

DISCUSSION PAPER

INVESTING IN GENDER-EQUAL SUSTAINABLE DEVELOPMENT



No. 14, July 2016

ISHA RAY

FOR THE WORLD SURVEY ON THE ROLE OF WOMEN IN DEVELOPMENT 2014

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SUMMARY

This Discussion Paper develops an agenda for investing in sustainable development, with particular emphasis on local priorities, poverty alleviation and gender equality. Sustainable development can take many different pathways, even within the dominant 'three-pillar' paradigm (economy-environment-society) of sustainability. Following Sen (1985, 1999) and Nussbaum (2000), I adopt a capabilities-enhancement view of development and argue that any sustainable development pathway must include an explicit commitment to gender equality in both its conceptualization and implementation. To this end, I highlight four 'mundane' sectors in which investments at scale could be potentially transformative and should therefore be substantially increased: domestic water, safe sanitation, clean(er)-burning cookstoves, and domestic electricity services. These basic services are still thin for the lowest income quintiles in low-income countries, and there is overwhelming evidence that their absence disproportionately affects women and girls. Inadequate access to these services prevents the realization of

human rights for all, of gender equality and of environmental integrity.

I draw on the vast literature on access to basic services for the poor to argue that universal and gender-equal access cannot be guaranteed primarily by voluntary mechanisms (i.e., through market forces or through the non-governmental sector). Universal access needs low-cost innovations, certainly, but it also needs a renewal of the civic contract between the state and its citizens. It needs strong public action for the protection of citizens and their environmental resources. As we begin the post-2015 era, I argue that promoting public action towards gender-equal development should become a priority for the sustainable development agenda. I conclude with some thoughts on the relationship between capabilities and the bodies they inhabit. Gender-equal sustainable development cannot be treated as a disembodied concept: an explicit recognition of the biological and the social body is necessary when setting targets and indicators towards water, sanitation and energy services goals.

RÉSUMÉ

Ce document de réflexion présente un programme d'investissement dans le développement durable en mettant l'accent sur les priorités locales, la réduction de la pauvreté et l'égalité des sexes. Le développement durable peut emprunter de nombreuses voies, y compris dans le cadre du paradigme prédominant de la durabilité à « trois piliers » (économie, environnement, société). À l'instar de Sen (1985, 1999) et de Nussbaum (2000), j'adopte la vision d'un développement reposant sur le renforcement des capacités, et j'avance que toute mesure de développement durable doit inclure un engagement explicite en faveur de l'égalité des sexes, à la fois en termes de conceptualisation et de mise en

œuvre. Dans cette optique, je mets en exergue quatre secteurs « ordinaires » dans lesquels des investissements d'envergure pourraient induire des changements transformateurs et devraient par conséquent être sensiblement augmentés : eau domestique, assainissement sûr, réchauds écologiques et services d'électricité domestique. Ces services de base sont toujours réduits pour les quintiles aux plus faibles revenus des pays à faibles revenus, et il est bien établi que leur absence affecte de manière disproportionnée les femmes et les filles. L'accès inadéquat à ces services entrave la réalisation des droits de l'homme pour tous, de l'égalité des sexes et de l'intégrité environnementale.

Je m'appuie sur la vaste littérature existante en ce qui concerne l'accès aux services de base pour les pauvres pour souligner que l'accès universel et égalitaire homme-femme ne peut être garanti principalement par des mécanismes volontaires (p.ex. par les forces du marché ou du secteur non gouvernemental). Il est incontestable que l'accès universel nécessite des innovations aux coûts modestes, mais il faut aussi renouveler le contrat civique entre l'État et ses citoyens. Une action publique forte est nécessaire aux fins de la protection des citoyens et de leurs ressources environnementales. Alors que

nous entamons la période de l'après 2015, j'affirme que la promotion d'une action publique en matière de développement de l'égalité des sexes devrait devenir une priorité du programme de développement durable. Je conclus par quelques réflexions sur la relation entre les institutions et leurs capacités. Le développement durable de l'égalité des sexes ne peut être traité comme un concept désincarné : il est nécessaire que l'organe biologique et social soit explicitement reconnu lors de la définition des objectifs et des indicateurs relatifs à l'eau, et les services d'énergie.

RESUMEN

Este documento de debate plantea una agenda para invertir en el desarrollo sostenible, haciendo especial hincapié en las prioridades locales, la mitigación de la pobreza y la igualdad de género. Para avanzar hacia el desarrollo sostenible es posible utilizar diversas vías, incluso dentro del paradigma dominante de los "tres pilares" de la sostenibilidad (economía, medio ambiente y sociedad). Al igual que Sen (1985, 1999) y Nussbaum (2000), he adoptado una visión del desarrollo orientada a la mejora de las capacidades, y sostengo que toda vía hacia el desarrollo sostenible debe incluir un compromiso explícito con la igualdad de género tanto en su conceptualización como en su implementación. En este sentido, destaco cuatro sectores "cotidianos" en que las inversiones a escala podrían ofrecer un potencial transformador, por lo que se deberían incrementar sustancialmente: el agua para uso doméstico, el saneamiento seguro, las cocinas de combustión (más) limpia y los servicios eléctricos para el hogar. La cobertura de estos servicios básicos sigue siendo escasa en los quintiles de ingresos más bajos de los países de ingresos bajos, y hay pruebas abrumadoras de que la ausencia de estos servicios afecta desproporcionadamente a las mujeres y las niñas. El acceso insuficiente a estos servicios impide hacer realidad los derechos humanos

para todas las personas, la igualdad de género y la integridad ambiental.

Me baso en la extensa bibliografía sobre el acceso de las personas pobres a los servicios básicos para argumentar que el acceso universal y con igualdad de género no puede garantizarse primordialmente mediante mecanismos voluntarios (es decir, a través de las fuerzas del mercado o del sector no gubernamental). El acceso universal requiere innovaciones de bajo costo, sin duda, pero exige también una renovación del contrato cívico entre el Estado y la ciudadanía. Requiere una acción pública decidida que propicie la protección de la ciudadanía y los recursos ambientales. En este momento en que encaramos la era posterior a 2015, sostengo que promover la acción pública en favor de un desarrollo con igualdad de género debería ser una prioridad en la agenda para el desarrollo sostenible. Concluyo con algunas reflexiones acerca de la relación entre las capacidades y los cuerpos que habitan. El desarrollo sostenible con igualdad de género no puede tratarse como un concepto abstracto: es preciso un reconocimiento explícito del cuerpo biológico y el social al establecer metas e indicadores para los objetivos de los servicios de agua, saneamiento y energía.

1.

SUSTAINABLE DEVELOPMENT WITH GENDER EQUALITY

‘Sustainable development’ was a disarmingly gender-neutral concept from its very inception. The Brundtland Report¹, stating that sustainable development was development that met the needs of the current generation while not jeopardizing the needs of future generations, established the standard definition of the term. The Report cemented the ‘three-pillar’ approach, in which sustainability has environmental, economic and social components. Because it had little to say on the tensions and trade-offs among these three dimensions, the Report provided no guidance on social or regional priorities for sustainability, on the difficulties of deciding which development initiatives were or were not sustainable or on what was to be sustained and for whom.²

The global overtones of the Brundtland Report are fully reflected in the current concept of ‘planetary boundaries’³ as a framework for sustainable development. The boundaries approach has recently been extended to argue that economy and society should, and can, be nested within planetary stabilization (i.e., the ‘environment’ pillar) rather than thought of as overlapping but distinct components.⁴ These new frameworks rightly place the crisis of climate change front and centre, but they remain high-level; they cannot address how various dimensions of sustainability are to be prioritized in implementation. As a result, everyone is for sustainable development and for decarbonizing the global economy, but the distribution of costs, benefits and risks inherent in different realizations of sustainability remain vague.

