and not easy to express in matrix form, so it is often simply left out in most of the manuals.

But even if empowerment is seen as a process which leads (perhaps gradually) to greater equality between the genders, there is still confusion concerning what empowerment implies. For many policy makers, eg UNDP and World Bank, it is about empowering women to enter into productive activities and stimulate economic growth, while for many feminists it is primarily about personal and political freedom⁴. It is not always clear that the first will necessarily lead to the second, or vice versa.

The paradox is that although donors and international organisations publish strong policy statements regarding gender equality and empowerment, and state that gender analysis is to be used to ensure these goals are met in projects that they fund, in reality the vast majority of projects, even if they are directed towards women, and even where gender analysis is carried out, do not result in gender equality and empowerment. The useful term ‘policy evaporation’ was introduced in the DFID Gender manual (Derbyshire, 2002), recognising that field practice in the form of projects usually waters down the grand statements that the donors adopt on their front pages, one could say, making them more ‘realistic’.

There may be various reasons for ‘policy evaporation’. One could be that the staff and the engineers in the field responsible for implementing the projects do not entirely share the ideology of the donor, or feel it to be inappropriate in the local context. If this is the case, then the problem as regards gender tools being used is that they do not bring out this fundamental dilemma. More likely however is that in reality the kinds of development projects in which they are involved could not easily be directed towards change in many of the areas fundamental to gender empowerment. Most projects, however participatory, do not start on a *tabula rasa* but offer a limited menu of possible investments from a particular portfolio. In the case of energy projects, there may be some choice in the type of technology and in the way that it is introduced, but the project is there to offer energy services, not, say, to protect women from being battered by their husbands. A large number of energy interventions might be useful and helpful to women without empowering them at all.

This is not to say that energy projects can never help to deliver empowerment. Exactly what empowerment means may vary from location to location, but if, for example, electric street lights for the first time really allow women to go out alone in the evening and take part in activities earlier forbidden to them (evening classes, political gatherings) this could be considered an empowerment benefit. If in the setting up of a cooperative to manage a micro-hydro plant or a woodfuel production unit, women are placed in leading roles, which conventionally would always have been taken by men, and if indeed they carry out these functions, this could be a move towards empowerment, even if the technology itself does not have a gender empowerment function. In reality, the *process* by which the energy service is planned, implemented and maintained, if done in a gender sensitive manner, may be more empowering than the energy technology itself.

⁴ UNIFEM includes the following in its definition of women’s empowerment: (women) acquiring understanding of gender relations and ways in which these can be changed; developing a sense of self-worth, gaining ability to generate choices and exercise bargaining power.

One thing that seems to be missing from the standard gender analytic procedures is provision for tools which might help to decide what the *aims* as regards gender really are at the project level, and how these can be measured. It is as if these goals are fixed in advance, and require no further analysis, but in reality they surely need to be dealt with as an issue in the field. If the aim of the donor or the policy makers is empowerment, how is this envisaged by the various stakeholders in the project (not least, the population to whom the project is directed)? And do these stakeholder in fact support empowerment as the gender goal, or have they different views on this? In current practice, they are not asked, the question is simply not raised. This is reflected in the remarkable silence in the field manuals and gender analysis guides as regards the gender aims of local people and how these could be measured. Although women's 'practical needs' are sometimes discussed, and sometimes observed in the field, women's 'strategic interests' are largely predefined or fall into pre-defined categories (training, education) and the PRA tools recommended for use in the gender analysis do not address this issue in any depth.

The central contention of this paper is that this lack of tools to support debate on the fundamental gender aims of the projects, is the core failing of standard gender tools, and that the feminist critique of gender tools has less to do with their failure to address empowerment, than their failure to articulate in any way what the underlying goals are. It is argued that existing gender tools are not able deal with these questions. It follows therefore that new and improved gender tools are needed to make the gender goals of projects and programmes explicit, discussable and measurable. A clear set of goals with indicators would provide a strong basis against which possible interventions should be assessed, and achievements measured. Without such a set of goals, it is difficult to plan and evaluate interventions from a gender perspective.

3.2 Gender tools need to make gender goals explicit and discussable.

As noted above, empowerment (of women) may be the goal of a development agency, or indeed of an energy project, but not all energy projects aim at this, even if donor policy specifies women's empowerment as an over-arching concern. After all, a project which succeeds in delivering stoves which belch out less noxious smoke than the traditional *chula* may be of great benefit to women, even if it does not empower them. At the end of the day, women are still in the kitchen, nothing has changed as regards gender relations or gender equality, but they may be more comfortable and in a better state of health. Table 1 illustrates how different gender goals can be met by different types of energy interventions, as will be explained in the text below.

When we talk of gender goals here it should be clear that it is goals for women that are the primary concern, since in the past these have been overlooked.⁵

⁵ The term *gender* was introduced into development literature as a radical measure because the earlier 'women in development' thinking did not deal with the central problem, ie the subordination of women, moreover it had a tendency to conceptualise women as victims rather than as agents. However in many development agencies, particularly the World Bank, the term gender has been hijacked, de-radicalised and used to mean 'looking at what women do/need and looking at what men do/need'. Here *gender* is used to mean women and their social position in an unequal world

There are no existing gender tools, which help in the formulation of gender goals or ambitions of the project, and which lead to identification of indicators which subsequently can be used to assess whether the project has been successful in this regard. Clearly, the actual goals would have to be worked out independently for each project and location, and preferably on the basis of consensus of all stakeholders involved. However, as a general guideline, there are three types of gender goals:

Improvement of women's welfare. As a class, women, but especially poor women in developing countries, work longer hours than men, and much of this work involves drudgery, not least the household tasks such as gathering fuel and water, preparing foodstuffs (pounding grain) and cooking, as well as the heavy field tasks and portage of crops, which they often do alongside men. There are many energy interventions which could improve their lives, and which could introduce greater efficiency to save time and effort, without fundamentally changing their role or the balance of responsibilities in the family. Gender analysis can be used to identify what aspects of women's lives could be improved and drudgery reduced. Stove projects, but also water pumping and milling, can be designed to deliver such welfare benefits.

