



Energy and Gender in Asia

A regional review

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THE ENERGY AND RESOURCES INSTITUTE
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Editorial

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The ongoing global energy transition towards a low-carbon and sustainable future has the potential to bring far-reaching and systematic changes to our societies. This transition offers several opportunities for greater social justice and gender equality and is likely to create pathways to improve women's quality of life. While making inroads into entrenched social structures, this phase of transition also presents the potential to acknowledge and act upon inherent inequalities that have restricted women's access to resources and their agency in the context of economic empowerment. Yet, to fully realize the objectives of social justice and inclusion, this transition must tap into the wide pool of talent and abilities of women. Within the energy sector, women have been largely underrepresented due to deterring sociocultural norms. Their absence impedes the move towards a gender-just energy transition. The growing recognition of the essentiality of gender inclusion in the larger energy-transition scenario must be further encouraged for addressing the complex nature of gender justice in the context of energy transitions and providing tangible inputs for policy uptake.

This review provides new facets for the current debate on how a just transition for inclusive climate action can take a strong role in transforming gender norms and furthering gender equality. It delves into how a gender-just energy transition could look like in South and South-East Asia, amid the specific energy needs and requirements of countries still in development phases and the urgency created by climate change. The discussion's journey is to deepen gender-specific knowledge and applications in five priority countries—China, India, Philippines, Thailand, and Vietnam.

Based on in-depth research and blogs and commentaries by and interviews with experts, this first collaborative paper by The Energy and Resources Institute and FES seeks to narrow the knowledge gap. It draws attention to the perceptions about, the barriers to and the challenges with social inclusion and gender equality in the energy sector, as seen by policymakers and practitioners. It includes their ideas of successful experiences. These experts and contributors from the Global South give valuable insights and open up new avenues for debate and deliberations, including recommendations for moving the needle that are based firmly on research and experience.

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The aim of this publication is to amalgamate ideas and novel approaches to empowering women to become change agents, energy professionals, decision-makers and more informed consumers and thus to contribute towards the larger goal of a gender-just energy transition.

Gender Budgeting in the Energy Sector

Vaqar Ahmed

Traditionally, the development community has considered energy projects as gender-neutral due to a poorly informed assumption that the challenges in the energy sector impact the sexes similarly.¹ This gender-blind approach to policies, programmes, and projects in the energy sector of developing economies has generated a gap in which women and men are not each distinctly recognized when it comes to patterns of demand, production, and use.

When budgets and public investment programmes in the energy sector are being envisaged, the policy and practice community must keep evidence-informed, gender-specific considerations in perspective. One tool that helps this exercise is gender budgeting, which is a method by which to focus explicitly on how public resources are spent and how equality between women and men could be achieved when it comes to the collection and use of budgetary resources.²

A slightly different approach to achieve this is also offered through gender audits.³ In this case, tools are developed to help assess how far organizations have institutionalized gender equality into their plans, budgets, and projects.

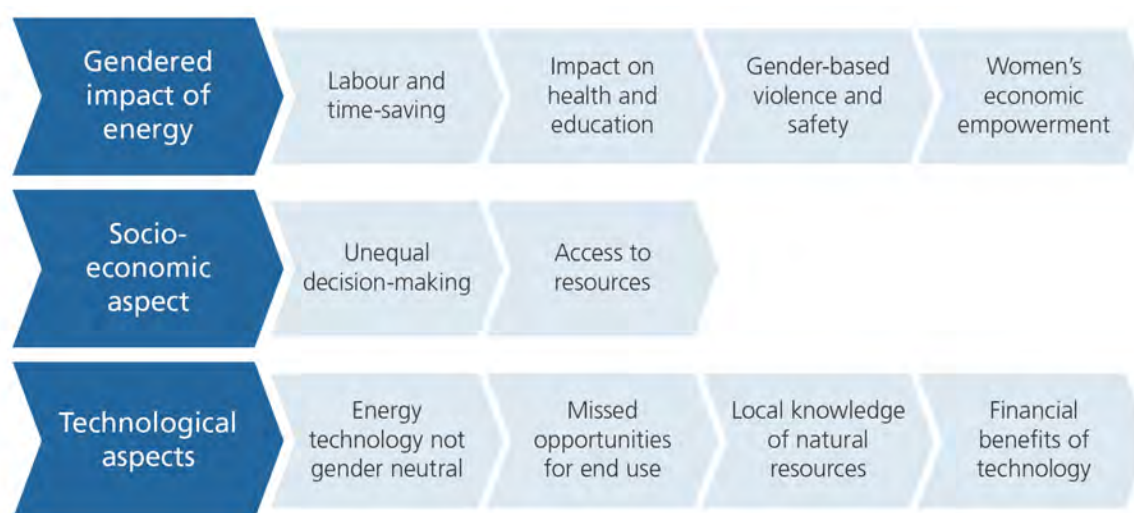
Energy systems must consider the diverse roles of women and men and how such diversity could bring about more successful macroeconomic, welfare and social outcomes. There is ample literature that highlights the need for gender mainstreaming in the energy sector (figure 1).⁴

Outcomes of gender budgeting in the energy sector

- Gender budgeting can help reduce energy poverty. Under the multidimensional poverty approach, poverty goes beyond income and consumption and includes such factors as access to sustainable energy. Often in regions like South Asia, energy poverty impacts the sexes differently—and women are relatively more affected than men.
- Gender budgeting could ensure timely and affordable access to energy. The energy needs of a household would be met if reliable and affordable access to sustainable power and gas networks is ensured. Such considerations particularly help women-led households in rural or marginalized settings.
- Gender budgeting could help meet minimum energy access thresholds. Expansion in energy

Figure 1: Why is gender mainstreaming important in terms of energy

Source: Adapted from Basnet, 2020.



1 UNDP, 2004.

2 Stotsky, 2016

3 Clancy et al., 2020.

4 Due to time and space constraints, we will not go into a general discussion of challenges faced by the overall energy supply chain in Pakistan. Aslam et al. (2020), Ahmed (2018) and Khan and Ahmed (2015) provide more recent discussion.

access should go beyond the minimum basic needs. Until such a situation arrives, there must be recognition that poor and women-led households end up spending a larger portion of their household or personal income on energy for purposes that include but are not limited to the cooking of meals, heating, lighting and transport.⁵

What does gender-aware budgeting in the energy sector look like?

The starting point usually is the realization that government budgets are not gender-neutral. Energy sector plans and financing will have different bearing on women and men in diverse settings, for example, rural versus urban. This is intuitive because in most developing countries, women and men have different responsibilities, in turn requiring different budgetary support.

In this context, gender-aware budgeting has the potential to promote gender equity and gender mainstreaming in the energy sector. But it requires analysis of how funding for programmes and projects is spent and who gets to benefit, by gender. Gender-aware budgeting doesn't necessarily mean separate budgets for each sex. Also, this approach doesn't necessarily result in an increase in the amount spent on a certain sex. This approach is just one way to recognize how, by a slight change

in accounting systems and processes, spending on women's and girls' energy needs could help reduce the various forms of inequalities.

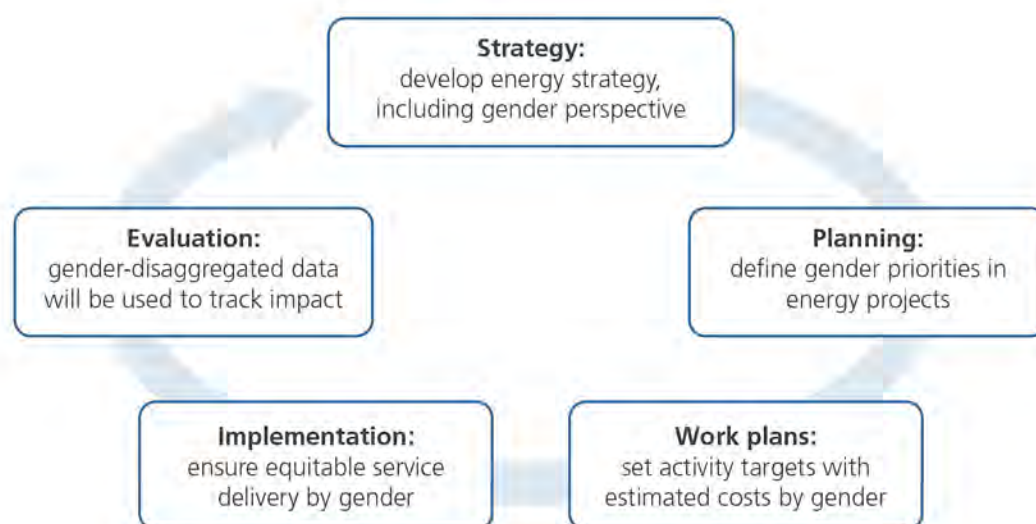
The actual gender-aware budgeting process (figure 2) involves three main steps. First, gender analysis helps determine gender gaps in ongoing and planned energy programmes. The gender-responsiveness of past and existing energy sector budgets (and their outcomes) should be assessed for policy lessons. The adequacy of budget allocation for a particular energy need (such as access for marginalized communities) should also be evaluated. This involves studying whether disbursed budgets are being spent as planned, and if not, what needs to be done.