If sustainable development can follow multiple pathways⁵, and sustainability itself is defined in many different ways⁶, then each pathway can be assessed

with respect to different criteria, such as poverty alleviation, environmental integrity or distribution of risks. Some economically attractive pathways to development may be unsustainable from the perspective of resource use relative to availability or of greenhouse gas emissions. Some ecologically sustainable pathways may be highly inequitable with respect to the alignment of risks, costs and benefits. Sustainable development, then, calls for making choices from a range of desirable objectives. Specific investments in, for example, energy, health or transportation are economic, political and environmental choices along development pathways; no investment is the ‘inevitable’ solution to sustainability challenges. The pathways framework is transparent in that it makes explicit the conceptual and political differences *within* the idea of sustainability.

With the Millennium Development Goals (MDG) era at an end, we should note that laudable progress has been made towards many of its targets and indicators, especially those concerning human health.⁷ But even when specific targets were achieved, many were not

1 WCED 1987.

2 Leach et al. 2010.

3 Rockström et al. 2009; UNEP 2013.

4 Griggs et al. 2013.

5 Leach et al. 2010.

6 Sneddon et al. 2006.

7 Sachs 2013.

achieved in a gender-equal (or spatially even) manner.⁸ This is to be expected within a multiple pathways framework: target achievement by one metric might not lead to achievement by other desirable metrics. But substantive⁹ gender equality is necessary for overall economic development¹⁰ and is fundamental to the fulfilment of universal human rights.¹¹ The MDGs were sharply critiqued for losing sight of the human rights framework that gave rise to them in the first place.¹² In contrast, the recently announced Sustainable Development Goals (SDGs) are more fully integrated into a rights framework. This paper argues that the post-2015 sustainable development agenda, and every intervention and investment that is carried out in its name, should be firmly embedded within a gender-equality enhancing pathway.

A sustainable development pathway with gender equality would improve women's (and girls') access to new opportunities and new possibilities. It would enhance women's capabilities, so they are more able "to choose the lives they have reason to value".¹³ In Sen's framework, capability is not merely a skill set; it is akin to *freedom*, meaning the freedom and ability to lead one particular life as opposed to another. Capabilities prioritize choice and agency over well-being *per se*¹⁴; they are thus only indirectly linked to specific material outcomes.

A gender-equal development pathway can be assessed by the extent to which the relative capabilities of women and girls, especially those of poor women and girls, can be (or have been) advanced as a result of societal investments. I use the term 'investment' to denote financial, social and institutional efforts aimed at a future stream of benefits – not exclusively monetary – for humans and their

environments. Many investment sectors could be potentially transformative, as long as investments commensurate with the scale of the development challenge are made. For the goal of gender equality we must ask: which sectors affect women, especially poorer women, the most relative to men? Here the gender, environment and development literature has repeatedly shown that the physical and emotional burdens of accessing daily necessities such as food, fuel and water¹⁵, and the expectations of unpaid care work from girls and women¹⁶, reduce women's capabilities relative to their own potential and relative to those of men. This paper highlights four priority sectors for significantly higher investments in the service of sustainable development: domestic water services, sanitation, clean(er) cookstoves and basic electricity services. The focus on these four does not, of course, deny the importance of other services (such as education or food security) that are also necessary for gender equality.

The four sectors offer strong transformative potential through which women's and girls' capabilities may be significantly expanded in low-income countries. All four have improved technological possibilities (meaning more efficient, lower carbon, lower cost or all of these) at their core, but they cannot go to scale based on technological interventions alone. As is the case with all technologies, interventions in these sectors are at once technical, social and thoroughly gendered – so we cannot assume that access to, or use of, improved technologies will automatically improve women's lives.¹⁷ All four sectors are directly connected to development and environment and can be invested in along environmentally sustainable *or* unsustainable pathways. And all four are 'mundane' investments¹⁸ in that they are concerned with everyday living and dying, are the backbone of a decent quality of life and yet remain significantly under-invested relative to the global need.

The rest of this paper is divided into five sections. First, I turn to the metrics with which we might assess (ex

8 UN Women 2013.

9 Substantive equality stands in contrast to merely formal or legal equality. Whether substantive gender equality means equality of opportunity or equality of outcome is an ongoing philosophical debate but, in practice, the two are difficult to disentangle (UNDP 2013: 30; also World Bank 2014: 4).

10 Tzannatos 1999; Seguino 2000; Kabeer and Natali 2013.

11 UN General Assembly 1979; Elson and Balakrishnan 2012.

12 Fukuda-Parr et al. 2013; Sen and Mookherjee 2013.

13 Sen 1999: 18.

14 Nussbaum 2000; Vizard et al. 2011.

15 See Cecelski 1984; Agarwal 1997, 2001; Ray 2007.

16 See Elson and Çağatay 2000; Razavi 2007.

17 See Bray 2007.

18 Kammen and Dove 1997.

ante) or evaluate (ex post) a sustainable development intervention through the lens of gender equality. This section draws on the literature on the operationalization of capabilities and well-being and also argues that the gendered distribution of risks from investments is an important assessment criterion. I then make the priority-investment case for each of the four sectors, focusing on technological and social approaches towards providing basic levels of service. The political and institutional barriers to services for low-income populations, and in particular for ensuring gender

equality or environmental integrity in their provision, are all too well known. The next section does not repeat the litany of barriers but highlights the institutional contexts that may enable sustainable development pathways. It discusses the continued relevance of contractual theories of the state, and the public-private-civil alliances that are needed to support social investments at the necessary scales. I conclude with some thoughts on the relationship between human bodies and human capabilities, and its implications for the targets and indicators of sustainable development.

2.

ASSESSING INVESTMENTS FOR GENDER EQUALITY

If we are going to prioritize some investments over others, we must have criteria for estimating their impacts before investing or for evaluating their impacts after the investment has been made. For gender equality, investments in the name of sustainable development should be assessed with women's capability enhancement as a necessary (though, of course, not sufficient) component of sustainability. No development pathway can be considered sustainable if it decreases female capabilities. Thus if an investment in a low-carbon and efficient energy technology intended for the poor inadvertently increases unpaid care work for women, or undermines their ability to earn or to innovate¹⁹, then it is not on a sustainable development pathway. This is not to deny the urgent need to decarbonize the global economy, but to argue that an emissions-centric or planetary-boundaries view of sustainability is inadequate without a gender equality perspective.

There are clearly overlaps between human capabilities and real incomes.²⁰ The simplest proxy for capability enhancement for the poor is the quintile axiom proposed by Basu (2006). Basu argues that to capture poverty and inequality, we should rank countries not by their overall gross domestic product (GDP) per capita but by the per capita income of the lowest quintile. He argues that the quintile measure will track the broader indicators in the United Nations Human Development Index (HDI), such as life expectancy and gender bias²¹, better than the traditional GDP per capita can do. The quintile axiom is easy to use and is explicitly oriented towards substantive equality. It emphasizes within-country inequality in addition to cross-country inequality. It could be used to assess the outcomes of specific investments in water, sanitation, energy or any other sector, at any scale from the regional to the local. However, this one-dimensional proxy implicitly assumes that investments have the same impacts on poor women as they do on poor

men, and we have already seen that this assumption is not justified. Capability enhancement is inherently a multi-indicator phenomenon.²²

A better way to measure women's capability enhancement, while keeping the measure practical and parsimonious, is to choose a subset of indicators from the multi-dimensional well-being indicators that already exist. The best known of these is the HDI,²³ which is derived from Sen's influential capabilities and functionings approach²⁴ and is often used as a way to operationalize capabilities. The HDI as a whole is very broad; socio-economic circumstances and local priorities will dictate which indicators of capability are most relevant, and for which sectors, in specific cases.

19 Agarwal 1983; Cecelski 2000.

20 Evans 2002.

21 UNDP 2015.

22 Nussbaum 2000.

23 There are several other multi-dimensional well-being indicators and datasets, such as the Multi-Dimensional Poverty Assessment Tool from the International Fund for Agricultural Development (IFAD) (<http://www.ifad.org/mpat/>) or the World Bank's GenderStats (<http://datatopics.worldbank.org/gender/>); the HDI data is the most routinely collected and used of these datasets.