Increasing women's (economic) productivity. Women are often held back from (increasing) productive activity because of constraints which are less felt by men (access to land and credit for example). Gender analysis can identify such constraints and interventions can be made by projects to encourage women to become economically stronger, thus benefiting the economy generally and giving them more financial autonomy. Although some agencies consider this to be 'empowerment', it is primarily an economic advance and in most cases an extension, and improvement, or up-scaling of an existing situation, rather than a radical change in women's position. The provision of energy for women's enterprises is an obvious example (UNDP, 2001)

Empowerment. Existing gender relations mean that women are held back not only from economic activities but also from a wide range of social and political functions, moreover they are often psychologically held back because of conditioning which has taught them that they are inferior or less worthy than men. Empowerment concerns the creation of conditions for women to enable them to break through this tradition if they wish to and to take on new roles and challenges. Gender analysis can help women understand this and identify ways in which change can be brought about. Empowerment certainly implies a move towards more equality with men in the public sphere, and may also imply changes in gender relations within the household. It certainly involves shifts in gender roles. This should not be seen as a gain for women at the expense of men; rather it is seen as a benefit for society as a whole, and a necessary step towards sustainable development. As noted above, very often it is not the energy technology itself which may deliver empowerment benefits but the way in which the project is managed; the extent to which women's traditional roles are challenged in this.

In practice of course, there are overlaps between these goals. For example, improved welfare may lay the basis for greater economic productivity, by freeing up women's time, and economic independence may be a step on the way to women's

empowerment in social, political, and psychological senses. Moreover, what is an increase in productivity in one place might be considered a step towards empowerment elsewhere: for example, provision of energy may enable existing women entrepreneurs in one place to expand their activities in one location, but in another it for the first time make such activities possible for women, and thus precipitate a real change in gender roles.

Recognition that there are different sorts of gender goals bring with it the question of who is to determine what goals are to guide a given project or programme. If official policy on gender does not accord with local values, to whom is the project responsible? In practice this problem is solved by not asking the local community what their gender goals are and by fudging. Achievements in welfare are simply called empowerment gains in project reporting and nobody questions this. More clarity on gender goals however requires more discussion on what the goals really are, involving not just the donor but other stakeholders, not least the community and the women within the community. This should also improve communication between the different stakeholders involved and lead to more rational ways of monitoring and evaluating the success of the intervention.

In addition to the three types of gender goals described above, there is another, more instrumental, reason for using gender analysis. This concerns ***gender analysis for project efficiency reasons***. Here the aim is not so much to benefit women; on this matter it is essentially agnostic. Rather, it is used to ensure that the project works in an optimal way regardless of its underlying goals. Failure by project management to recognise that men and women have different needs, and have different access to resources, means that projects can easily miss their targets (as in the case of the FAO woodfuel plantation project in Thailand, cited in section 2). In this interpretation, gender analysis is like a good marketing survey; it asks you to know your customers before you start to market your project. This is a legitimate use of gender analysis, but it should not be itself be confused with using gender analysis for the benefit of women, although of use of gender analysis in this way can also be combined with any of the gender goals mentioned above.

Underlying goal and reason to use the gender analysis	Implication for women	Typical energy interventions
To improve the welfare of women, improve their quality of life and reduce drudgery	Lighten women's work load but no special effort is being made to change their basic role	Improved stoves, power for grinding and husking, powered domestic water supply, electric light in working areas
To improve the production levels of women and their economic opportunities	Create new roles for women that lead to economic growth, this may also lead to economic independence of the women	Special attention to supplying energy (electric, mechanical power, or heat) for women's small business in the home or outside; usually coupled with credit schemes and technical training
To empower women, help them recognize and break through existing gender relations	Political and decision-making power of women is increased; social norms and opinions about 'appropriate' behaviour begin to change. Women's own view of their role and potential begins to change.	Not so much the technology, but <i>how it is introduced</i> is crucial. Special attention to including women on organization committees, management training, empowerment consciencisation. Energy itself may be a component in this, eg street lighting may facilitate women's meetings in evening, electricity may make internet communication possible and begin to reduce women's isolation etc.
Gender analysis used for project efficiency purposes (necessary to ensure project success)	Interventions should be matched to women's stated requirements and should not raise opposition from men.	Could be various, but in practice usually for <i>welfare</i> or <i>productive</i> purposes.

Table 1 How typical energy interventions relate to different gender goals

3.3 Role of local populations in use of gender analytic tools is not clear

The original gender analysis tools were indeed analytic tools, that is to say, structures or frameworks, which suggest what types of data are important and how such data should be analysed. The idea is that the planner is responsible for such analysis. In order to obtain the data, other tools are needed. A variety of 'genderised' PRA methods have been suggested and described in the gender analytic handbooks (IIED, 1995; Feldstein and Jiggins, 1994; Thomas-Slayter et al, 1993; Lingen, 1997). Basically, these are standard PRA methods, but carried out in groups which are gender specific. The thinking behind this is that men and women have different perceptions and different realities and only by polling their views and their knowledge independently, will the full truth be unveiled. Thus the gender analytic matrices will be filled with more reliable data if it is gathered using gender disaggregated techniques. One could argue that, unless further supported by other steps, this comes close to the use of gender analysis for project efficiency purposes.

On the other hand there is another stream of practice in which the deployment of the same or any other participatory methods is itself a step towards empowerment and recognition of the need for change in gender relations. The techniques are used by a gender facilitator, who will ensure that both women and men participate in the discussions (possibly women participating for the first time in such gatherings). This can raise debate among the local community about underlying gender issues. The techniques will usually be applied not in gender specific groups, but deliberately in mixed groups, with a view to bringing out, in public, the gender differences that exist and to stimulate debate about these within the community. It is the process, more than the data output, that is the point of the exercise. Thus the method of Rani Parker (1993), which superficially resembles the Harvard matrix, is in fact a resource for use by a facilitator in the field to raise community awareness and debate about gender differences, as is Loes Schenk's (1998) "Whose hands are these" method, which involves picture of hands doing different tasks; the participants are asked to say for each picture whether it is a man or a woman, and why, which gives rise to animated discussions about division of labour and the justice of different roles. In both cases, the underlying idea is that if the topic of gender becomes discussable, then change can be brought about by the people themselves. It may also mean, for example, that a community decision about a project being implemented is made by a consensus of both men and women, rather than by the usual male spokespersons. Thus the use of such a technique can itself help to shift gender relations.