The second step is to ensure gender-disaggregated data and indicators for budgeting. This is information that will remain available over the medium to longer term so that outcomes and impacts can be measured. Such gender-disaggregated data help track progress on gender-specific goals and targets for Sustainable Development Goal 7.

The third and final step is to undertake costing for gender equality and equity in the energy sector—estimating financial costs and resources for energy sector interventions to show gendered allocations.⁶

Figure 2: Gender-aware budgeting cycles in the energy sector

Source: Adapted from UN Women, 2015.



6 In several traditional settings, women lack agency over their income or social safety net proceeds (Ahmed et al., 2013). Changes in energy prices (as a result of energy taxes, for example) alter incomes and welfare significantly for farming communities and those associated with small and medium-sized enterprises (Ahmed and Zeshan, 2014; Zeshan and Ahmed, 2013).

7 UN Women, 2015.

Gender-aware budgeting in Pakistan's energy sector

There has been growing realization of the need to ensure gender-aware budgeting in Pakistan's overall fiscal framework.⁷ The Ministry of Women's Development released a paper in 2001 advocating for gender budgeting, followed by the Gender Resource Budgeting Initiative in the federal government and the provincial government of Punjab in 2005. The Budget Call Circular 2006–07, issued by the Punjab Finance Department, reflected some sex-disaggregated data, which at best gave information on the gendered public sector employment and remuneration.⁸

The initiative was integrated into the Strengthening Poverty Reduction Strategy Monitoring in 2008 and implemented in the federal government and three provinces. This was followed by the Medium-Term Budgetary Framework Secretariat at the Ministry of Finance, which integrated gender-sensitivity in medium-term output-based budgets (of federal ministries)—a practice that continues today. The objective of the Initiative was to regularly analyse public expenditure through a gender lens. However, the initiative prioritized health, education, social protection, population welfare and labour market programmes and ignored energy.

Future efforts towards mainstreaming gender considerations into energy budgets of Pakistan will have to focus on three main areas: First, capacity-building of finance and planning department officials on gender-sensitive budgeting within the energy sector. Second, a clear mandate for federal and provincial statistics departments to collect more gender-disaggregated data relevant to the energy sector, which can be used to evaluate the impact of energy budgets. Third, officials in the monitoring wings of planning departments will need new skills and knowledge for making realistic budgetary forecasts and baselines and tracking regular trends and

8 Tabassum, 2019.

9 Chakraborty, 2016.

timely reporting.

This must be complemented by an overarching effort by the federal Ministry of Energy to formulate a national-level energy and gender policy that in turn supports gender mainstreaming in the energy sector.⁹ The Ministry has started work on this, in collaboration with independent think tanks and platforms, such as the Sustainable Development Policy Institute¹⁰ and Women in Energy – Pakistan.¹¹ Eventually, such an effort will help integrate gender-sensitivity into most activities of federal ministries, provincial energy departments and among energy regulators.

The way forward

There is absolute need for strengthening accountability systems (gender budgets) and oversight processes (gender audits) for more equitable impacts of public budgets in the energy sector.¹² Officials responsible for planning and budgeting need to ask certain questions, including: Are gender issues clearly spelled out in energy project proposals and work plans? What activities ensure attention to gender issues in the energy sector? Is there a budget for gender-related analysis and activities in energy departments? What type of expertise is required to ensure attention to gender issues in the energy sector?

Pakistan's Alternative and Renewable Energy Policy 2020 promises to increase the share of alternative and renewable sources in power supply to 30% by 2030. This is a responsible path that the country is about to undertake. The outcomes of such progress will be incomplete unless a gender-just energy transition is envisaged from inception to the implementation of the policy.

10 USAID, 2015.

11 See www.sdpi.org.

12 See <http://womeninenergy.pk/>.

13 For example, see UNDP, 2013. Due to space constraints, we could not go deeper into strengthening of the demand-side accountability mechanisms, which are equally important (Abbas and Ahmed, 2016).

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Women Quoting Men: Energy Reporting in Southeast Asian Media

Mai Hoang

At least three-fourths of energy stories in leading media outlets in Indonesia, Malaysia, Thailand and Vietnam only quoted men, according to data collected by researchers for Climate Tracker and the Stanley Center's Fueling the Tiger Cubs: How Southeast Asia's Media Is Covering Coal's Last Frontier. When women were featured, there was a lack of diversity, with only a handful of women leaders repeatedly representing female voices. Yet, female journalists were regularly writing energy and climate articles. What are the issues here?

One of the most striking moments from my time with Climate Tracker was organizing a dialogue between journalists and Electricity of Vietnam (EVN) representatives. The room was divided in half: journalists and NGO staff on the left, EVN representatives on the right. While the journalists' side was mostly women, EVN's side, except for the communications specialist, was all men.

Anyone working in media development in Southeast Asia would probably agree that, at least for this region, gender balance in the media workforce is not a major issue.

While previously serving as Climate Tracker's Southeast Asia Lead, I regularly received more applications from young female journalists for fellowship and media research positions than from their male counterparts. Of the ten journalists who led media research work for Fueling the Tiger Cubs: How Southeast Asia's Media Is Covering Coal's Last Frontier, nine were female.

The gender divide of quoted sources, however, is an entirely different matter. A study from Oxfam in Vietnam revealed that male sources were rated higher than female sources for qualities such as intelligence, decisiveness, knowledgeable, organized, efficient and powerful. They are also viewed as "more qualified" to be news sources in such areas as "the economy, politics, military and security, science and technologies."

Climate Tracker's cross-country analysis on energy reporting revealed a similar pattern: Where gender was identifiable, at least three-fourths of energy stories from leading media outlets in Indonesia, Malaysia, Thailand and Vietnam exclusively quoted male voices. Energy, which lies at the intersection of the economy, politics,



Pham Thi Hong Van, Vietnamese journalist for *Tuoi Tre* news, interviewing an energy sector representative. Photo taken by Mai Hoang during media training by FES, Climate Tracker and GreenID.



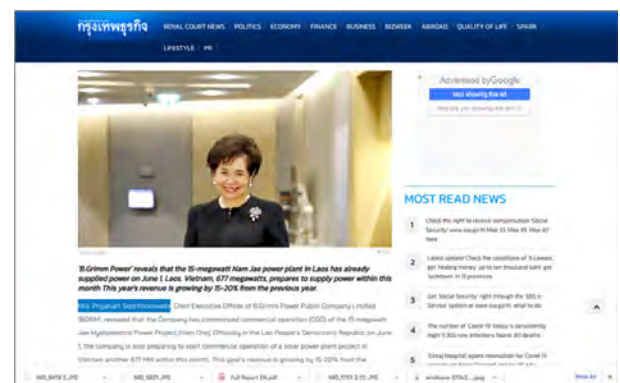
In Vietnam, a 2017 study from Fojo Media Institute and the Centre for Media Development and Initiatives (MDI) found more female than male journalists—a phenomenon called the “feminization” of the media industry. Though updated statistics for the entire region are not available, gender balance does not seem to be a major issue in Southeast Asia’s media workforce. Photo by Mai Hoang.

security, science and technologies, is unquestionably seen as the domain of male expertise.

Although gender stereotypes doubtlessly have a hand in source selection, this divide also reflects realities in the sector. Journalists who consciously try to quote female sources have reported that they have difficulty finding appropriate interviewees among their network of experts.

It doesn’t help that the majority of energy articles approach this issue from a government or big business standpoint. Across all countries in Climate Tracker’s analysis, government and corporate sources outnumber NGOs, academia and community members by a wide margin. Journalists, pressed for time, prioritize conventional voices with whom they already have a close relationship. Short, hard-news stories on a government’s latest policy or a business’s energy project launch prevail. When these articles quote any interviewees, they tend to be male.