24 Sen 1985; Ul-Haq 1995.

For instance, for investments in sanitation, we can imagine that an education indicator, such as secondary school enrolment for girls, might be a good metric of evaluation; field experience from Asia and Africa has shown that poor sanitary facilities keep girls out of school.²⁵ For investments in clean cooking energy for the poor, under-five mortality from respiratory diseases may be a better metric; indoor air pollution from burning solid fuels causes premature deaths throughout the Global South.²⁶ The indicators of interest should be measured not only for the overall population but also for the lowest quintiles, in the spirit of the quintile axiom. They can be measured at any scale, for the whole state or for a single community.

For water, sanitation and energy services, two overarching capability indicators for assessing whether investments are on a gender-equal pathway might be: the female under-five mortality rate and the ratio of female-to-male enrolment in secondary education. These indicators are especially relevant for low-income communities or countries. Under-five mortality ratios, secondary school enrolment ratios and anthropocentric measures of nutrition are themselves important capabilities, but they are also the gateway to many other capabilities and functionings.²⁷ Of these, child mortality and school enrolment data, imperfect though they may be²⁸, are routinely measured in a large number of countries.²⁹ As with most HDI components, both measures can be operationalized at the regional, state and community levels as well as stratified by income quintile, depending on the scale of the investment.

Two may seem a small number of indicators for the purpose of measuring gender equality across four substantive sectors. These criteria can be interpreted

as the minimum constituents of gender equality; actual investments should be assessed through additional environmental and economic indicators, including interim indicators on the pathway towards gender equality. However, the larger the number of outcome indicators, the more complex it is to attribute a causal connection between investment and outcome. Fukuda-Parr (2003) contends that parsimony and simplicity are essential in order for indicators (and the goals they represent) to gain policy traction. Indeed, just one of the HDI indicators may be an adequate gender-equality assessment criterion in some contexts, depending on the pre-investment baseline conditions.

A more fundamental critique could be that choosing an indicator such as secondary school enrolment assumes that the quality of a woman's life and aspirations has the same components as the quality of a man's life and aspirations.³⁰ I follow the position that universal accounts of human capabilities are indeed defensible³¹, because the capabilities framework emphasizes choice and agency³² and does not insist on specific outcomes such as paid employment.

This paper proposes an additional, necessary indicator for gender-equal development: the reduction of unpaid care work. Every economy is dependent on "non-market-based social reproduction"³³. This is the unpaid care economy, comprising cooking, cleaning, caring for children, elders or the sick and community-based volunteering. In low-income economies care work also includes fetching water and fuel, often over long distances. This sort of unpaid work is heavily feminized, and it may go up or down as a result of ostensibly sustainable interventions. Interventions may even be counted as sustainable *because* they rely on uncounted work; much-lauded programmes such as rainwater harvesting and community-based natural resource management have been critiqued on this ground.³⁴ Reduction of unpaid care work, particularly in low-resource households, is essential

25 UNDP 2006; Jasper et al. 2012.

26 WHO 2014b.

27 Saith and Harriss-White 1999.

28 See Unterhalter 2013.

29 Secondary school enrolment is preferred to primary school enrolment because the literature has convincingly shown that more years in school are associated with girls being able to better articulate their rights and to better protect themselves and their families against illness (e.g., Unterhalter 2013). The under-five female mortality indicator is not a female-to-male ratio, as child mortality by gender tends in the same direction in a given country (though not always; see Agnihotri 1997).

30 See Nussbaum and Sen 1993.

31 Annas 1993.

32 Nussbaum 2003; Vizard et al. 2011.

33 Razavi 2007: 5.

34 See Jackson 1993; Kabeer 2005.

if women and girls are to develop the full range of their capabilities. This indicator is not a component of the HDI, but time-use data for several (though not all) countries exist.³⁵ This requirement may lead to additional burdens of data collection on developing countries, but unpaid and domestic work data, disaggregated by gender, is now an explicit mandate of SDG 6 (“Achieve gender equality and empower all women and girls”). Time-use and care work data need to be systematically collected to monitor improvements in gender equality. Country-level data collection should strive to include at least the minimum set of gender indicators proposed by the United Nations Statistical Commission.³⁶

Finally, innovative technologies and programmes have a range of attendant risks as well as a range of intended outcomes, and these risks are at least as important as future gains. For every investment in sustainable development, therefore, it is worth asking: What kinds of risks are we taking when we promote

certain techno-social interventions, and who comprises the “we”? For example, the World Commission on Dams³⁷ took this approach in its ‘rights and risks’ framework for responsible public investments. The Commission clearly distinguished risk-bearers from rights-bearers, arguing that risk-bearers (often poor women or marginalized communities) do not have rights with respect to investment decisions that are commensurate with their risks. In other words: when projecting the benefits of a specific intervention in any of our suggested sectors, we must also make transparent who has the right to make investment choices, who is assessing the risks of these choices and on whose behalf they are assessing them. For many investments in energy or water, risks, not just outcomes, will vary with the gender and class of the risk-bearer. Therefore assessing the risks of investment, with an emphasis on risk distribution, risk perception³⁸ and the voluntary or involuntary nature of the risks, is especially important for large-scale and irreversible investments in sustainable development.

35 Budlender 2010; Esquivel 2013.

36 UNSD 2014.

37 WCD 2000.

38 Rayner and Cantor 1987; Stirling 2011.

3.

CATEGORIES OF INVESTMENT FOR GENDER-EQUAL SUSTAINABLE DEVELOPMENT

I now turn to the four selected categories of investment for social transformation. These investments are reliable and affordable domestic water supplies, clean and dignified sanitation, cleaner cookstoves and basic electricity services. All of these are ‘basic’ categories in two senses: they serve fundamental human needs regardless of socio-cultural characteristics, and their absence or inadequacy precludes the attainment of many other capabilities as well as human rights. They are the determinants of health and livelihood for the majority of women, whatever their class, and are the backbone of what has been called the “environmentalism of the poor”.³⁹

In focusing on these categories, we cannot assume that more toilets or more stoves will inevitably lead to gender equality or that these are the only worthwhile investments for sustainable development. These investments deserve emphasis because they are directly linked to environmental health and directly enhance the capabilities of poorer women; women and girls are disproportionately burdened with poor health and unpaid work in their absence.⁴⁰

All four categories of investment have spillover effects that benefit users as well as non-users (e.g., safe sanitation for women increases overall community health, and efficient cookstoves improve household health as well as household budgets). Inadequate and unsafe water, unsafe sanitation and indoor air pollution from solid fuels account for over

11 per cent of the deaths in low-income countries.⁴¹ All four investments have a technological core, but investing in technology alone without a supporting social ecosystem cannot take them to a transformative scale. All four are merit goods, meaning that the social benefits from their provision are likely to exceed the private benefits. This means that all are candidates for investments in the public domain, though not exclusively so, and that markets alone will not deliver them at scale. All four categories are possible to invest in along unsustainable pathways that may not promote gender equality or environmental integrity or along more sustainable and equitable innovation pathways through which capabilities may be improved. For example, urban sanitation investments that provide a low toilet-to-user ratio preclude women from using them because they cannot stand in long morning lines or walk to distant facilities at night. On the other hand,

³⁹ Martinez-Alier 2000; Guha 2000.

⁴⁰ Cleaver 1998; Antonopoulos and Hirway 2010; Corbett and Mehta 2013; Anenberg et al. 2013.

⁴¹ WHO 2009.

well-designed cookstove interventions simultaneously improve household air pollution and women's health, especially if they replace coal-burning stoves.

Absolutely everybody, whatever their age or gender or class, needs to drink water, go to the bathroom, breathe, eat cooked food and see in the dark. It is mundane investments that touch everyone every day and, therefore, expand everyday human capabilities. In addition, mundane quality-of-life innovations can occur anywhere, in low-income as well as high-income

settings⁴²; they can be appropriated and modified by users, male as well and female, in line with local needs⁴³; and they can occur at any scale, from national policy directives with centralized infrastructures to decentralized community-based implementation. Furthermore, if an innovative technology or financing mechanism finds a local market, it can revitalize rural and urban economies. Mundane investments are, in this sense, potentially transformative with respect to local development processes as well as development outcomes.