The distinction between these two types of application of participatory method (both may use PRA techniques such as resources mapping, ranking techniques etc) is important and needs to be recognised. As with the case of gender goals, it is a question of determining, in a given situation, what the appropriate approach is. Too often however, there is confusion about this. It may be that the planners are looking for 'reliable' gender disaggregated data, while the fieldworkers, who are often socially motivated NGO staff, may be more concerned with getting the gender process moving in the community. The difference in use of PRA methods may in fact should reflect an underlying difference of opinion (often unrecognised) on the gender goals of the project. What is really needed is a matching of the way tools are used with the agreed gender goals.

Finally there are participatory processes which might be regarded as 'consultative', and which are usually used right at the beginning of a planning process to orient the planners to the local situation and to provide initial insights into the nature of the problems locally. These hardly use 'methods'; they involve meetings and discussions at which points are made and issues raised. Such consultation can and should be genderised by arranging for separate meetings with men and with women, since at general community meetings it is in many cases customary for only senior figures (thus usually men) to speak. Consultation with other stakeholders, such as potential implementing agencies, is also important at an early stage.

3.4 Matrices are too rigid and do not fit normal planning processes

The original gender analytic tools used matrices or tables as the basic format for structuring and arranging data. Evidently this has been found to be too rigid and limited in practice, since most development agencies, though still using the same basic concepts, have moved away from matrix formats and reformulated the issues as a series of questions. Moreover, mainstreaming requires that gender issues are not dealt with separately but are integrated into the normal planning procedures, so increasingly there have been moves to tie the gender questions into the planning model that is the basis for project and programme development - the livelihood model, for analysis of the existing situation, and the project cycle or the logframe, for planning the intervention.

3.5 Range of stakeholders to be analysed is often too limited

Standard gender analytic tools treat men and women as if there were no class distinctions among them. Women of different classes may in reality be more different in terms of power over resources than men and women from the same class⁶, and gender analysis therefore may need to disaggregate in these terms. A more difficult social division to investigate is the differences in power between junior and senior women within any one household. Such power differences are widely acknowledged (senior wife, mother in law etc) but detailed studies, and appropriate methods to make such investigations, are lacking in common project planning practice. Most 'off the peg' gender tools do not exclude these possibilities but do not provide for them either. Some gender issues however are common to all women, regardless of class; lack of representation in political decision making, and the fact that reproductive activities are heavily skewed in the family division of labour, occur at all social levels.

A further question is whether the main subject of the gender analysis should be the beneficiary community itself or whether it is not better directed at other stakeholders in the process: the implementing agencies, for example. This point has generally arisen when donors noted with dissatisfaction that the gender goals that had been set, were not matched by activities of the project in the field, and found the fault to lie

⁶ It is not necessarily the case that the better off women are the more empowered; lower caste and tribal women in the Indian sub-continent have, within the family, a lot more power than their high caste neighbours.

with implementing agencies which do not always share the gender ideology and who may work on the basis of another set of set of values and norms. A number of gender analytic frameworks has therefore been proposed to assess the credentials of the implementing agencies, with a set of criteria which enable a better choice among such agencies (Lingen, 1997; Derbyshire 2002), and should definitely be used as part of standard procedure. This might be particularly useful for the case of energy planning, since local implementing agencies will often be technical, and may have little understanding or experience in dealing with gender issues.

4. Gender frameworks designed for energy

In addition to the generic problems and weaknesses of gender analysis methods sketched above, energy planners face further problems, when looking for gender analytic tools for use in project, programme or even policy planning. These relate to the fact that in the standard frameworks, the variables specified and the types of data gathered using the suggested PRA techniques, are not relevant for the case of energy.

4.1 Variables used in standard gender analytic frameworks are not useful in analysing energy

The original gender analytic tools used matrices or tables as the basic format for structuring and arranging data that related to agricultural production and the domestic life of rural women. A careful analysis is made of the time spent by women and by men on different types of work (for comparative purposes): on the one hand productive activities such as agricultural and other income generating work, off-farm employment etc and on the other, the reproductive activities such as water collection, fuel collection, food preparation and caring for the sick. From an energy point of view what is important is not the time spent on these activities *per se*, but the type and amount of energy that is used in the activity, the positive and negative aspects of this energy use on women and on men, and who decides what type of energy is used of this particular activity. There is no place in the matrix to speculate on what the differential impact of eg electricity will be on the work loads of men and of women, or on their ability to participate in new activities, let alone more detailed questions on gender impact, such as who controls the use of the energy, who makes the decision to purchase new energy equipment and appliances or to invest eg in grid connections, who pays the capital costs, the maintenance, the fuel costs, etc.

However, the big advantage of a framework based on an inventory of work, is that it throws light on a broad range of activities, which automatically brings into the picture forms of energy which are not conventionally covered by the energy sector (metabolic energy used in pounding grain for example), which are particularly important for women. Many of these have been 'invisible' types of energy in the past and it is important that they should be included.

Information is also required in these methods on men's and women's access and control over a number of standard resources, such as land, equipment, labour, income, credit etc. From an energy point of view what matters is not access to land in general, but to fuels that derive from certain land uses; not labour in general, but labour to obtain energy; not access to credit in general, but to credit which could be used in the energy context (credit with the local dealer, for kerosene, is a different matter from credit at the bank to purchase a solar home system). Thus the matrices are too broad and too general, and need to be more focused if they are to be of any use in energy project and programme planning.