But when energy articles feature women, they are more often than not corporate leaders rather than community mobilizers. In Thailand, for example, most of the energy articles with female voices that were reviewed spotlighted leaders of energy giants B. Grimm and Gulf Energy, promoting their respective company’s new projects, many of which are based on fossil fuels. These articles highlight the corporations’ profitability, which is tied to economic growth and national development.



One of the few energy articles from Bangkok Biz News with a female primary source featured Priyanart Soonthornwada, former CEO of B. Grimm Power, talking about a new hydropower project in the Lao People’s Democratic Republic.

Across other countries in the region, this trend is much the same.

Interestingly, Vietnam diverged from this trend, with 10 of the 13 reviewed energy stories only quoting women and highlighted female voice in NGOs instead of business and government. However, a singular female voice, Nguy Thi Khanh, Founding Director of GreenID, which coordinates the Vietnam Sustainable Energy Alliance, was the most quoted female as well as NGO voice on energy in Vietnam. While this undoubtedly speaks for her and GreenID’s success in energy advocacy, it also reflects a dire lack of diversity in women’s portrayal in the local media.

Sjafvitri Sari Dewi, Develop Renewable Energy

This content was produced by [SWAONLINE](#)

Sjafvitri Sari Dewi, Develop Renewable Energy



Sjafvitri Sari Dewi, CFO of PT Indo Tenaga Hijau (ITH)

When it was founded in 2009, PT Indo Tenaga Hijau (ITH) – then named PT Tangkuban Parahu Geothermal Power – had one task that was ordered by its parent (PT Indonesia Power), namely to develop the geothermal power plant WKP Tangkuban Parahu.

Articles about renewable energy also predominantly quote female corporate leaders, if they feature women at all. Sjafvitri Sari Dewi, Chief Financial Officer of green energy developer Indo Tenaga Hijau, is featured in Indonesia's *Kumparan* media platform.

Although vulnerable communities in general and the female members of those communities in particular are the ones most impacted by governments' and corporations' energy decisions, they are rarely represented in national media. Because energy projects are often placed in more remote locations, in-depth reporting from local perspectives takes time and resources that mainstream outlets are reluctant to allocate. Across the region, community members were quoted in less than a fifth of all energy articles published by the leading outlets that were reviewed.

On the bright side, some journalists strive to break the mould. Their innovative reporting is more often found in niche or independent news outlets. In Vietnam, for example, a (female) freelance journalist was able to secure funding from the Earth Journalism Network to report in-depth on the environmental impacts of the Vung Ang coal-fired power plant. While highlighting the plant's environmental and health consequences, Quynh relied on social expectations that women are homemakers and would thus be more qualified to speak on how coal ashes affect local households, using terms such as "mẹ con" to explain coal's impact on women and children.

Even in these articles, however, women are not portrayed as community mobilizers beyond the sphere of the home.



Vietnamese woman catching shellfish on mudflats in Bac Lieu, next to a newly built wind power complex. Photo by Mai Hoang.



Bài 1: Nhiều tỉnh, thành “nói không” với nhiệt điện than

🕒 12:15 | Thứ năm, 24/01/2019

Nhiều tỉnh, thành đang có xu hướng “nói không” với nhiệt điện than bởi rủi ro môi trường và những hệ lụy khác kéo theo trong quá trình xây dựng nhà máy nhiệt điện than theo quy hoạch điện quốc gia.

Ô nhiễm môi trường

Nằm cách nhà máy nhiệt điện than Vũng Áng 1 khoảng hơn 500m, gần biển, chị Dương Thị Cảnh, thôn Hải Phong (xã Kỳ Lợi, huyện Kỳ Anh, Hà Tĩnh) cho biết: “từ khi có nhiệt điện than Vũng Áng và Formosa (nhà máy luyện thép Formosa có 4 tổ máy nhiệt điện than - PV), không khí ở đây không còn trong lành như ngày xưa nữa”.



Mẹ con chị Dương Thị Cảnh. Ảnh: Lê Quỳnh

BÀI VIẾT CÙNG CHUYÊN MỤC



Quảng Bình: Dừng dự án mỏ đá để bảo vệ đàn vọc gầy trắng



Nhiều tỉnh, thành phố có chỉ số tia cực tím gây hại ở mức rất cao



Cứu hộ 4 cá thể gấu cuối cùng tại Rạp xiếc Trung ương Hà Nội



Duong Thi Canh and her children in a story on the impact of the Vung Ang coal-fired power plant. Screenshot from Người Do Thi online news platform.

The way forward

Ultimately, without the right training and resources, it is challenging for journalists in Southeast Asia—even female journalists conscious of gender representation—to write more compelling stories about women’s role in the energy transition. Men in government and business still dominate the region’s energy sectors. The diverse experiences of female community leaders and organizers are not covered. In Southeast Asia’s leading media outlets, the rare female voices speak within the conventional power structures of corporations.

Even though a full-scale transition in the energy sector is needed before the gender distribution of coverage can be truly equal, there are low-hanging fruits. As part of Climate Tracker’s media analysis, Southeast Asian energy journalists, many of them female, suggested that more collaboration programmes between national and local media outlets might increase the inclusivity of their own coverage. A regularly updated database of interview sources from multiple groups would also be of great value. These solutions, though simple, have great potential to increase and diversify women’s portrayal in energy reporting—one article at a time.

Green Employment for Women: Towards Gender-inclusive Renewable Energy Careers

Arunima Hakhu and Sebastian Helgenberger

Energy transitions as opportunities for pathbreaking in energy sector careers

For too long now, professional careers in the energy sector have been male-dominated. Until recently, women accounted for a mere 1 per cent of top management positions and 6 per cent of technical staff in the fossil energy sector globally (Baruah, 2017). There has been an increase of women employment in the renewable energy sector over the past decade, at least when compared to the fossil energy sector. But still, men outnumber women in the sector's key functions in the technical, managerial and policymaking positions (Vangchuay and Niklaus, 2021; IRENA 2019).

And yet, it is becoming a sector of high hopes. Renewable energy is increasingly promoted as an exemplary means to combat global warming while facilitating socioeconomic co-benefits and societal ownership in climate action. Vietnam's National Determined Contribution exemplifies this exalted ambition:

The energy mitigation measures proposed in this [National Determined Contribution] are also expected to contribute to socioeconomic development by supporting the development of new industries, creating favourable conditions for investment, strengthening assembly and maintenance services, etc. Significantly, developing mitigation technologies in the power sector, including renewable energies, will lead to more green jobs, higher incomes and greater economic prosperity.

Nguyen and Helgenberger (2020): Vietnam's Updated Climate Goals Aim at Maximizing the Co-Benefits of Climate Action

It will be a failed ambition if the societal traction for energy transitions remains limited because women are unable to access the co-benefits the same way as men do. The sustained masculinities—the prevalence of a greater proportion of men in the energy sector, especially in positions of power, and the way in which policies on

energy are framed (Connell 2014)—raise ethical issues related to gender justice, universal energy access and inclusiveness.

By neglecting a substantial share of the overall workforce, countries stand to not only miss the economic potential of women but also inadvertently perpetuate exclusionary traditional gender roles. Even though energy transitions towards renewable energy result in emerging new career paths in the sector, deliberate policy and corporate interventions are required to avoid sustaining the glass ceiling still holding in a male-dominated energy sector (IEA and CEEW, 2019; IRENA, 2019; ARE and ENERGIA, 2017).