3.1 Water

A woman carrying water on her head or on her hips with the scorching sun in the background is the iconic image of development unmet. Well into the 21st century, close to a billion people live without access to improved water sources, defined by the World Health Organization (WHO) as water from a protected well, protected spring, collected rainwater or tap. Diarrhoea from inadequate water, sanitation and hygiene claims the lives of 1,000 children a day⁴⁴, and 140 million people are exposed to high levels of arsenic in their water.⁴⁵ Many innovative approaches have been developed towards improving drinking water quality for the poor⁴⁶, but I focus here on adequate, reliable and affordable quantities of water for domestic (i.e., productive and reproductive) use. For most poor women, a source of domestic water that can be reliably accessed is the first criterion of sustainable development.

Social expectations dictate that women and girls are the primary water carriers for their families; in over 70 per cent of households where water has to be fetched, women and girls do the fetching.⁴⁷ Where rural water sources are distant, women may walk

up to two hours to fetch water. Where urban water is from shared standpipes, they may wait in line for over an hour.⁴⁸ The further the source of water, the less water the household uses⁴⁹ and the more child health is likely to suffer.⁵⁰ Case studies from around the world show that water-related 'time poverty' translates to lost income for women and lost schooling for girls.⁵¹ In addition, high levels of mental stress have been reported when water rights are insecure.⁵² All this fetching and carrying, usually from a young age, causes cumulative wear-and-tear to the neck, spine, back and knees; in effect, a woman's body becomes part of the water-delivery infrastructure, doing the work of pipes.

Global water access data conceal the many inequities in water access. All across the developing world, urban access to improved water is higher than rural access, core urban access is higher than peri-urban access and access at the top quintile is much higher than at the bottom quintile.⁵³ These trends are commensurate with the Human Development Report of 2006, which stated unequivocally that lack of access to water stemmed from inequality and lack of rights and not from some

42 See Brokensha et al. 1980; Gadgil et al. 1993.

43 See Cecelski 2000; de Laet and Mol 2000.

44 WHO 2014a.

45 Ravenscroft et al. 2009.

46 Amrose et al. 2015.

47 WHO/UNICEF 2012.

48 See Ray 2007 and references therein.

49 Howard and Bartram 2003.

50 Pickering and Davis 2012.

51 UNDP 2006.

52 Wutich and Ragsdale 2008.

53 WHO/UNICEF 2012.

generalized notion of ‘scarcity’.⁵⁴ Even in urban areas, where the access percentages are usually higher, the reliability, quality and affordability of water for the lowest quintiles are all insecure.⁵⁵ Continuous piped water has the greatest health benefits and lowest drudgery costs but is technologically and financially viable only for densely populated communities.

Piped water with a sewer connection for the developing world would have required \$136 billion (in 2007 US dollars) a year from 2000 to 2015 (just) to meet the MDGs; meeting the 2015 targets using cheaper supply technologies, including low-cost pipes, roof-water capture and wells – and without adding point-of-use treatments to improve water quality – was estimated at under \$2 billion annually.⁵⁶ According to the Joint Monitoring Programme (JMP), the WHO/United Nations Children’s Fund (UNICEF) effort that is the source of global water and sanitation data, the water access target for the MDGs was met ahead of schedule. But this achievement falls short of universal access, falls short of water security, has been achieved largely through urban rather than rural access and is quite compatible with continued time poverty for women, high costs of access and other indicators of what has been called “water poverty”.⁵⁷

In rural areas, modest quantities of water are needed not just for consumption but for livelihoods. Zwarteveen (1997) argues that an exclusive focus on women’s needs in the drinking water sector overlooks the increasing number of woman-headed farm households and emphasizes the role of women as mothers rather than as producers as well. Rural systems that are ‘multiple use’ – meaning that they provide water for domestic purposes, small plots and a few cattle or goats – are more likely to meet the range of basic needs of rural women. They have a higher potential for cost recovery as they help to generate income⁵⁸, especially if credit is available. An intervention focused on drinking water, by contrast, such as a borehole with a pump, would have a

lifecycle per person per year cost of \$20–60, with little chance of cost recovery from its low-income user base.⁵⁹ From a user-centred perspective, investing in water services that go beyond just drinking water will be more capability enhancing; it may also make partial cost recovery, which donors and governments increasingly demand, more possible.

In addition to large, storage-based water projects, decentralized water-augmenting technologies exist and have collectively reached millions. Many would count as multiple use in today’s terminology. Some of these are modernized traditional approaches, often rural and community-based. The best-known example is rainwater harvesting, which is now being taken to scale by communities in partnership with several governments.⁶⁰ Another is the treadle pump, which is a foot-powered pump that extracts shallow water for domestic purposes as well as for small farms and kitchen plots⁶¹; however, this is a labour-intensive irrigation method that can be burdensome and can lead to health risks if used for long periods.⁶² The revival (or development) of these techniques is owed partly to recurrent droughts and partly to a desire to counter the narrative that large dams are the only channel to water security.⁶³ A wide range of barriers – such as financial and political marginalization and unsustainable implementation practices – has prevented these approaches from reaching truly transformative scales.⁶⁴ This is an active area of action research around the world, and one that has (mostly) learned that even the most promising technology can only go to scale in a supportive social, ecological and financial ecosystem.

A cautionary final word on water and women is in order. Failed water projects in rural and urban areas are legion, and a frequently cited reason for failure is that women’s voices and views were ignored before and during these efforts. Women are the water users and therefore the ones with knowledge and stakes.⁶⁵ However, it is naïve to suggest that women’s

54 UNDP 2006.

55 Ahlers et al. 2014.

56 Hutton et al. 2007.

57 Sullivan et al. 2003.

58 van Koppen et al. 2006.

59 Moriarty et al. 2011.

60 See Bruins et al. 1986; Raju and Shah 2000.

61 Shah et al. 2000; Mangisoni 2008.

62 Palmer-Jones and Jackson 1997.

63 Gleick 2000.

64 See Sovacool 2012.

'participation' is either necessary or sufficient for gender equal or sustainable outcomes.⁶⁶ Women's leadership, when real rather than tokenistic, has indeed been associated with more cost-effective water delivery, more households with access to water and less corruption in water financing.⁶⁷ But, if mandated as part of a water investment, participation could as easily increase women's workloads as their well-being.⁶⁸

3.2 Sanitation

We now turn to sanitation. Everybody needs to relieve herself (or himself). There is little choice about when to go and often little choice about where to go. 'Improved' sanitation facilities, according to WHO and UNICEF, include pour flush or flush toilets into a sewer, ventilated improved pits and composting toilets, through the use of which pathogenic waste is likely to be removed from human contact. Many different toilet designs, from the simple pit with slab to more complex but locally producible dry ('ecological') toilets, exist for low-income households⁶⁹, and sustainable toilet design is an active research area. But over 2.5 billion people still have no access to an improved latrine; of these, 700 million use shared facilities, which the JMP does not consider 'improved'. Open defecation rates have gone down in all developing countries⁷⁰, but it remains the norm for 1 billion people, 90 per cent of whom are rural residents.

Open defecation is a severe public health as well as environmental health hazard, causing widespread diarrhoeal disease and water pollution.⁷¹ Relative to their previous neglect in comparison with drinking water programmes, sanitation programmes are on the rise, promoted vigorously by health researchers⁷², governments in concert with local communities, and international non-profits. It is still the case that

Everywhere water is another word for life; its reliable and affordable access for poor women is one of the highest priorities of development. But conflating women's 'participation' or 'leadership' in water investments with a sustainable water supply risks becoming another avenue to more (unpaid) work for women. Such a path cannot be considered sustainable.

for every \$4 spent on water and sanitation programmes, sanitation receives about \$1.⁷³ But a sea change has occurred in recent years with respect to recognizing sanitation as indispensable for "health, dignity and development".⁷⁴

This section argues that basic sanitation that is clean, affordable to construct and to use and safe to access is a particularly transformative investment for women's (and girls') capabilities. Women need more privacy than men do when they use the toilet because of social norms, need more time in the toilet than men (because they must always sit or squat), need physical safety when they access outside toilets and may need multiple daily visits during their menstrual period. For these reasons sanitation access may be more germane to gender equality and dignity than even access to water. As with water access, sanitation access in low-income countries is highly unequal: urban coverage rates are significantly higher than rural ones⁷⁵, and within rural regions access is lowest for communities far away from main roads.⁷⁶ Overall, it is estimated that children in the poorest quintiles of low-income countries (in South Asia and sub-Saharan Africa) suffer 20 times the health burden of inadequate sanitation as children in the top quintiles within those same countries.⁷⁷

65 van Wijk-Sijbesma 1998; IBLF 2004.