4.2 Many standard PRA techniques are not suited to energy data

Similarly, the standard genderised PRA data gathering techniques which are advocated by development agencies (Lingen, 1997; CICC, 1991; Thomas-Slayter 1993, and beautifully illustrated in the video made by IIED (1995)) are for the most part not really related to data the energy planner needs. Drawing of transects or community maps (even if done independently by men and by women) will only be of value if there is a spatial component to the energy question. It may for example be useful in assessing the distance which women have to go to collect fuelwood, but then it would be better to focus on this one variable rather than drawing generalised maps of resources. Another use of participatory mapping might be to show which quarters of the village are served by the grid and which not. However mapping is not likely to be useful for the case of stoves, for example. Seasonal calendars, which typically show peaks and troughs in work intensity would only be of value if certain energy-requiring tasks are seasonally determined. Wealth classifications might be of some importance – because poor women's needs may well be different from richer women's needs- but Venn diagram analysis of organisations and institutions within the village are probably of little interest in the case of energy. What is required is to select those methods that reliably provide data on the most important variables, and to leave the rest. Making these decisions however requires some experience and as yet there are few examples in the energy sector to act as models

Lack of 'energy specific' gender tools was signalled as a problem in a recent bibliography funded by DfID (TDG, 2002). Since that time however there have been several attempts to design gender tools specifically for this sector. These are critically reviewed below.

4.3 EnPoGen model.

The EnPoGen project (2003) was set up to support the efforts of the Asia Alternative Energy Program (ASTAE) of the World Bank in mainstreaming environmentally sound renewable energy and energy efficiency technologies into the World Bank's energy lending portfolio in Asia, with special emphasis on poverty alleviation and increasing gender equity. It was carried out by a number of agencies which have been prominent in advocating more gender sensitivity in energy planning. It did not cover the entire energy field but focused on rural electrification. Its original aim was to

monitor the gender and poverty impacts of rural electrification. It produced a number of interesting concept papers as regards gender and electrification (Cecelski, 2003, Ramani and Heijndermans, 2003), and case studies in China, Sri Lanka and Indonesia, but a further output was the development of a 'model' methodology or framework for monitoring and evaluating the impact of rural electrification projects on poverty alleviation and gender equity. In particular it was recognized that in order to be of value in monitoring and evaluation, the framework should be central in the design of the project from the start. It strongly stresses the need for participation in the process, and for a demand oriented approach to energy planning.

With monitoring of impacts as the main aim, a set of key variables is identified as shown in table 2; each of these is further elaborated using indicators, with the idea that these indicators will be used to measure each of the variables for rich and poor people separately, and for men and women separately. The indicators for 'equitable access to and use of services' for example reflect *access* (choice in services, appliances, equipment etc); *affordability* (installation and connection costs, fees, costs of appliances etc, *service use* (knowledge about services) and *demand responsive service* (user voice in planning, user satisfaction etc).

These indicators, which appear to be derived from a similar effort in the water sector (Wijk-Sijbesma, 2001), may in practice be a little difficult to work with (for example, they were rejected as "too complicated" by a research team looking at gender in rural electrification in Bangladesh (Clancy, p.c). Although they do not explicitly reflect gender goals, they do provide a systematic framework on which a gender analysis could be made. However, what is particularly interesting about the indicators developed here is that they refer not to energy technologies as such but to *energy services*, in other words, the real outcomes of the project. This is a major step forward as regards evaluation of energy projects and should definitely be the basis of a gender-based analysis.

Table 2: Variables and indicators in the EnPoGen model

Note: M/F refers to males and females, and R/P to rich and poor. Source: EnPoGen (2003)

Variable	Indicators
1. Effectively sustained (M/F, R/P)	System Quality: Quality of design, components and installation.
	Effective Functioning: Quality of service operation, expected load being met, reliability and predictability of service.
	Financial Viability of Service Provider: Coverage of installation/connection and operation and maintenance (O&M) costs, universality and timeliness of payments, presence and nature of subsidies.
	Effective Management: Level of user awareness of fees/tariffs and expected O&M costs, end user awareness of system use and capabilities/limits, end user capacity to troubleshoot problems, quality of electric service, quality and timeliness of repairs, presence of a complaint resolution mechanism, budgeting and accounting for electric service, metering, billing, and type and proportion of user contribution at time of service establishment.
2. Equitable access and use (M/F, R/P)	Access: Choices in services, appliances, and equipment offered, choice in location of fixtures, and proportion of population using the service.
	Affordability: Installation and connection costs, fee/tariff structure, O&M costs, costs of appliances, including replacement parts, and existence and understanding of user financing options.
	Service Use: Knowledge and practice of efficient, safe and environmentally sound use services, knowledge and practice of recycling and disposal practices, and nature of use.
	Demand-Responsive Service: User voice in planning: end use priorities, technology and service options, tariff structure and O&M, and user satisfaction.
3. Degree of change in cross-sectoral social development indicators (M/F, R/P)	Education: Ability to attend school, time spent on education, quality of education and presence of teachers.
	Health Care and Safety: Access to and quality of health care, access to medicines, presence of doctor(s)/health worker(s), and safety in and outside the home.
	Domestic Productivity: Ability to conduct and efficiency of household (non-income-generating) responsibilities.
	Income-Generating Activities: Ability to conduct income-generating activities, productivity/efficiency and profitability.
	"Strategic" Needs: Ability to undertake new/desired activities, participation in household decisionmaking and voice in community decision
	Access to Information and Communications: Access to news and information on income-generating activities, health and safety and family planning, and access to communication with distant family members.
4. Division of costs and benefits (M/F, R/P)	Convenience/Comfort: Leisure time and time spent sleeping, socializing, watching television/listening to radio/reading for enjoyment.
5. Participation in service establishment and operation (M/F, R/P)	Share of cost or contribution both between and within households, and division of decisionmaking.
6. Institutional support for gender and poverty sensitive demand-responsive participation	Degree of control in installation and construction schedules and quality, capability of relevant local energy committee, coordination between local energy committee and service provider(s), level of skill created and practiced through end user training, and perceived transparency in accounts.
7. Policy support for gender and poverty sensitive demand-responsive participation	Service objectives, implementing strategies and project performance criteria reflect gender and poverty specific elements, gender and class disaggregated planning and monitoring systems in operation, poverty and gender expertise reflected in the type of agencies involved, field teams and team approach, extent and nature of staff training available for gender and poverty approaches, and capacity building, managerial support and staff performance incentives for using poverty and gender aware approaches.
	National relevant sector policy present with sustainability and equity as explicit goals.