Employment opportunities and gender inequality in the renewable energy sector

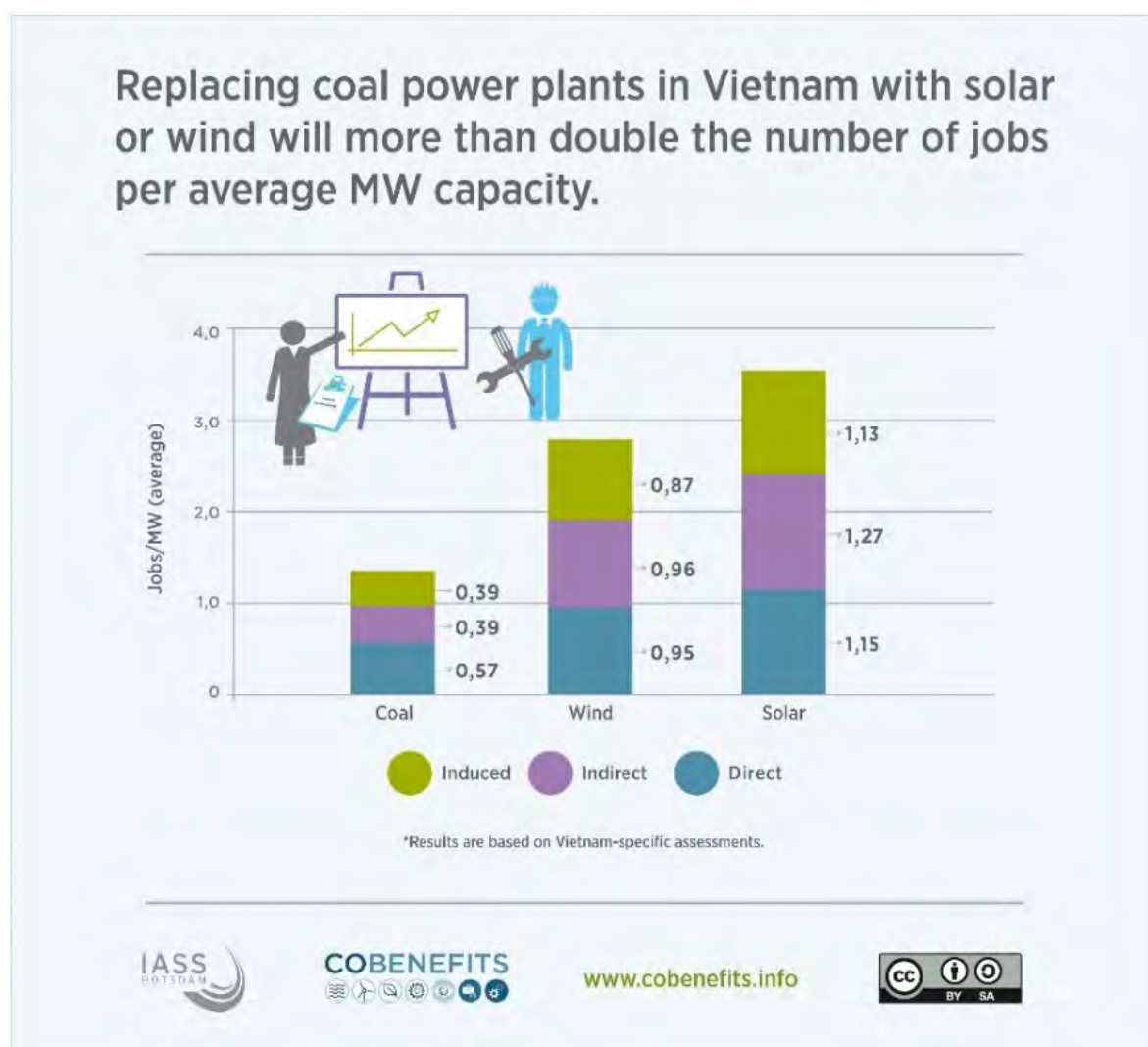
The International Renewable Energy Agency (IRENA) estimates the number of worldwide jobs directly or indirectly related to the renewable energy sector passed 11.5 million in 2019, doubling its initial assessment of 5.7 million jobs in 2012 (IRENA, 2020 and 2013). Prospects for renewable energy employment are positive, not least because renewable energy generation tends to be more work-intensive than the fossil energy sector (IASS, UfU and GreenID, 2020; IASS, UfU and TERI, 2020).

In Vietnam, for example, an estimated 1.94 million job years could be created in the country through a power sector transformation towards larger shares of renewable energy between 2015 and 2030. Over that 15-year period, solar and wind would create 3.5 jobs and 2.8 jobs, respectively, per average installed MW capacity, whereas coal would create only 1.4 jobs (figure 1). Similar effects can be expected for other countries in Asia. For example, India can significantly increase employment through its power sector by increasing the share of renewable energy. More than 3.2 million people can be employed in renewable energy by 2050.

The renewable energy sector is poised to become the largest employer in the future Indian power sector. By 2050 the renewable energy sector could employ five times more people than the entire Indian fossil-fuel sector employs today, potentially employing more than 3.2

Figure 1: Employment co-benefits of decarbonizing the power sector in Vietnam

Source: IASS, UfU and GreenID, 2020.



million people in renewable energy by 2050, increasing the total number of jobs in India's power sector to 3.6 million (IASS, UfU and TERI, 2020; figure 2). It remains an open question, though, how the employment opportunities will be distributed across genders and how women are to participate in these opportunities.

Women are estimated to hold 32 per cent of jobs in the renewable energy sector (IRENA, 2019). While this figure exceeds the 22 per cent for the oil and gas sectors, both situations are much below the 47 per cent average of the global workforce estimated for 2019 (Vangchuay and Niklaus, 2021; IRENA, 2019). Although women currently account for more than 50 per cent of science, technology, engineering and mathematics (STEM) university students in 144 countries surveyed, women only occupy 28 per cent of STEM jobs (such as facility operations and maintenance; equipment manufacturing, construction and installation project planning) in the renewable energy sector (ibid.). The share of women in non-STEM technical careers, such as finance, statistics and information technology, is slightly greater, at 35

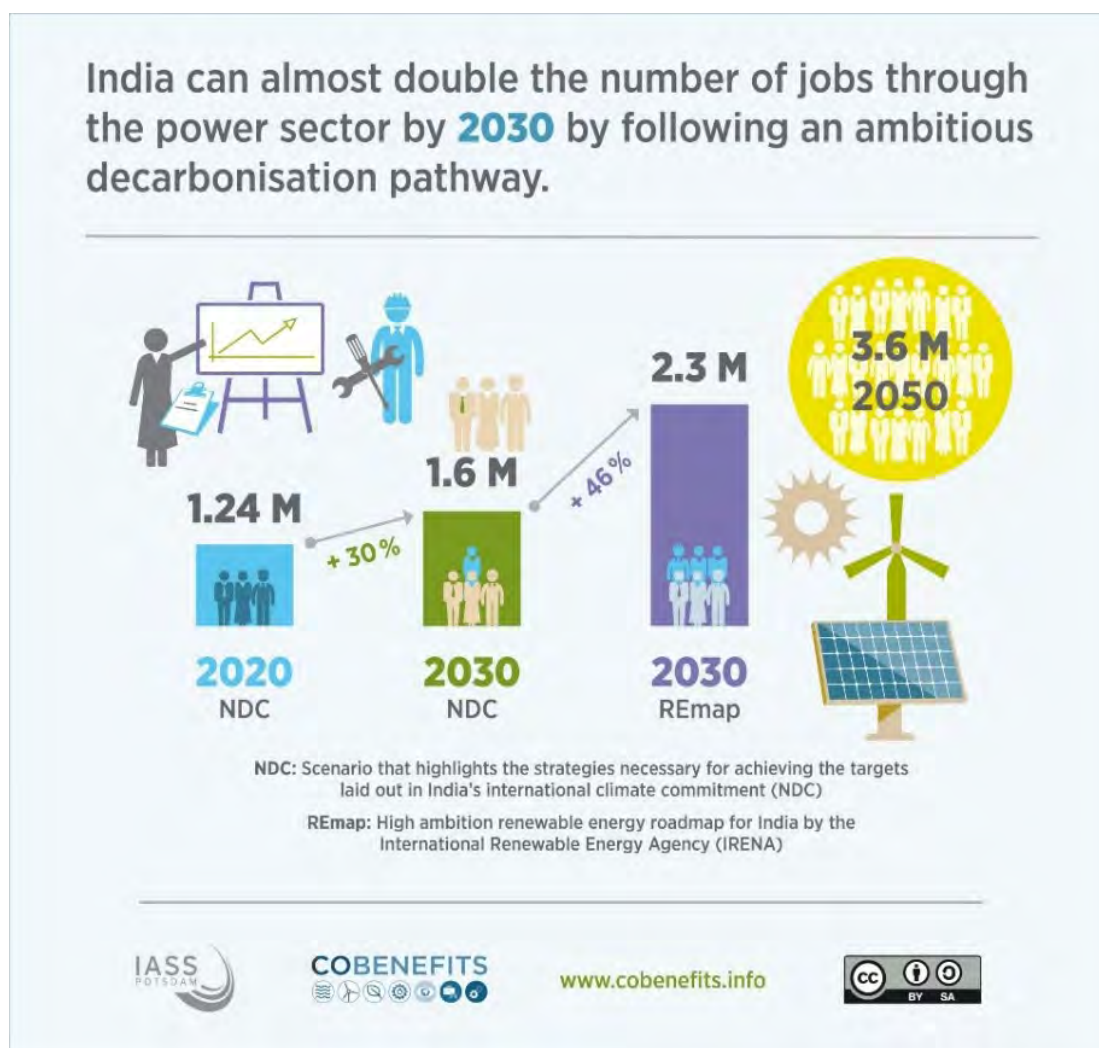
per cent. But the bulk of this employment in the energy sector is administrative in nature (ibid.).