66 Prokopy 2004; Meinzen-Dick et al. 2014.

67 See Chattopadhyay and Duflo 2004; Fisher 2006.

68 Agarwal 1998; Cleaver 1998; Ray 2007.

69 Nelson and Murray 2008.

70 WHO/UNICEF 2013.

71 Black and Fawcett 2008.

72 See Clasen et al. 2010; Hutton and Bartram 2008.

73 WHO 2012.

74 UN Millennium Task Force 2005.

75 WHO/UNICEF 2013.

76 WHO/UNICEF 2010.

77 Rheingans et al. 2012.

New directions in sanitation research and promotion emphasize extending access through innovative new technologies, encouraging toilet uptake, improving markets for sanitation products and encouraging a larger role for non-state actors.⁷⁸ Significant donor efforts (e.g., the Gates Foundation's Reinvent the Toilet Challenge) and government-community efforts (e.g., Community-Led Total Sanitation, or CLTS, campaigns) are now focused on sustainable sanitation specifically for the poor. CLTS emphasizes rural sanitation, which reflects both its origins⁷⁹ as well as where open defecation mostly occurs. But there are also city-based examples of urban sanitation with community leadership at their centre, using sanitation as a community-building as well as toilet-building exercise, from South Asia, Central America and Southern Africa.⁸⁰ These methods, once pilot projects but now becoming mainstream, represent a major change from previous supply-driven and facilities-driven methods. It is still unclear whether these demand-driven means can be sustained over time in multiple settings or can be adapted to the political economies of different countries well enough to go to scale.⁸¹ CLTS in particular has been praised as a revolutionary, subsidy-free approach to community mobilization for sanitation, but mutual "encouragement"⁸² has been critiqued for morphing into "community-backed shaming".⁸³

The definition of improved latrines in many of today's leading efforts remains oriented towards hardware and uptake, to the relative neglect of wastewater treatment before disposal or sludge removal if the toilet is a dry one. Untreated sewage and faecal sludge from overflowing pits are highly polluting and unsustainable. Baum et al. (2013) estimate that if improved sanitation required sewage to be treated before its discharge into the environment, 4.1 billion rather 2.5 billion would be un-served. Sustainable toilet design and programmes have to include not only the reduction of open defecation but also the removal of pathogenic waste and its disposal or re-use.⁸⁴ Financing sanitation

at the required scale remains a global challenge, with great uncertainty in existing cost estimates and almost no data on spending by private households. Hutton and Bartram (2008) estimated that about \$36 billion (in 2008 US dollars) annually would need to be invested for 10 years to meet (and maintain) the 2015 target of reducing by half the population without access to improved sanitation. If primary treatment of toilet waste and long-term maintenance costs are added, the cost of 'sustainable sanitation' can be five to 20 times the cost of building the latrine alone.⁸⁵ Innovative methods to contain and treat waste are being pioneered with the support of the Gates Foundation (2015), and social enterprises that convert human waste into reusable sludge or renewable energy are being piloted at the scale of urban slums⁸⁶, exploiting the cost recovery possibilities from productive re-use.⁸⁷ Most of these efforts are still at the proof-of-concept or pilot stages.

The emphasis on eliminating open defecation is absolutely critical. But we have to ask: Is this enough for sustainable or gender-equal sanitation? Clean and secure sanitation can enable girls' education, women's mobility and sexual security. But gender equality means that toilet programmes have to go well beyond defecation and disease management and take equally seriously the requirements of dignity of access and menstrual hygiene management. Menstrual hygiene is so private that it has usually fallen through the cracks of national and international sanitation promotions⁸⁸; it is only now being acknowledged as a critical gap.⁸⁹ Sanitation facilities and products that are safe and respect privacy enable girls to stay in school⁹⁰ and reduce their discomfort (and often shame) during menstruation.⁹¹ In short, women and men have very different sanitation needs, for biological and social reasons. Investments in this area have to be designed and implemented with these bodily needs and the social norms that surround them upfront and centre – and this means sanitation programmes cannot be focused on open defecation prevention alone.

78 Jenkins and Curtis 2005; Black and Fawcett 2008.

79 Kar and Chambers 2008.

80 Satterthwaite 2005.

81 See Harris et al. 2011 on Viet Nam.

82 Chambers 2012

83 Chatterjee 2013.

84 Nelson and Murray 2008.

85 Moriarty et al. 2011.

86 See Sanergy 2015.

87 See Murray and Ray 2010.

88 Bharadwaj and Patkar 2004.

89 United Nations n.d.

90 Ali and Rizvi 2010.

91 McMahon et al. 2011.

3.3 Cookstoves

The 2013 Resource Guide from the Global Alliance for Clean Cookstoves⁹² opens with a clear statement of the link between stoves and gender parity: “Often spending many hours per day searching for fuel and cooking over open flames emitting harmful smoke, women are disproportionately impacted by dirty and inefficient cooking practices and reliance on biomass for fuels.” Biomass-burning traditional cookstoves (i.e., using wood, charcoal, animal manure or crop residues), especially when used indoors, are the primary contributor to household air pollution (HAP). Globally HAP was responsible for over 4 million deaths in 2012⁹³, and HAP and ambient air pollution jointly are now the leading global environmental health risk. In South Asia and China, solid-fuel cookstoves – biomass-based in India but significantly coal-based in China – are the single largest contributor to HAP. The cumulative burdens from diseases, from black carbon and inhaled particulate matter, are manifest in respiratory infections, lung inflammation, low birth-weight and cardiac events.⁹⁴

It is still the norm for women to do the daily cooking for their families. It is a central part of the unpaid care economy. They and their children, especially younger ones who are with adult females all the time, therefore suffer disproportionately from “the killer in the kitchen”.⁹⁵ The time spent in collecting fuelwood or charcoal, also a job mainly delegated to women, is onerous and sometimes dangerous for the women and also for the children who must accompany them.⁹⁶ In addition, rural households are often highly labour-constrained during peak agricultural seasons, and the time that women spend collecting fuelwood has high opportunity costs⁹⁷ – although empirical studies show wide variation on this front. Relative to water and sanitation, the data by country and by quintile on access to efficient cookstoves are rather sparse.⁹⁸ In

92 Hart and Smith 2013: 5.

93 WHO 2014b.

94 Fullerton et al. 2008.

95 Bailis et al. 2009.

96 Masud et al. 2007.

97 Dewees 1989.

98 See Anenberg et al. 2013.

part this is because cookstoves have historically not been a significant focus of public spending or routinely collected public data. The exception was China’s massive and organized rural energy programme, National Improved Stoves Programme (NISP), which has since been discontinued but which introduced 180 million improved stoves while it lasted.⁹⁹

The health benefits from fewer diseases, and income benefits from saved fuel when households switch to cleaner-burning cookstoves, are important to communities overall. These investments, like those in water and sanitation, yield overall positive externalities well beyond gendered benefits. In South Asia and sub-Saharan Africa, for example, a large share of ambient (not just indoor) particulate matter is attributed to cooking with solid fuels.¹⁰⁰ Investing at scale in efficient solid-fuel stoves, especially in rural and peri-urban regions without liquefied petroleum gas (LPG) or natural gas for cooking, is simultaneously a gender-equal and a sustainable pathway investment.