In the EnPoGen methodology, two complementary methods are used for gathering the data for this poverty/gender based M&E framework. The first is a so-called participatory assessment, which consists of the use of a variety of PRA methods, which are genderised in as far as it is stated that in some cases, they should be carried out by men's and women's groups separately, and in others, by mixed groups. These participatory activities are used to solicit the perceptions and priorities of the target communities with respect to the proposed project. Open discussion among community members and the various interest groups increases the chance of obtaining credible and relevant information, allowing biased or incomplete answers to be challenged by group dynamics. Participants identify problems and solutions and are more likely to take ownership of the outcomes. Tools, such as community mapping and wealth classification, allow community members to assess and plan for equitable access to energy services. Self-scoring allows for instant feedback, which encourages transparency and joint action toward finding a solution. However, there is not a lot of emphasis on drawing out what the differences are between men's and women's needs and perceptions. The main purpose seems to be that women should be equally involved in the participatory process, and in contributing to an overall community statement about energy. This is different from learning lessons about differences between men and women with regard to energy, although in some cases it is recommended that different results for men and women should be noted by the planners and brought up for further discussion within the whole community group. In other words, the approach that has been adopted here is one in which participatory methods are used at least in part for decision making at the community level about the nature of the planned intervention, as well as for gender disaggregated data collection for analysis by the planners.

As regards gender disaggregated data, PRA methods are intended to provide qualitative information on the various indicators and variables that were identified in the framework. Although examples are given in the text, it is not easy to imagine how this works. A community mapping exercise, for example, is to be used to map the locations of electricity supplies, but also to record the degree to which electricity application meet expected needs – are there frequent power cuts, voltage fluctuations, service interruptions etc. One wonders how this can be recorded on the map, which is to be drawn using available materials such as pebbles and twigs. 'Pocket voting' (a system in which participants can vote in privacy on any given issue) is to be used to gather data on which electricity technology is generally used or desired by the community, and so on. The exact links here, and how the data gathered actually fits the indicators, is not very clear.

The qualitative information from the participatory assessment is intended to be combined with quantitative information gathered by a second method, a detailed socio-economic impact survey carried out in sample households. The idea of the household survey is to enable comparisons to be made over time to track the progress of the project, and to generalize these findings over a broader population. The survey is designed to provide important information on markets for energy services, the rate of adoption of electricity, the impressions and attitudes of people toward electricity, and the perceived benefits of electricity as compared with other types of energy.

The survey form presented is very detailed, but is addressed to the *household*, not to men and women separately. Although the household survey is intended to support a demand driven approach to planning energy services, data is not elicited about differential use of energy by men and women, nor are the opinions of men and women concerning the use or priorities as regards energy, recorded. It is a great pity that the opportunity was not taken here to direct the questions to men and women separately, and to look at gender questions directly. Instead, it views the household as a unit, using one respondent to answer for all, and not recognizing that men and women may have very different stories to tell, were they to be asked (with the exception of the very last section, which is on time allocation: in this section, the form is intended to be filled in twice, once for the 'male members' and once for the 'female members' of the household). Gender disaggregation in questionnaires is a fundamental aspect of gender data gathering and is not difficult to achieve, once there is awareness of the need for this.

A further serious problem is how this data actually relates to the variables and indicators which form the basic concepts for the framework. The questions all relate to the amount of energy used in the household, for what purpose, in detail, followed by a few questions on attitudes about purchase or adopting technology. They in no way relate to the set of concepts (variables and indicators) that were posed as the heart of the methodology.

Thus combining the data from the household survey with the data from the participatory assessment would be very difficult and would not lead to any greater understanding of gender concerns in energy, although, if the households were sorted by income, it would be possible to identify typical energy use patterns and purchase attitudes, by different groups.

The good points about the EnPoGen approach are that it is an innovative attempt to provide a central, binding element (the indicators) and link data gathering to these in a systematic way, even if this has not totally succeeded; it is based on the concept of demand driven planning for energy services rather than supply driven provision of energy technology; and it tries to assess these services, not just the technology in a participatory way. There are many lessons which can be learned from this experience, and the methods proposed in this paper reflect this learning.

4.2 Gender sensitive indicators for assessing impacts of energy projects

The idea of formulating indicators as the central focus in gender analysis for energy has also been proposed by a number of other authors, e.g. by UNDP. Karlsson (2003) recognises that there are different kinds of indicators: those that measure outcome and those that measure impact, or the effect that the energy services provided have on women. In terms of indicators to measure gender goals, it is clear that what is primarily needed are impact indicators, not output indicators. Not all indicators necessarily have to be quantitative, since many issues are qualitative in nature. Both Karlsson (2003) and Havet (2003) have developed lists of energy indicators, related to the Millennium Development Goals (MDGs), and disaggregated in gender terms. The advantage of this approach is that it has some basis in a clear set of 'accepted' goals

(the MDGs were worked out between different donor organisations, and now used by many multi- and bi-lateral donors). It might be a limitation, or a strength, that most of the goals are not themselves gender goals; a strength, in that there are gender issues that need to be highlighted in every aspect of development (and, as Havet shows, a related energy component), but a weakness in that the underlying gender rationale is obscured. The only MDG which deals directly with gender is one which calls for ‘gender equality and empowerment of women’, and which, in the original text, refers to education for women and girls. Ideally, for each development goal, gender goals would be needed (Ramani, pc). A further problem is that the goals and the indicators have been set from outside, rather than on the basis of the priorities and perceptions of local beneficiaries of the project, and it is doubtful whether they can be applied in all contexts.

Development of indicators related to goals is a big step forward as regards mainstreaming gender into energy planning, and these contributions are a valuable conceptual development. However, mainstreaming will require more steps, to ensure that the gender component is present at every stage in planning. It is for this reason that a number of authors have moved to the idea of integrating gender issues into the project cycle model.