In addition to the untapped economic opportunities, the gender imbalance entails implications for gender justice, equity and inclusiveness. Given lower participation of women in STEM and administrative jobs, neglecting to skill a female workforce in the rapidly growing renewable energy industry can be a disadvantage, particularly because the industry demands a greater share of high-skilled jobs than the fossil energy industry (IASS, UfU and GreenID, 2020). There is also a risk that qualified maintenance will be neglected when a female workforce is not fully mobilized when project developers try to save money by focusing on the installation of renewable energy but reduce the budget for the integration of female workers (IASS, UfU and TERI, 2020).

Gender diversity in a company tends to be connected to greater creativity, innovation and openness (Vangchuay and Niklaus, 2021). Vangchuay and Niklaus provide the example of women start-ups generating "seventy-eight

Figure 2: Employment co-benefits of decarbonizing the power sector in India

Source: IASS, UfU and GreenID, 2020.



cents for every \$1 invested versus thirty-one cents from their male counterparts". In view of climate action and decarbonizing the energy sector, the authors found that "companies are more likely to increase investment in renewable energy and to decrease carbon emissions throughout their value chain when there are more women on the board of directors" (ibid.). This conclusion may be highly contextual, but it is an interesting connection between gender diversity at top leadership levels and its impact on the way that institutions function.

Overcoming barriers to gender-inclusive careers in the energy sector

To facilitate gender-inclusive careers in the renewable energy industry and seize the social and economic opportunities, several action areas can no longer be underplayed: (i) awareness-raising for gender-inclusive careers; (ii), empowerment and skilling; (iii) recruitment; (iv) working environment; and (v) mentoring and role models.

Awareness-raising and career guidance: A gender-sensitive way of portraying and promoting education pathways (degrees, curricula, technical certifications) and career paths, including fresh formats for hands-on career guidance activities (such as career guidance in schools, internships and visiting programmes) can reduce the existing inequalities. It can make sure that energy careers in the future are successful options for women and men and unleash the full human potential for advancing the industry (IASS, UfU and TERI, 2020).

Empowerment and skilling: In and of itself, skilling increases women's confidence to participate in workspaces (Power for All, 2018; Barefoot College 2017). Contracted local self-help groups represent a community-centred way to provide operation and maintenance skills to women in renewable energy projects (Hakhu, 2020). Harnessing social networks can also increase employment continuity by creating and sustaining demand for local energy solutions (Hakhu, 2020; Chatterjee and Ghosh, 2012) and can provide additional co-benefits, such as increasing study hours for

children in schools (Kumar and others, 2019; Barefoot College, 2017; Venkatesh, 2010).

Recruitment: Particularly with senior positions and STEM technical positions, recruitment remains biased in favour of men. Given that the gender imbalance at the leadership level will further limit the opportunities of recruiting more women, human resource departments and recruiters need to invest in gender-inclusive recruitment processes by diversifying their shortlisting and selection panels and deliberately debunking antiquated leadership myths (Vangchuay and Niklaus, 2021; GWNNet, 2020).

Working environment: Addressing exclusionary practices in the energy industry, like the lack of day-care facilities for working parents, inflexible working hours or unpaid maternity and paternity leave, is essential to allow for gender-inclusive employment opportunities in the renewable energy sector. Female participation in shaping an enabling working environment, particularly for women, is an essential initial step to overcoming business-as-usual practices and challenging underlying power relations, masculinities and exclusionary value systems (Hultman and Anshelm, 2017; Connell 2014).

Mentoring and role models: Younger generations of women are encouraged to take on more leadership when they observe and learn from the successes of female role models, such as through mentoring programmes (IEA and CEEW, 2019; IRENA, 2019; ARE and ENERGIA, 2017). Leadership experience enhances the sociopolitical status of women as they earn more—income becomes an entry point to challenging sociocultural norms within and outside of their households and thus contributes to gender-inclusiveness beyond the sphere of labour economics (ARE and ENERGIA, 2017; Jyothi, 2016).

The bigger picture: Gender inclusiveness and social sustainability of energy transitions

Given that women are still underrepresented in the energy industry, the ongoing energy transitions in many

countries offer huge opportunities to overcome outdated career patterns and make energy careers an option for everyone. The opportunities go beyond promoting women and gender-inclusiveness—they contribute importantly to sustainable development under the 2030 Agenda's Sustainable Development Goals and to social sustainability of energy transitions:

The Social Sustainability of a policy intervention, project development or investment allows for continuity and long-term perspective by identifying and harnessing social opportunities and by preventing and mitigating social conflicts and community unrest. Social sustainability is facilitated through prioritizing the well-being of people and communities for current and future generations and by pursuing inclusivity and broad political and economic ownership in the development process and its results.

Mbungu and Helgenberger, 2021

Although inclusivity and ownership are essential aspects of SDG 8 on decent work, economic growth is being criticized for its “weak underpinning of gender and labour rights”, with the critics suggesting that a “gender-inclusive energy transition will require, at the very least, indicators which measure progress beyond GDP” (Vangchuay and Niklaus, 2021). Studies on the status and progress of gender-inclusiveness in the renewable energy workforce and related supply chains are increasing. But the lack of country-specific data and measurements on the issue remain obstacles to support the necessary adjustments in Asia and elsewhere.

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Perspectives of Women in the Philippine Energy Sector

Coleen Awit

In the Philippines, women are primary consumers of energy and are also most affected by the lack of clean, affordable, and reliable energy. Their participation is crucial in promoting an equitable, just and clean energy transition.

The country's power sector has long been male-dominated, making it difficult to incorporate a gender viewpoint into energy planning and programming. However, the expansion of science and technical education has resulted in more women's participation in the power and electricity sector. In addition, the adoption of such game-changing laws as the Magna Carta of Women and the Women in Development and Nation Building Act have ensured inclusion and participation of women and reduced gender discrimination in the workplace.

Women have had major responsibilities as bureau managers, engineers, geologists, economists and planners within the Department of Energy since its inception, according to Lilian Fernandez, Chief of Energy Cooperation and Coordination Division of the agency. The Manila Electric Company (MERALCO), which is the Philippines' largest distribution utility, mentioned in its 2019 sustainability report that women make up 32% of its workforce, which is significantly higher than the 9% average for global energy corporations.

There are plenty of efforts from the public and private sectors to push for women's empowerment. Yet, there is still a need for systematic and comprehensive gender analysis to have a clearer picture of gender-related issues and dynamics in the power and electricity sector.

In its report titled 2019–2025 Gender Equality and Women's Empowerment Plan, the Philippine Commission on Women identified gender-related issues such as limited access for women to improved energy solutions, workplace discrimination and the vulnerabilities of women in a male-dominated power industry. To address these concerns, the multisector Commission proposed that energy companies hire and train more female engineers, line workers, and technical staff on grid intensification and renewable energy. Other recommendations included developing an anti-sexual harassment policy, establishing the Committee on Decorum and Investigation of Sexual Harassment Cases

and a grievance committee to create a safe workplace environment.

Women in the energy policy advocacy realm

Women leaders are at the forefront in the Philippines' renewable energy policy domain. Attorney Monalisa Dimalanta, recent Chair of the National Renewable Energy Board, helped pave the way for the launch of the country's first green auction programme for a renewable energy capacity of 2 gigawatts. It was also during her term that the Renewable Energy Board pushed for an additional 22.4 gigawatts of renewable energy by 2040 in the country's energy road map. To boot, two of the most important renewable energy policies in place, the Biofuels Act of 2006, and the Renewable Energy Act of 2008, were both co-authored by women legislators. This legislation has helped drive developments in the renewable energy industry sector and reduce the country's reliance on fossil fuels.