As with sanitation, there has been a welcome upsurge of attention to the need for clean(er) cookstoves in recent years. Nevertheless, as is generally the case with mundane technologies, these remain underinvested-in as public investments. First, the effects of cookstove interventions in the field have varied widely – from no effect, to modest health improvements to lower than anticipated improvements in indoor air pollution.¹⁰¹ This is because some households discontinue the use of the improved stoves while others use both the old and the improved stoves at once. The designs and combustion efficiencies of ‘clean’ cookstoves themselves also vary widely, from those that include a chimney so that the smoke is pushed outdoors to those that use less fuel but still produce particulate pollution indoors. The income effects of efficient stoves are more likely to be consistently positive, as many improved stoves burn between 30 per cent and 60 per cent less fuel than their unimproved

99 Sinton et al. 2004.

100 Zhou et al. 2011.

101 Grieshop et al. 2011; Anenberg et al. 2013.

counterparts; this is a significant saving for rural households, which can spend nearly 10 per cent of their monthly income on energy.¹⁰²

Second, producing cookstoves that women want to use, and marketing these to low-income families, has been hard. Most cookstove interventions, even when they report satisfaction with the stoves and use of the stoves, also report the continued use of the traditional stove for staple foods. There is anecdotal evidence that women are unwilling to give up the convenience of two stoves despite the benefits of consistently using the efficient one. This form of ‘device stacking’ makes it harder to see health impacts and also harder to sell new stoves.¹⁰³ In the cooking arena especially, women and men may value different aspects of clean stoves. It has been argued that women value stove aesthetics and smoke-free environments more than do men, who are concerned about timely meals and the traditional taste of food.¹⁰⁴ In addition, where women could benefit most from cookstove improvements but have less control over cash, market-driven stove promotion efforts will have only partial success. These and other complexities present marketing challenges. Though at-scale change remains elusive, encouraging stove uptake results have been reported by many non-governmental organizations (NGOs), such as Practical Action and Potential Energy, working in Asia and Africa and with women centrally involved in stove design, testing and social and conventional marketing.¹⁰⁵

The cookstove arena is now firmly enmeshed in the climate mitigation discourse. It is often asserted that with cleaner cookstoves we can empower poor women, improve human health *and* mitigate global warming, and therefore there is a win-win climate-energy-poverty nexus.¹⁰⁶ Reduced solid fuel use does reduce harmful emissions, even though all stoves in total produce a (very) small fraction of total emissions (1 to 3 tons of CO₂/ year per stove).¹⁰⁷ More

immediately troublesome than CO₂ is black carbon (or plain old soot), which biomass and coal burning stoves produce and which is a forcing agent for near-term warming. In South Asia it is estimated that half the total emitted black carbon is from biomass-burning stoves¹⁰⁸, and that black carbon disrupts the monsoons and therefore potentially threatens water availability. Detailed research on black carbon from multiple sources shows that residential biofuel cooking has (maybe) a small positive net forcing from short-lived pollutants such as black carbon (about 0.025 W/m²).¹⁰⁹ Residential coal burning has a slightly higher forcing effect, but also “with low certainty”.¹¹⁰

These apparent forcing impacts have made it possible to finance and market clean stove programmes through public-private partnerships, the Clean Development Mechanism, the Clean Cooking Loan Fund, and other forms of creative carbon financing.¹¹¹ But the data (read carefully) give us little assurance that reducing biofuel-based cooking will meaningfully mitigate climate change. The so-called ‘co-benefits’ of climate mitigation from clean stoves, such as better health for (especially) women and lower costs for fuel (in collection time or cash), may well overwhelm the benefits of climate mitigation. This matters because discursive framings shape development practice.¹¹² Development discourses around residential stoves that promote a climate-empowerment ‘nexus’, by placing a huge human health benefit alongside a relatively small and uncertain climate benefit, may reap a short-term financing advantage. Over time, however, they risk subtly and inadvertently linking the burden of climate mitigation with the daily actions of the poorest women.

102 See Miah et al. 2009.

103 Ruiz-Mercado et al. 2011.

104 Cecelski 2000.

105 See Hart and Smith 2013.

106 See Casillas and Kammen 2010; Venkataraman et al. 2010.

107 Lee et al. 2013.

108 See Anenberg et al. 2013.

109 Bond et al. 2013: 5504.

110 *ibid*: 5505.

111 See Global Alliance for Clean Cookstoves 2016.

112 Cornwall and Brock 2005.

3.4 Electricity

The final example of a transformative investment is electricity.¹¹³ Reliable, safe and affordable lighting, or a cell phone in an emergency, truly transforms lives. Electric lighting means that women and men can work longer or more flexible hours if needed, that children (or adults) can study in the evenings and that cell phones, which have become an essential means of communication for the working poor, can stay charged.¹¹⁴ Electric lighting is safer by far than kerosene lamps or candles.¹¹⁵ Open wick-based lighting, such as kerosene lamps without a surrounding cover, generates high levels of black carbon, an indoor pollutant and regional climate disruptor.¹¹⁶ Overall, the International Energy Agency (IEA) argues that not having basic electricity automatically puts a household in the category of ‘poor’; over 1.2 billion people remain poor by this metric.¹¹⁷

Basic electricity access is most commonly defined as having a connection in the home. Access to electricity services is a prerequisite for gender equality and not just for overall economic development.¹¹⁸ The primary target of MDG 3 (Promote gender equality) was the elimination of gender disparity in education, and access to electricity has allowed more women to read and watch television across all income classes.¹¹⁹ While low-cost, stand-alone lighting is a necessary near-term intervention¹²⁰, it is access to electricity that improves night-time safety and health-care infrastructure (because clinics can function after sunset, vaccines can be kept cold, etc.). The maternal mortality ratio (MMR) in particular is strongly correlated with access to electricity.¹²¹ A high MMR is not by itself a sign of gender inequality in health care, but we do know that women aged 15–34 years die in disproportionately high numbers on account

of maternal mortality¹²², and deliveries in the dark, or without functioning equipment, are known to be significant causes of infections and death. These data are evidence that basic electricity access is essential for the expansion of women’s capabilities.

Cost estimates to bring modern electricity services to the 1.2 billion unserved vary widely, from \$36 billion to \$60 billion per year until 2030.¹²³ The World Energy Outlook of the IEA estimates \$49 billion per year until 2030.¹²⁴ The range depends both on how capital costs are estimated and on what is assumed about fuel prices and appliance efficiencies. Ongoing operations and maintenance are usually included for assessing grid electricity costs but are most often left out of calculations for smaller home-based or community-based systems. Centralized grid extension remains most efficient for densely populated middle-income urban areas such as in China or South Africa. However, capital cost considerations and low prospects for revenue recovery have prevented private sector utilities from entering low-income, sparsely populated rural markets even as many developing countries have been pushed – for reasons of efficiency but also of ideology – in the direction of privatizing their energy services.¹²⁵

Many authors have noted the current tension between bringing electricity to the unconnected and increasing greenhouse gas emissions, because the conventional model of provision is a centralized grid based on fossil-fuel energy.¹²⁶ Overall, the majority of those in the dark are rural residents, and their low capacity to pay and high level of need along with global climate change considerations have combined to make decentralized renewables-based small systems a leading policy recommendation.¹²⁷ Microgrid systems can be extremely small, 10W or so (‘pico’), supporting simply a couple of lights and cell-phone charging; or solar home systems,

113 See Goldemberg et al. 1985.

114 Alstone et al. 2015.

115 Mills 2012.

116 Ibid; see also Lam et al. 2013.

117 IEA 2012.

118 Cecelski 2000; Cabraal et al. 2005.

119 Pereira et al. 2011, and ESMAP 2004 cited therein.

120 See Alston et al. 2015.

121 Sovacool 2012.

122 Saith and Harriss-White 1999.

123 Guruswamy 2011.

124 IEA 2012.

125 Williams and Ghanadan 2006.

126 See Bazilian et al. 2011; Girod et al. 2013.

127 Llamas 2008; Sustainable Energy for All 2016.

supporting fans, 4–5 efficient lights and a television, averaging about 30–40W for commonly-sold units; or mini-grid systems that offer several community-scale services, require higher upfront investments but generate electricity at significantly lower cost than home systems.¹²⁸ Microgrid systems may be faster to scale up and replicate than a centralized grid in low-resource communities, but – as with water and sanitation – case studies show that costs and capacity for ongoing maintenance cannot be an afterthought in the cost-benefit analyses.¹²⁹ Hybrid renewable-conventional systems are also possible, at the community or multi-community scale, combining photovoltaics with wind or even with (admittedly polluting) diesel, providing grid-like reliability and a range of productive applications beyond just residential use.