4.3 Approaches based on the Project Cycle

A number of authors (Karlsson and Clancy, 2004; Dutta, 2003) have used the energy project cycle as a basis and ‘genderised’ this. These approaches outline the specific questions that need to be addressed at different stages of the Project Cycle. Assessment of energy needs essentially involves defining the project objectives in terms of men and women (ie formulating gender goals), identifying the opportunities and/or constraints for women’s project involvement and identifying possible negative impacts on women. Formulation of projects and programmes includes questions regarding gender priorities, impacts on women’s activities, access and control of resources and benefits as well as those relating to organizational structures and responsiveness to women’s needs, operations, logistics etc. need to be asked. Table 3 illustrates two different ‘genderised’ project cycles, although for reasons of space here only two stages of each cycle are illustrated with the gender questions in detail. What is evident from this comparison of two methods is that there can be no one fixed, rigid format, but that this general approach has a lot to offer in systematising gender questions.

The advantage of this method is that it dovetails with the line of thinking that energy planners frequently follow, meaning that the gender questions can readily be mainstreamed with the normal planning procedures.

Steps in project cycle	From Dutta (2003)	From Karlsson and Clancy(2003)
Step 1	Assessment of rural energy needs	Stakeholder analysis
Step 2	Assessment of rural energy resources	Problem analysis and project formulation
Step 3	Evaluation of rural energy technologies	Assumptions and external factors relating to institutional and national questions
Step 4	Formulation of programs and projects <ul style="list-style-type: none"> • Who (w/m) is likely to participate in and benefit from the energy intervention? • Who (w/m) is going to be involved in management and maintenance of the systems? • Is women's knowledge eg on ecosystems and bio diversity taken into account? • How far have individuals and women's NGOs with knowledge and experience of gender mainstreaming participated in project identification, formulation and appraisal? • Are project personnel sufficiently aware of, sympathetic towards and trained to deal with women's needs? • Are there appropriate opportunities of women to participate in project management positions? 	Assumptions and external factor relating to households and the community <ul style="list-style-type: none"> • Who (w/m) can participate in implementation of the energy intervention and what constraints do w/m face in this • Who (w/m) will benefit or be disadvantaged by adoption of the proposed interventions • Who (w/m) has access to and control over the key resources critical to adoption and sustainable use of the interventions? • Who (w/m) is likely to make a decision regarding adoption of the proposed intervention? • Who (w/m) is going to be involved in maintenance and repair and what training is required • Who (w/m) are going to be involved in management?
Step 5	Monitoring, evaluation and feedback <ul style="list-style-type: none"> • What is the impact of the energy intervention on women's workload and time use, access and control of income and resources, decision making, reproductive roles and expressed aspiration of men and women? • Does the project's monitoring and evaluation system explicitly measure the impacts on women? • What are the types and courses of data needed? • Are monitoring and evaluation results fed back to the project personnel for them to make timely project adjustments? • Are women involved in collection and interpretation of this data? 	Project appraisal, feasibility study and alternatives analysis <ul style="list-style-type: none"> • Given the proposed interventions, how will livelihood outcomes of m and w change, and how do these benefits relate to the gender objectives? • What are the view of m and w on the value of the technology as such, for the use of the new technology as a <i>replacement</i> for the use of the technology for <i>new</i> types of uses? What are their priorities?
Step 6		Indicators for logframe
Step 7		Detailed project design
Step 8		Monitoring and evaluation

Table 3: Mainstreaming of gender questions in energy project planning cycles
(details provided for only some of the project cycle stages)

4.4. Lessons learned regarding requirements on gender tools for energy project and programmes

From the general critique of gender tools and the review of approaches suggested for the energy sector, the following points may be carried forward for the design of better gender tools for energy:

- Gender goals of energy projects and programmes need to be made explicit and measurable.
- In most cases they need to be defined with the participation of all the stakeholders, including men and women of the community (separately) and agencies which are to be involved.
- Empowerment (or equality) may be one goal but others such as productivity and welfare are also possible. Definition of goals should be the first step in any gender analysis related to interventions.
- Gender analysis may also be used for project efficiency purposes but this should not be confused with the gender goals themselves.
- The choice of objects of the gender analysis need to be carefully considered and a decision needs to be made as to whether the beneficiary population needs to be analysed on the basis of gender plus class.
- Tools may also be needed to analyse the capacity of other stakeholders such as implementing agencies to handle gender issues.
- Many of women's energy needs relate to end uses not conventionally covered in energy planning, such as pounding of grain by hand, and carrying of water. By reviewing all work activities, as is done in standard gender analysis, many of these activities will come to light and can be included for a comprehensive view of the energy situation.
- Indicators are needed to measure the impact that energy services have, in relation to the gender goals
- Data gathering methods need to relate directly to these indicators and be selected and planned for this purpose
- Participatory techniques need to be selected with a clear understanding of their role in the process, in particular whether they are primarily for *data gathering* or for *decision making*. Both positions are possible but awareness of the purpose necessary.
- Gender separation during data gathering phases to produce gender disaggregated data can be very useful in obtaining reliable information on gender uses of energy and barriers to access to energy as well as gender priorities as regards new energy services.
- Not merely the energy source itself, but also access to equipment and appliances making use of the energy is likely to be gender specific and needs to be investigated
- Tailoring the gender analysis to the planning procedures that are normally used in energy planning (eg the project cycle) helps to support mainstreaming. This involves asking the relevant gender questions at each stage in the planning process. There are many different possible formulations for such questions.

5 Towards improved gender tools for energy planning

On the basis of the critical analysis of gender tools in general, and of approaches to application of gender analysis in the context of energy projects, a framework has been drawn up for the first stages in the energy project planning cycle (Table 4), essentially covering the steps of problems formulation and appraisal. This assumes a setting in which the outlines of a project to provide improved energy services are already determined; for example, the idea might be to offer solar PV in various forms to a given population group. It is also assumed that the implementing and supporting agencies have been at least preliminarily identified. Mainstreaming implies that the activities suggested here would be carried out in parallel with similar activities in technical and financial aspects of the project design. Thus for example, gender goals and indicators would be matched by more general project goals and indicators.

The first group of questions (stage 1) relates to identification of the stakeholders and the determination of gender goals. The stakeholders would include different groups within the host community of the project (at minimum, women and men separately, and quite possibly subgroups among them), as well as the promoting, implementing and supporting agencies involved. The constraints on participation in the planning process (particularly of women) are identified early in order to take remedial action where necessary.