Women working in civic organizations have also had significant roles in the energy policy realm. In 2019, Attorney Avril de Torres of the Center for Energy, Ecology and Development led the filing of a complaint against the country's Department of Environment and Natural Resources for alleged violation of the Anti-Red Tape Law.¹ The filing of the complaint was the result of the Department's refusal to release copies of documents related to a petition filed by residents of a coal community in Quezon Province. That same year, de Torres was instrumental in the revocation of seven power supply agreements of MERALCO in its subsidiary coal power plants that did not undergo competitive bidding and selection as mandated by law.

Women of the anti-coal movement in Negros Island

In the island province of Negros Occidental, women have been at the forefront of the decades-long fight against dirty energy. It started sometime in 1998, when Dr Romana De Los Reyes came home to the news that there was a proposal for a coal-fired power plant to be built in the city of Bago, her hometown. Well aware of coal's potential repercussions to people's health

1 The legislation aims to combat red tape and promote transparency and efficiency in the delivery of government services.

and the environment, she drew strength and resources from her formal education in anthropology, knowledge of Philippine social organization and professional experience to build a campaign against the polluting coal power plant.

In an article published in *Women in Action* in 2009, Dr Romana emphasized that her leadership in the campaign heavily relied on the strengths, talent, and skills of her fellow women leaders. With the city mayor's support, they were able to organize consciousness-raising campaigns in half of the city's villages. It was proven effective when in January 1998, during a protest rally organized with the Catholic church, more than 20,000 people showed up, forcing the coal power plant's supporters to finally leave Bago after five months. Because of the strong opposition in the city, the plant was transferred to Silay City, where the proponents faced an equally firm opposition. The proposed project then moved to the nearby town of Pulupandan, where, again, community opposition forced the coal proponents to finally concede defeat.

In the cities of Silay and Pulupandan, women also led the efforts to build resistance against the project. Two women leaders, Emily Jison and Erlinda Ledesma, steered the anti-coal movement in Silay by mobilizing the people with the help of Catholic church-based organizations. They conducted village-wide awareness campaigns and policy-lobbying efforts with the city officials. As a result, in March 1998, after two months of relentless campaigning, the city council issued a resolution that rejected the proposed coal power plant.

In the anti-coal campaign in Pulupandan, Dr De Los Reyes supervised the conference of the town's opposition groups, which resulted in the selection of women leaders. It was the leadership of women that pushed the people to take a hard stance against the coal plant. In actuality, there were more women than men who led the Pulupandan anti-coal campaign. People of Pulupandan Against the Coal-Fired Power Plant's education task forces largely comprised women and its village coordinators also were usually women. The Negrosanons Against Coal-Fired Power Plant's convener was a woman, as were the vast majority of the core group members.

In a follow-up evaluation, Dr De Los Reyes wrote: "It should be noted, that while ordinary women—farmers, fish vendors, housewives, manicurists—took on leadership roles, many of the women leaders were also professionals—chemical engineers, civil engineers, biologists, social scientists, teachers and other professionals. These professionals led the education task

forces that went from one village to another to inform the residents about the adverse impacts of the coal plant and the status of the project."

Then came 2018 and another proposal for a 350-megawatt coal-fired power plant to be built in the city of San Carlos, which is ironically dubbed as the renewable energy hub of the country. It also faced strong opposition from Negrosanons from various sectors, churches, civic society organizations and youth, which was further amplified by a campaign in the capital city of Bacolod.

In March 2019, after a year of campaigning and policy-lobbying, the province had a major victory when the then-Governor Alfredo Marañon signed Executive Order 19-08 declaring the province as a source of clean and renewable energy.

The victory would not have been successful if not for the guidance of the previous anti-coal campaigners who inspired the participation and leadership of young women in the campaign. With the clean energy declaration, dirty energy will be fully banned in Negros Occidental and it will pave the way for further advancement of renewable energy policies and technologies in the province.

While there has been increasing involvement of women in the energy industry in recent years, there is still a need for more comprehensive gender mainstreaming in the whole industry. The Philippines has a favourable energy policy environment, but the implementation of policies on women's empowerment remains slow and inefficient and thus requires more focused efforts. With women displaying their fortitude in crucial clean energy movements, it is high time their contributions are recognized and a gender-inclusive environment is fostered for women to progress in the energy domain.

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Voices of Change

The necessity of accepting gender to be an integral part of achieving just energy transitions in the true sense is slowly gaining attention. Adapting these elements as principles of planning, research and implementation in the energy sector could potentially set in motion more sustainable practices that could be embedded

in a futuristic energy scenario, and achieve diverse yet transformative outcomes from the top rung to the grassroots, especially in terms of women's active roles. Here we have voices of change makers from across the board talking about their perspectives on gender in the face of energy transitions for a more equitable change.



Covid-19 has hit women harder than men. They are more likely to need to change occupations after the pandemic. Energy transition will improve the chances of job transition for them, and so women require targeted interventions to support them in embracing new livelihood opportunities.

Dr. Kiriya Kulkolkarn

Associate Dean for Academic Affairs, Puey Ungphakorn School of Development Studies, Thammasat University Associate Professor, Faculty of Economics, Thammasat University

Energy transitions are critical to lowering greenhouse gas emissions and reaching a net-zero carbon future by mid-century. Public acceptability and feasibility of rapid transitions requires that they be fair, just, and inclusive of all genders, age groups and populations.

Dr. Shonali Pachauri

Research Group Leader, Transformative Institutional and Social Solutions (TISS) Research Group, the Energy, Climate, and Environment (ECE) Program, International Institute for Applied Systems Analysis (IIASA), Austria





With structural gender inequalities embedded in society, women do not have equal access and control over resources and assets. It is necessary to consider the differentiated needs and interests of women and men given the prevailing gender-based stereotypes and traditional gender roles. Gender responsive policies are necessary to ensure adequate representation of women and men, and equally address their needs.

Ravadee Prasertcharoensuk

Director, Sustainable Development Foundation, Thailand

Most economic activities are male-driven, with monetary profit as the sole motive, with no regard to environmental costs. Economically empowering women and creating more leadership opportunities for them could help bring about gender parity, foster green businesses, and ensure climate justice.

Narayani Ganesh

Former Associate Editor, The Times of India (1987-2021), Currently freelance writer on environment, science, philosophy, and related themes



Engendering energy transitions and understanding the energy and ecology through gender lenses at the grassroots level is essential. It will help reframe the dominant narratives and design new pathways to energy research, especially in patriarchal Asian societies.

Gz. Meenilanko Theiventhran

Research Fellow, Faculty of Engineering and Science, Western Norway University of Applied Sciences, Lecturer, University of Oslo



The Route from Energy Transitions to Social Transitions —Where do Women Stand?



Dr Tanja Winther, a professor at the Centre for Development and the Environment, University of Oslo, and Head of Include – Research Centre for Socially Inclusive Energy Transition

In this short interview, Dr Tanja Winther takes a trip down memory lane and shares interesting anecdotes from her research experiences in South Asia and Africa. Dr Winther also talks about her own journey as a woman researcher in the gender and energy domain.

How can electricity policies that take gender into consideration enhance women's empowerment?

Through the Gender and Energy project supported by ENERGIA, we discovered several connections between gender, energy and poverty in India, Kenya and Nepal. Mainly, we found that electricity policies have the potential to enhance women's empowerment as end-users. The level of their involvement in decision-making on electricity access may vary, for example, women are more likely to rent solar lanterns themselves than to make an investment in a solar rooftop system. But what is clear is that where gender-nuanced policies exist, women are more included in the processes of just energy transitions.

India, for example, offers free or cheaper electricity to people (living on income) below the poverty line—a group where single-women households are found more often. In Kenya, where such policies were not in place, single-women households had a very low likelihood of having access to electricity. The Nepalese government mandated the installation of lights in kitchens, where female members of the household cook every evening. In contrast, in Kenya, we found that there was often no light in the kitchen at all, as it was not mandated in the policy.

Does the involvement of women in energy transitions have the potential for social transitions?