Basic electricity services for the 1.3 billion unserved – which could mean a fan (where it is hot), two fluorescent lights and a radio (or, moving up the ladder a bit, a television), all on for perhaps five hours a day – would add approximately 1 per cent a year to current global electricity consumption.¹³⁰ Therefore the climate is not in immediate danger from minimal service provision for the poor, even if their entire consumption were to be powered by fossil fuels. But integrating renewables into the grid, and expanding decentralized options using clean power sources that minimize local health impacts and particulate pollution¹³¹,

are important for preventing the lock-down of new fossil-fuel based infrastructures. The provision of rock-bottom basic services is only a start, after all; poverty alleviation will require moving well beyond that.¹³² As with the cookstove arena, dominant discourses on sustainable electricity services for the poor do not proportionately reflect the positive effects of renewable energy services on human capabilities versus those on climate.

As with all interventions, decentralized electrification programmes have succeeded in some areas but failed for financial, political and social reasons in others. And while basic electricity services remain essential for sustainable development, no technology – regardless of its cost, climate resilience or mode of dissemination – can ensure that the electricity generated will, in fact, improve gender equality. Studies on women and electricity have reported that, once there are electric lights, women have more time to be with their children, perform their chores faster and read more.¹³³ But with extremely small home systems, cooking, studying and television could compete for the limited electricity¹³⁴, and intra-household allocation and power may determine who uses the watts and for which purposes.¹³⁵ It is likely that systems with a higher capacity than simply ‘pico’ – somewhat higher per-user or lifecycle costs notwithstanding – will be needed for electricity services to actively promote gender equality in the home.

128 Alstone et al. 2015.

129 Schnitzer et al. 2014.

130 Peter Alstone, personal communication.

131 Markandya et al. 2009.

132 Sovacool 2012; also Schnitzer et al. 2014.

133 Barnes and Foley 2004; ESMAP 2004.

134 Jacobson 2004.

135 See Guyer and Peters 1987; Agarwal 1997.

4.

TRANSFORMATIVE ALLIANCES FOR TRANSFORMATIVE INVESTMENTS

I turn now to a discussion of the institutional context of investing in sustainability and capabilities. Each of the four priority sectors identified depends on innovative and/or affordable technologies, and technologies can easily become the central actors in theories of access and in stories of social transformation. But technology is only a part of any investment story – technologies are disseminated (and even developed) in an institutional and financial context, to users with their own values and views, and within specific political economies. The institutional context significantly determines who has access and on what terms. Projects on water, sanitation and energy are no longer parachuted into communities but try to engage women users at every level – from design to marketing to finance. This is particularly true for market-based interventions such as clean cookstoves¹³⁶ or efficient off-grid lighting¹³⁷; it is also increasingly the case for water and sanitation. But the institutional demands of going to scale for the ~1.3 billion without electricity or the ~2.5 billion without sanitation are truly daunting.

Water, sanitation and electricity have historically gone to scale through public sector investments, as networked utilities have traditionally been monopolies.¹³⁸ Since the 1980s, these services in developing countries have been opened up to the private sector. In part this was because the public sector did not provide basic services to the low-income public, and the global political economy became more market-friendly and more state-sceptical.¹³⁹ Over the same period, civil society provision and decentralization became more and more mainstream in these service sectors. Cookstoves, our other priority area, were

never developed and provided primarily in the public domain. Stoves have historically been seen as stand-alone consumer items and, because of public health and climate considerations, are only now moving from the fully private to the partially public sphere. It is clear that public-private-civil alliances are needed for sustainable development, but what could these alliances look like along a gender-equitable pathway? And on whose terrain are these alliances taking place?

The post-1980s spate of public-private partnerships (PPPs) in the centralized or semi-centralized utilities for developing countries has had mixed results for both water and electricity.¹⁴⁰ The literature in support

¹³⁶ Hart and Smith 2013.

¹³⁷ Alstone et al. 2011.

¹³⁸ See Hanemann 2006.

¹³⁹ See World Bank 2004.

¹⁴⁰ Bakker 2010; Bazilian et al. 2011.

of PPPs has argued that these partnerships are the only way forward as the state sector has neither cash nor capacity to expand provision beyond those already covered. However, a comprehensive study of water and sanitation financing in 17 countries, conducted by UN Water and WHO, shows that 80 per cent of the (non-household) funds for this sector continues to come from central, regional and local governments.¹⁴¹ The literature against PPPs argues that privatization is reducing the state to a mere upholder of private property and guarantor of private contracts¹⁴², but this perspective sometimes glosses over the failure, and the implications of that failure, of many States to provide for their poor citizens.¹⁴³

Though state-run programmes have been on the defensive in recent years, and though States are often very poorly governed, the evidence to date suggests that they remain pivotal to social investments at scale. A well-known example is China's rural clean cookstove project (NISP, mentioned earlier); this programme impacted over 100 million households through improved stoves, with a coordinated effort by multiple national ministries, county and village level officials, rural energy companies and local energy service enterprises.¹⁴⁴ An example of nationally led rural electricity access is the post-1994 National Electrification Programme (NEP) of South Africa. This far-reaching programme was successful in that access to basic electricity – enough for 3–4 lights, a radio and a TV – increased for 2.7 million households between 1994 and 1999¹⁴⁵, with selected private sector concessionaires working, as it were, towards a largely public sector goal. The fee-for-service photovoltaic-based component, however, was apparently less successful than the on-grid aspects.¹⁴⁶ An older example of a drinking water PPP comes from India, implemented well before the term was coined. The Government placed a guaranteed demand for millions of hand-pumps to be installed all over rural India; national and international companies bid for the contracts for the pumps, pipes and drilling equipment; and NGOs

educated communities about the importance of safe water and pump maintenance.¹⁴⁷

Such at-scale examples are rare unless the state plays a central role, though not necessarily the role of direct service provider. Private enterprise, demand-driven services and finances, bottom-up NGO pressure and the 'show-me' effects of pilot projects are all critical. But the literature on the importance and innovation of private actors in essential services seems to conclude that the state needs to set and enforce an enabling policy framework, provide direct assistance to the poorest and direct the flow and targeting of collective goods if water and energy services are to be universally provided. Several studies, even when promoting private sector participation, suggest that one reason for promising interventions failing to scale up is that the state did not provide subsidies, killed the effort with too many subsidies, did not enforce its own regulations or did not otherwise promote sustainable interventions.¹⁴⁸ It is old news, after all, that private actors cannot capture spillover benefits, provide services to an extremely poor user base or guarantee environmental integrity. This is not their mandate.

At the same time, the nature of the private sector players in water, sanitation and energy has been rapidly changing, especially for providers working with the lowest quintiles. In addition to registered corporate entities, there are numerous small-scale and semi-formal entities, sometimes purely commercial and at other times social as well as commercial, that are agile and entrepreneurial. It is critical that the public sector engages with these private sector(s) in sustainable development efforts and also regulates them while taking advantage of their service-creation and market-creation potential. Yet regulation and oversight is a capacity that smaller States may lack.¹⁴⁹ Monitoring and oversight of the private and public sectors, therefore, are also the business of national and transnational civil society and social movements. These interest groups, heterogeneous though they may be, are often effective pressure groups and/or watchdogs on behalf of unserved communities. In a shifting institutional

141 WHO 2012.

142 See Miraftab 2004.

143 Discussed in Linder 1999; Osborne 2006.

144 Smith et al. 1993; Sinton et al. 2004.

145 Pereira et al. 2011.

146 *ibid.*; Lemaire 2011.

147 Talbot 1997.

148 See Zhang and Smith 2007; Bailis et al. 2009; Pereira et al. 2011; Harriss et al. 2011; Sovacool 2012.

149 Cairncross 2003.

environment, transformative investments can only go to scale with transformative alliances among all the players in the development arena.