Definition of the gender goals may be carried out in consultation with the various stakeholders alongside definition of general goals for the project; this would mean trying to understand whether the primary goals of the stakeholders are for empowerment, productivity or welfare, and how people envisage this. Indicators would be developed in terms of impacts on a gender disaggregated basis.

The next stage involves reaching a better understanding of the gender aspects of the current use of energy in the areas on which the new energy services might impinge. It is important to know whether men or women are the primary energy users in these tasks or activities and who is considered to be responsible for different aspects of the provision of this energy, and will make the investment decisions, since this will have a bearing on who will be involved in the new energy service. If it turns out that all such investment decisions are made by men, and if it is likely that this will result in decisions which are not in women's interests, then a strategy will have to be developed to counter this as far as possible. It is also important to assess whether these tasks and activities are actually priority concerns of the population, since this will have a bearing on their interest in new energy services.

The third set of questions address the likely conditions attending the proposed new energy services. This is of course speculative, since the energy service is not yet in place, but it is a speculation in which not just the planners, but also community members may be involved. The final step in this series looks back to the gender goals and indicators and assesses whether the gender goals are likely to be met, given the analysis so far. It is evident that to answer these questions adequately, a participatory approach will be required.

This framework provides a straightforward logic to the mainstreaming of gender issues into the energy planning process, but in order to use it, it is necessary to think carefully about how the questions can be answered: what kind of data collection is needed at which stages, and how this can be organized in an efficient manner. In Table 5, this is worked out in more detail. In particular it is clear that the participatory exercises need to be phased; a single session with the communities concerned will not suffice. Input from women and from men is required at the initial stages to determine the goals, in the middle of the process to obtain relevant data, and near the end to provide input for decision making.

Stage 1: Identifying stakeholders and gender goals
Who are the stakeholder groups to be consulted? This should include different groups (men/women) within the community but also agencies to be involved in the project
Are the proposed supporting agencies sufficiently gender sensitive to respond to gender needs in a positive way?
What obstacles might impede the participation of certain stakeholders (particularly women)?
What are the gender goals of the stakeholders and what consensus on goals can be established?
What indicators can be used to measure achievement of gender goals?
Stage 2: Genderised context definition
What services can the proposed energy interventions provide: To substitute new energy services for energy forms already used for particular activities/end uses To make possible new activities/end uses
Who is principally involved (or is likely to be involved) in these activities/end uses (men/women) and can be considered the main user of the energy for these activities? (<i>access</i>)
Who (men/women) is responsible for the current energy supply for these activities? (<i>control</i>): For provision of the basic energy technology utilised For provision of the fuel For purchase of appliances and related equipment For maintenance of the energy system/service
What priority is accorded to the changes in energy service, compared to other investment and spending priorities, by men/women?
Stage 3: Genderised appraisal of proposed energy service
Who (men/women) are envisaged as the primary users of the energy service?
Who (men/women) have control over the key resources (financial, but possibly others) that are necessary to access and use the energy services to be provided?
Who (men/women) will make the decision to adopt this energy service?
Who (men/women) will be expected to pay for any related equipment or appliances? Do they have the financial means to do this?
Who (men/women) will be involved in maintenance of the energy systems/services
Who (men/women) will be involved in overall management of the energy service delivery
In how far does the proposed energy intervention appear likely to succeed in achieving the gender goals, as measured by the indicators already identified?

Table 4: Framework for mainstreaming gender questions into first phase of energy project plan

Question to be asked	Source of data	Work plan for data collection
<i>Identifying stakeholders and gender goals</i>		
Which stakeholders?	Stakeholders should include all agencies involved and the community, divided into interest groups in so far as this has a bearing on energy use patterns (in any case, men and women should be considered separate stakeholder groups)	Preparation phase and fieldwork planning
Gender capacity of agencies?	Assess whether the implementing and supporting agencies will be capable of responding to gender issues in a positive manner. Various frameworks to assess this are available in the literature (eg Lingen, 1997, Derbyshire, 2002)	
What obstacles?	Take advice from key informants regarding the local situation. Be prepared to hold different meetings at different times for men and women.	
What goals?	Focus group meetings (men and women separately, each agency also to be consulted). These should focus not on energy directly, and certainly not on the new energy service which is being considered, but on gender relations, roles and decision making authority, both as at present, and as desired. The likelihood is that very different gender goals are held by different stakeholders, and it may be difficult to resolve these differences. It is the task of the project designers to make clear which goals the project is to be designed for and to justify this in project documentation.	First set of focus group meetings with community: consultation and orientation phase
What indicators	During the discussions on goals, the concrete aspects of these may become apparent and form the basis for the indicators. If not, it is a task of the project designers to selected suitable indicators relating the gender goals. Some examples (for the case of solar PV) from a case study in rural Sudan are provided in Table 7..	
<i>Genderised context definition</i>		
What services?	Observation and structured energy surveys of a representative sample are recommended to inventory current energy uses and to form a basic data source which can later be expanded in focus group sessions. Is can include an element of market analysis for potential future uses of energy (“if electricity were made available, what would	Sample survey using detailed interviews with households and enterprises

	you think to use it for?”). Ensure that male and female respondents are interviewed independently of one another in each sample taken.	
Who is involved?	These questions are best answered together and through focus group discussions (men and women separately; if the energy survey above indicates considerable differences between social groups within the community, then the composition of the focus groups should reflect these differences).	Second set of focus group discussions using PRA methods essentially to obtain gender disaggregated data on the existing situation
Who is responsible?		
What priority?		
<i>Genderised appraisal of proposed energy service</i>		
Who is user of new energy service?	These questions concern not just data collection but also elements of decision making as regards the project design. If a participatory approach is to be taken at this stage, it is important that women are involved in the discussions and decision making. This means that some kind of workshop needs to be carried out with representatives of all the immediate stakeholders together, and this needs to be run in such a way that each of the stakeholders is able to contribute, whatever the social norms concerning gender propriety. This can be a first real test of the capacity of the implementing/supporting agencies, and be observed by the project design team.	Community workshop for input in decision making; PRA methods may be used
Who controls the resources necessary?		
Who will maintain it?		
Who will manage it?		
Will the project meet gender goals?	Assessment by the project design team. The attainment of empowerment goals in particular will probably rest more on the manner in which the energy service delivery is designed, and the project managed, than in the choice of the technology itself.	This is the final step in the appraisal

Table 5: Data sources related to gender questions

There is a lot of flexibility in the scheme suggested in Table 5, depending on the local situation and the nature of the energy interventions foreseen. The scheme merely suggests that it is possible to plan in advance and in some detail, how the gender issue is to be incorporated and mainstreamed into the overall workplan.