There are some pathways to achieve social impacts by getting women involved in energy supply. We have seen in Afghanistan and in Ikisaya (Kenya), in places

where electricity is coming for the first time, that there is considerable scope for social transitions in the form of changed gender norms. When electricity is new and in high demand, it matters who becomes involved. If women are involved in the supply from the start by being trained as managers and agents of energy supply, this may change and expand local perceptions of what women can do more generally. We discovered that a key step to achieve this is the criteria for employing people in energy supply. When individual motivation to stay on and continue with the job was included as a criterion, this enhanced women's possibility to become recruited. Recruiting based solely on formal education would mean more qualified young men would get recruited, but they would tend to leave the job after a while in search of better prospects. This insight has for long been forwarded by (Sanjit) Bunker Roy and the Barefoot College (that he started to help rural communities in India become self-sufficient) and is indeed relevant. So, the selection of suitable eligibility criteria has not only increased women's chances at these jobs but also helped change gender norms.

Can men lead social transitions, from being silent spectators to active agents in catalysing the process of women's empowerment in the energy sector?

If you ask me, men can also be feminists. When men feel threatened that women have taken over their jobs or that they will lose their privileges, then they turn against them. But with policy interventions, they could be made aware of injustices and inequalities, so then they can become catalysts to women's empowerment. For us who work with energy, it is also timely to ask how much change can be achieved by electricity alone? For example, the Sustainable Development Goal 7 on clean energy and energy access is very aggregated and technically oriented. It is not nuanced or socially oriented. To achieve social transitions, there is a need to look at everything holistically. There should be a policy for justice at large.

What tools can be used to increase women's engagement in the energy transitions?

To me, processes are as important as the distribution of costs and benefits. Data and monitoring on the gender

distribution of jobs and income are also important. Having transparency around pay parity would be effective. It is also important to communicate success stories on women being game changers to attract more of them to this profession. Examples of women changing the scenario should also be popularized. But we should avoid thinking that social transitions rely on individual women. This is a structural issue.

Have you faced gender stereotypes in your journey as a sustainability professional?

Yes of course! The very first experience was in high school. I was uncertain about whether to take up physics or chemistry. I went to the school counsellor for career advice. He said, "Physics and women do not get along, neither does chemistry." It surprised me, but I went and did physics. Years later, I was doing a presentation at an energy conference. After a month, I got a copy of the conference journal. It had a big photo of me presenting on the cover, but when I looked inside, there was no mention of me or the topic I had been speaking about! As a woman student of engineering, I often felt restricted and ignored. But when I went on to do anthropology, I realized that I could take up research and work with energy in the way I wanted.

Better Access to Cleaner Energy Improves Health for Women in China, though the kitchen air is not yet all clear

Dr Wen Jiajun

People in low-income countries often lack access to sufficient energy, especially clean energy. This typically affects women and girls more, especially while working in the kitchen. Even though industrialized societies have access to modern cooking methods like gas stoves or electricity, people in low-income societies depend on solid biomass, such as wood, dried dung or dried crop residue to cook their meals. Burning these traditional fuels in the kitchen results in smoke and other toxic pollutants¹. The resulting indoor air pollution is much more adverse than the worst smog in industrial cities like Bangkok, Beijing or Los Angeles.

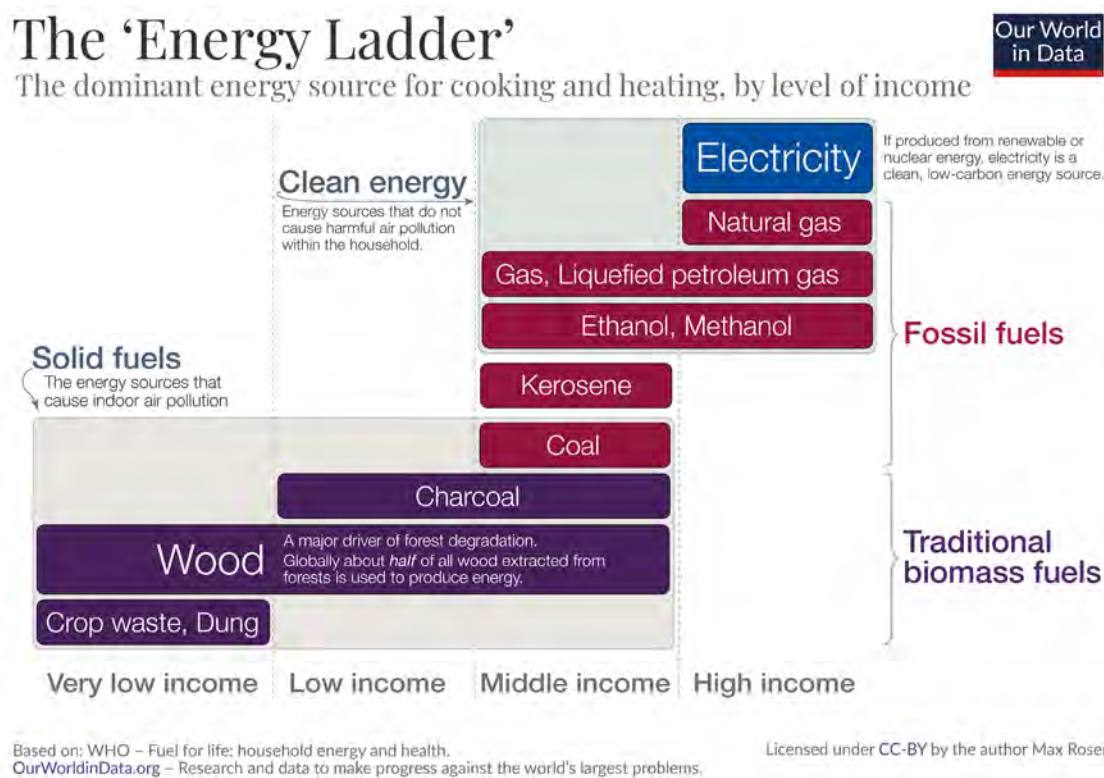
income increases. Around 40 to 50 years ago, large parts of China were still at the lowest level of the energy ladder. At that time, my grandmother cooked with wood and other dried biomass. Coal or charcoal were luxuries she could not afford. As a child, I spent a lot of time collecting dried bamboo leaves and branches after school. Cooking with grandma and watching the open fire are some of my cherished happy childhood memories. Only years later did I realize that decades of exposure to cooking smoke probably contributed to her frail health in old age.

Figure 1 illustrates how countries climb up the energy ladder in terms of moving from traditional biomass to fossil fuels to electricity for cooking, as household

The negative health impact of cooking on the general population, especially on women and children, should not be underestimated. Every year, according to the World Health Organization (as of 2018),² around 4

Figure 1: Cooking energy choices on the energy ladder

Source: Our World in Data

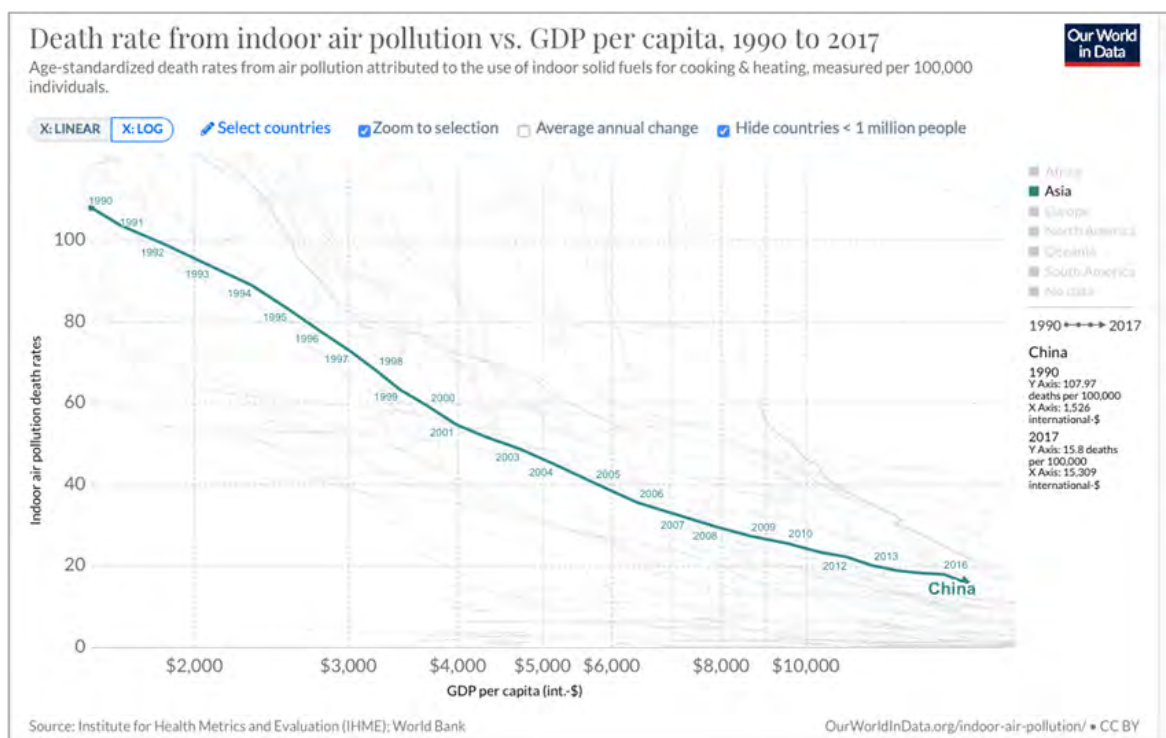


1 See also in this edition, the article 'Gender Justice: Clean cooking energy' by Dev Nathan and Govind Kelkar

2 See <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

Figure 2: Deaths from indoor air pollution compared against GDP increase

Source: *Our World in Data*



million people die prematurely from illnesses caused by household air pollution linked to inefficient cooking practices.