Contemporary efforts we can point to are not (yet) at the transformative scale, but they show that innovative alliances are indeed possible in the water, sanitation and energy space. Grameen Shakti is a private (but non-profit) sector actor in off-grid electricity in Bangladesh and has installed over 1 million home solar systems. It uses financing provided by the Government and the International Finance Corporation to extend micro-credit to its buyers.¹⁵⁰ The extensive networks of rainwater harvesting systems in India, pioneered by groups such as Tarun Bharat Sangh and Gravis, are now going to scale with government support – and in some cases government mandates – after thousands of successful demonstrations. CLTS, a subsidy-free participatory approach to latrine building and use, seems to be expanding rapidly in sub-Saharan Africa with the support of international agencies and national governments.¹⁵¹ Cookstove projects with women’s groups, social enterprises and for-profit stove makers are working with millions of customers in Africa, Central America and South and South East Asia. These examples are proof that transformative alliances can and do exist and that new forms of state-capital-society ties can enable gender-equal sustainable development.¹⁵²

Of course, financing pro-poor gender-equalizing investment in sustainable water, sanitation and energy services is a formidable proposition for countries with low per capita GDPs. Investments through potentially creative institutional alliances are both critically needed and possible. But the difficulty of financing such investments to scale must be acknowledged, and budgetary competition with other sectors – health, defence, education or agriculture

– must also be faced. Financing mundane but transformative investments for the lowest quintiles needs a refocusing of fiscal and political decision-making in developed and developing countries alike. Both traditional as well as non-traditional sources of financing water, sanitation and energy services could potentially be harnessed and re-directed towards sustainability and gender equality. These include direct (central or local) government financing, debt-forgiveness for highly indebted countries,¹⁵³ raising development assistance to the long-standing goal of 0.7 per cent of the gross national product (GNP) of every country and redirecting military budgets, possibly in concert with neighbouring countries, among other options.¹⁵⁴ Of course, financing arrangements or loan repayment schedules that inadvertently increase the unpaid workload of low-income women would be capability reducing and thus not on a sustainable pathway.

In short, for all the failures of state-run efforts, and there have been too many of these; and for all the States that govern badly or even brutally, and there are too many of these, the historical evidence points to the need for a state that is in a contract with its citizens that it, at least in part, honours. This is an old model of the state, one with Aristotelian antecedents, and one that has been in and out of analytical fashion in recent decades. The modern version is akin to what Evans (1995: 12) has called the “developmental state”, in which the state, acting in concert with private actors, is ultimately accountable to the citizens. It is compatible with the call for all countries to progressively realize their commitments to human rights¹⁵⁵ – which include gender equality and the mundane means of life and dignity discussed here. This is certainly not a call for renewed dirigisme, but it does appear that sustainable and capability-expanding development needs the contractual state.

¹⁵⁰ Martinot et al. 2001.

¹⁵¹ Rukuni 2010; Mysyoki 2010.

¹⁵² See Evans 2008.

¹⁵³ Debt relief was not included in the targets for the post-2015 Sustainable Development Goals.

¹⁵⁴ Schalatek 2012.

¹⁵⁵ UN General Assembly 1948.

5.

CONCLUSION

This paper has argued that sustainable development is a multi-dimensional, multi-pathway concept whose components may or may not all be simultaneously and equally achievable. Accepting that there are many sustainable pathways leads to greater transparency in the trade-offs that societies may have to make between one goal (e.g., lower carbon emissions) and another (e.g., poverty alleviation), both of which are desirable and defensible components of sustainable development. Sustainable development is, therefore, a negotiated concept in implementation.

I have argued that, for sustainable development to be compatible with internationally accepted human rights norms, gender equality must be a central component of any chosen pathway(s). Thus investments towards socially transformative development should consider women's capability enhancement, especially at the lowest quintile, as a non-negotiable goal. This means that sustainable development efforts must be prioritized towards key sectors from which poor women can disproportionately benefit.

The four sectors for socially transformative development proposed here are access to water, access to safe sanitation, access to clean cookstoves and access to electricity. Each of these sectors could be transformative for women's health, dignity and work, and for poor women in particular. Effective investments at scale are certainly difficult and uncertain, and they depend on gender-sensitive and context-sensitive design, financing and implementation. We have seen that investments at scale call for transformative alliances between policy-makers, donors and the state as well as the private and civil sectors. Investments at scale need the reach and organizing power of the state; and the state needs the mobilizing power and vigilance of social movements to push it to honour its social contracts.

I have argued that gender equality should be assessed through the outcome of enhanced 'capabilities', thus privileging freedoms and agency over traditional

well-being measures such as income. Drawing on the 'rights and risks' approach¹⁵⁶, I have suggested that any investment (local or national) should ensure that those who bear the risks of the intervention also hold the right to shape it. I have built on the vast literatures on operationalizing 'capability', and on feminist economics, that have shown unpaid care work to be a pillar of the paid economy everywhere and a major constraint on women's capability enhancement. Investments in the four selected sectors are, in effect, investments in the determinants of health and opportunity for all. Therefore they should be assessed, ex ante and ex post, through metrics of health and opportunity. I have suggested that under-five female mortality, gender parity in secondary education and the reduction of unpaid care work for women and girls are illustrative (long-term) metrics of assessment for these investments. In keeping with the spirit of the quintile axiom, investments should be prioritized for the lowest quintiles in communities where they are made.

This argument does not preclude reducing carbon emissions or increasing the incomes of the poor as outcomes of sustainable development. But it does preclude a globalizing carbon-centric approach as 'the answer' to sustainable water, sanitation and energy for the poor. While climate mitigation and women's well-being are fully compatible with one another, the easy language of 'climate-gender nexus' places short-lived

¹⁵⁶ WCD 2000.

and hugely uncertain warming reductions in the same league as long-term and enormous well-being gains for women and the poor. Its eventual discursive effect may be to require investments in reducing female mortality to be partially justified by evidence of reduced emissions – the development world has seen many times that discourse, once entrenched, has material effect. This paper has made the case for everyday sustainability for everyday equality between women and men, and between girls and boys.

I end this chapter with some thoughts on the human body, human capabilities and how these influence the way in which we should understand sustainable development going forward. Feminist political ecology has shown that the environment is first and foremost experienced in the body, and the body is therefore the first scale of environmental analysis.¹⁵⁷ At least two of the priority sectors for transformative investment, water and stoves, are traditionally ‘female’ sectors. In no way do I intend to essentialize women’s needs and values through these choices; we certainly cannot valorize socially constructed ideas of women as the natural drawers of water and preparers of meals. But I do want to argue that, to truly transform women’s capabilities, we must recognize women’s distinctive and embodied situations in their everyday lives. We must begin with the “irreducible specificity of women’s bodies”.¹⁵⁸

For every target or ‘beneficiary’ or objective of sustainable development, there is an assumed body. We can call this assumption the ‘prototype’ body – it is always

implicitly there. That body is defined both by its biological characteristics and the social expectations of it. Without crossing into reductionist naturalizations, and without falling into the pernicious trap of one’s-body-is-one’s-destiny, we must explicitly recognize that the human body is the entity that houses human rights. What does this recognition mean for sustainable development? Sustainable development targets that are globally defined cannot be finely tailored to the full range of different bodily needs and their associated social norms. They must therefore become explicit about the prototype body that they are (primarily) written for. I propose that that prototype body for the design of water, energy and (especially) sanitation investments be the female body.

To illustrate this point, let us ask what designing for the female body means for water and sanitation. What would the water and sanitation targets be for a body that must carry water where a pipe does not, must always sit or squat to use the toilet, will manage small children in the toilet, must wash her hands after defecation, must be safe from assault on her way to the facilities or the water source and will bleed for four days a month for forty years, except if she is pregnant or dies young? Gender equality in water and sanitation means designing sustainability targets for *that* body; such designs would serve women, men, children and the physically challenged equally well. Only then will sustainable development sustain human rights for all, along with the environmental resource base on which both development and rights depend.

157 Rocheleau et al. 1996; Elmhirst 2011.

158 Grosz 1994: 207.

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