Space here does not allow for elaboration of each of these steps but one example will be given regarding the development of indicators, since this is a vital concept on which much else is dependent.

5.2 Case of project in rural Sudan

The case described is a semi-fictionalised project in rural Sudan⁷ where a local NGO has been financed by a multilateral agency to work out an energy component within a much broader integrated development plan for a number of villages (Skutsch, Clancy and Leeuw, 2004). The villages are far from the grid with little prospect of connection, and suffer a number of deprivations including water shortage (water table is very deep, rivers dry most of the year), lack of income generating opportunities, and periodic absence of male household members who move to Khartoum in search of work. The lack of communication with their menfolk, and with the outside world generally was found by the NGO in their effort to determine gender goals, to be the primary concern of the women in the village. For all the women, more communication was seen as greater empowerment for themselves; they wanted to have more power over their absent husbands, to be able to contact them, not only to demand that money was sent when needed, but also to be able to make household decisions which otherwise would have to wait until the husband returned often months later. It was further found that in terms of goals, there were at least three groups of women: there was a clear distinction between the richer women, who were able to overcome their own immediate housekeeping problems through payment for services (eg buying water from a tanker), and the poorer women who still faced these daily problems. But there was also a group of women who were widows or had been abandoned, and these women faced very severe economic problems as they had no land. For them, the primary goal was to become economically viable.

The NGO, which specializes in renewable energy technologies, was ready to offer a variety of solar PV technologies to meet the needs of the village. At the start they were investigating solar home systems, solar water pumping, solar applications for community facilities including the schools, health post and community center, and solar lanterns. After the consultations with the women of the community on gender goals, they added solar powered telecommunications to the list of possible energy services, solar street lights and the possibility of a community television service; solar cook stoves are also being reviewed.

The project planning is still ongoing, but Table 6 illustrates how the gender goals might be translated into impact indicators. Here the donor has a strong empowerment ideology, and sees this in political terms: participation of women in community decision making. The donor also sees economic empowerment (through women's own enterprises) as being a step towards this. The women's own view of empowerment is however increased control over the household resources and their husbands, which they envision increasing if they have access to telephones. They also expressed a strong desire to know what was going in the outside world (most families had radios, but, at a time when conflicts in the Middle East were main items

⁷ The case is a real case in which women's energy needs were determined by consultation; these are accurately represented in the text here. The indicators have been developed independently, however.

on world news, they were keen to have more information, although undoubtedly their desire for TV was also motivated by other factors too). So their indicators of empowerment would be different from the sponsoring agency's. The NGO, though wishing to meet the women's needs, was not itself concerned with promoting any particular gender goal; its main concern was that the project would succeed, technology would be adopted and used (the agency was well aware that many solar energy projects in Africa have failed, particularly for the case of solar cookers).

This case illustrates not only differences between donor, implementing agency and local women about what is important as an energy service, it also shows that within the community there are different groups of women who have different priorities. It illustrates how energy services relate to gender goals, which are the development goals that relate to women particularly. It shows that a variety of indicators may be needed to accurately assess whether the energy services delivered by the project are successful in achieving these goals. Hopefully it also demonstrates the common sense nature of the approach, showing that it is not very difficult or complicated. Above all, it should show that taking a gender analytic approach can lead to very interesting new ideas for energy service delivery.

Stakeholder	Expressed gender goals	Gender development impacts expected	Genderised impact indicators
Donor (a multi-lateral agency)	<i>Empowerment</i>	Women take an active role in community decision making	Number of women in committees and in leadership roles Number of points and interventions made by women in committees
	<i>Productivity</i>	Women become more economically active	Number of active women's businesses Number of women attending business training
Implementing agency (an NGO specializing in renewable energy)	<i>Project efficiency</i>	Awareness and support from both men and women for the project	Number of household that adopt the technology
Women in general	<i>Empowerment</i>	Communication to outside world, broadening boundaries	Women able to contact husbands (number of phone calls made) Women more aware of events in the world
• Wealthy women	<i>Welfare</i>	Improved community welfare	Better school results More evening social life and facilities (community video etc)
• Poor women	<i>Welfare</i>	Access to water Access to more convenient fuels	Reduced time to fetch water Reduced time in fetching fuel and cooking
• Women headed households	<i>Productivity</i>	Business opportunities for single women	Number of active enterprises run by this sub-group

Table 6: Gender goals and indicators for the case of solar energy project in rural Sudan

6 Conclusions

This paper has attempted to draw on past experience of gender tools in development planning in general and on a number of models suggested for the energy sector, to suggest an approach that mainstreams gender in the energy project planning cycle and in energy programme planning (eg in grid extension) by (a) clarifying gender goals (b) developing indicators of gender impacts and (c) identifying data sources and techniques to obtain the relevant gender disaggregated data at different stages in the planning cycle and (d) taking steps to ensure that women are involved in a participatory way at different stages in the planning. The purpose is not to provide a rigid blueprint, but rather to demonstrate that the integration of gender is not, essentially, a difficult task, although it does require attention at every stage and a logical approach to mainstreaming this. A manual (“The Gender Face of Energy”) is currently under testing, and will provide guidelines and very practical suggestions for achieving this.

The paper has not addressed the question of introducing more gender sensitivity into energy policy, although this is clearly an important aspect that will be necessary if the energy sector is to address gender in a consistent and systematic manner. Although this may seem back to front, I believe that animo to build gender in to energy policy will be greater once the benefits of actually taking a gender stance in projects and programmes becomes evident.

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