Fortunately, for my grandmother and millions of other Chinese women, coal and charcoal eventually became more available. Later came piped natural gas and liquefied petroleum gas in special tanks and then electricity. As China has climbed up the energy ladder, the death rate from indoor air pollution has decreased dramatically: more than 85% between 1990 and 2017 (figure 2). The share of deaths from indoor air pollution dropped from 9.7% in 1990 to 2.59% in 2017. Women have benefited more than men. Between 1990 and 2017, the average life expectancy of women increased by 7.8 years, compared with the 6.9 years for men.

China's rapid replacement of wood or coal stoves with cleaner alternatives (mostly gas and electric stoves) in recent decades has transformed household cooking across the country and resulted in enormous health

benefits for the general population, especially for women and children. But globally, around 3 billion people still depend on solid biomass or kerosene for cooking (WHO, 2018), posing great health risks for women and the population in general. Policies similar to China's strategy on cleaner cooking alternatives should be prioritized in low- and middle-income countries, in addition to adopting newer technologies, including solar lighting and solar cooking.

For China, energy poverty is largely a problem of the past. But it has become a high-emissions country, with per capita greenhouse gas emissions on par with the European Union. In our increasingly climate-constrained world, the situation is not sustainable at all. Although renewable energy use has been growing at record speeds in recent years, coal use has not yet peaked. The energy sector needs to transition to low-carbon development. The challenge of energy transitions faced by China and the West offers an opportunity for both collaboration and constructive competition.

Gender Justice: Clean Cooking Energy

Dev Nathan and Govind Kellar

The ongoing pandemic has emphasized how exposure to air pollution in the home, caused by cooking with solid biomass, increases the risk of acute respiratory infections, which has been predictive of the severity of COVID-19 and death from the infection. This has drawn attention to the importance of bringing about a switch to clean cooking energy as quickly as possible.

The World Health Organization estimates that every year some 4 million persons, mainly women and children but men too, die due to the health impacts of cooking with solid biomass¹). In India as recently as 2019, more than 50 per cent of rural households used solid biomass, mainly wood, as the primary cooking fuel (NSSO, 2019). Around the world, an estimated 4 billion people, or more than half of the global population, lack the ability to cook cleanly, efficiently, safely and affordably (Clean Cooking Alliance, 2020). These are mainly rural households, among which large numbers use unclean fuel like solid biomass when cooking. But these households also often use a clean fuel, such as liquid petroleum gas (LPG). This stacking of main cooking with unclean fuels and subsidiary cooking with cleaner fuel is a pervasive feature of rural households in many parts of the world, more so in sub-Saharan Africa and South Asia.

Gender justice in energy

Having the ability to cook cleanly and efficiently is a matter of gender justice because women (i) bear the main health burden of household air pollution, not only through premature death but also due to higher morbidity, including acute respiratory infections and (ii) do most of the unpaid labour of collecting wood, with its own health consequences of back and other injuries (Parikh, 2011).

Despite its importance for the health of rural women, access to clean cooking energy has not had a place in energy policy for development. Instead, such policies have concentrated on electricity for lighting and other household and productive uses. Clean cooking energy in India has been gaining national policy attention through a large-scale scheme for subsidized access to LPG for women in impoverished households. More than 80 million LPG connections have been provided

through this scheme. This has substantially resolved the initial problem of access, which now extends to more than 90% of the population. But data indicate that the purchase of LPG cylinders by households with subsidized connections is low, at around two cylinders per year. Use of LPG as primary cooking fuel requires around 9–10 cylinders per year.

Factors impeding the switch to clean cooking energy

To advance energy justice for rural women in developing countries, it is important to deal with the factors that have impeded rural women's switch to the primary use of clean cooking energy. Our research (Kelkar and Nathan, 2021; Kelkar et al., 2018; Nathan et al., 2017) has revealed several constraints relevant to women's adoption of clean cooking energy. They are the low valuation of women's work and time, unaffordability, regular inaccessibility of LPG, men's control over household finances and cultural norms and practices.

Low valuation of women's work and time: In rural areas women earn almost one third less than men. This means the opportunity cost of women's time is less than that of men. Thus, less household income is spent on relieving women from unpaid work in collecting and cooking with wood. Because there is a monetary cost involved in purchasing LPG or other clean fuel, the low valuation of women's time is a major inhibiting factor in nudging rural households to help women through the purchase of clean cooking fuel.

Affordability and accessibility: Many women in our research pointed out that LPG is not affordable, given the low household income. In addition, there are usually delays in obtaining cylinder refills, which means that only women with a second cylinder can fully switch to LPG. Both these factors together increase the cost of switching to LPG as the primary cooking fuel.

Men's control over household finances: In developing economies, men tend to control the use of household finances. This control is even stronger when women do not earn much cash income. Men often prioritize their own needs, for instance, buying a motorcycle for household transport over buying LPG to save time for women and protect their health.

1 <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>

Cultural norms and practices: Cultural norms give low priority to women's needs. They also support men's control over household finances. Women often do not have an independent voice in household financial matters.

Given these inhibiting factors, it is important to fashion policies to overcome the constraints. Providing rural women with subsidized access to LPG is assumed to be sufficient to encourage switching from burning wood fuel to buying LPG. This clearly has not been the case. Subsidized access is necessary but not sufficient to bring about a change to clean cooking. Hence, the importance of seeing what else is needed to promote a rapid switch to clean cooking fuel.

There is a need to deal with issues of accessibility and affordability. Accessibility here relates to the last-mile connectivity problem of getting LPG refills quickly. An experiment in Maharashtra State gave women a second, small LPG cylinder, which they could use when waiting for the regular cylinder refill. This worked quite well in sustaining LPG use as the primary fuel.

Affordability requires a continued subsidy on the purchase of LPG cylinder refills. This continued subsidy can be justified on the public and not just private benefits of LPG use. It surely has substantial health benefits for rural women and their households. But it also has public health benefits in reducing ambient air pollution. Scientific estimates strongly indicate that ending cooking with solid biomass would bring India's notorious air pollution to allowable limits. Further, the reduced collection of wood for cooking will increase carbon sequestration in rural forest areas. All these health and external benefits make a strong case for continued subsidized prices for LPG cylinders for rural women. This could be accompanied by a "give-it-up" campaign

targeting better-off households that can afford LPG at the market price to surrender their subsidies on LPG, as has been done in India.

We found in our research that switching to LPG as the primary fuel was associated with women who were cash income earners, owned land, were members of women's collectives or had husbands who had migrated. Earning a cash income gives women some agency in taking decisions regarding LPG use. In addition, spending time in earning an income puts pressure to reduce time spent in unpaid household work to collect and cook with wood fuel. The agency associated with earning cash and owning land and the pressure to reduce time spent on unpaid household work together seemed to nudge women to switch to labour-saving and health-protective cooking with LPG.

Switching to clean cooking fuel, such as LPG, has become even more important for the health of rural women and their families due to the need to reduce the incidence of co-morbidities, such as acute respiratory infections, that increase mortality from COVID-19. This switch will also have important externalities in reducing ambient air pollution and increasing the carbon absorption capacity of forests. Public support, by subsidizing the capital cost of connections, needs to be combined with local initiatives to organize women's collectives and promote income-earning and land ownership by women that would increase rural women's agency in the sustained adoption of labour-saving and health-protective clean cooking energy.

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