

حـــوار أبوظبـــي بيـن الـــدول الآسيويـــة المرسلـــة و المستقبـلـــة للعمالـــة Abu Dhabi Dialogue among the Asian Labor-Sending and Receiving Countries

Current and Potential Demand for WOMEN WORKERS in the Renewable Energy sector in India and the UAE

Dr. Jean D'Cunha, Senior Global Advisor on International Migration and Decent Work, UN Women



7th Abu Dhabi Dialogue Ministerial Consultation 10-11 February 2024 Dubai, United Arab Emirates



Executive Summary¹

The dynamic transition to clean renewable energy (RE) in India and the United Arab Emirates (UAE), is marked by commitments to international human rights frameworks, sustainable development and national development ambitions. It promises, among other benefits, cleaner environments, access to sustainable energy, more jobs including for women, because of its multi-disciplinarity, its long, diverse supply chains, higher labor intensity and profit margins compared to the traditional energy sector. The modern and decentralized RE (DRE) sectors also enhance women's opportunities to play leadership roles and to own companies than in the conventional energy sector because of the latter's large scale of investment and top-heavy system. DRE allows women to be situated and create value anywhere along the clean energy value chain - as aggregators, as trading businesses, as data analytics platforms that help aggregate demand, or build consumer awareness/demand for clean energy products within a company or by creating companies.

Optimizing opportunities for the emerging RE sector and women partly depends on reform that is intentional about gender equality and women's rights, as research shows that women's expertise enhances growth, productivity, returns and organizational culture. This is especially relevant to RE, where women in their socially prescribed roles as nurturers, providers, managers, consumers of natural resources develop their own knowledge, consciousness, skills, attitudes, behaviors on planetary protection and sustainability. Moreover, gender equality in the RE sector is a woman's human and labor right.

Framed within the sustainable development paradigm, this policy paper stems from the preceding context and an ADD member states decision to focus on women's skilled employment in the technology sector. The paper explores current and potential demand for women as employees in the RE sector, particularly solar energy, in India and the UAE, while also drawing on global data. It analyzes the gender-based structural opportunities and constraints mediating women's employment, career decision-making and development. It also preliminarily explores the status of migrant women professionals in UAE's RE sector, to initialize conversations on potential areas of demand - given the significance of the sector in the UAE and the UAE as a migrant destination site. Drawing on this analysis and relevant national, regional and global good practice, the paper makes recommendations to enhance decent employment for women, including Emirati and Indian women in the RE sectors of their respective countries, and for migrant women in the RE sector, including the UAE.

This is a qualitative paper that draws on published data from diverse sources. A key constraint is the lack of available national labor force data in the young RE sector. The paper therefore draws on smaller studies, published RE company data and 23 key multi-sectoral informant interviews that highlight gender considerations in the RE sector, the nature of RE job demand for women, and ways to enhance women's real access to decent RE employment. **These are the paper's highlights on women's employment in the RE** sector globally, in India and the UAE:



1.(a) Women's global share of fulltime RE jobs in the overall RE sector globally is 32 percent; 40 percent in solar PV (27 percent of these are full time off grid jobs) and 21 percent in wind energy. Their global share of the oil and gas workforce is 22 percent. National labour force data on RE was not accessible in India and the UAE. Smaller studies on rooftop solar, and the solar powered DRE sector in India, place their presence at 11per cent and 21 per cent respectively of the study samples. Based on analysis of annual reports of Indian RE-focussed companies, the International Solar Alliance (ISA) showed that women's share in the total work force of key public sector companies - SECI was 19 per cent, NTPC, 7 per cent and NHPC 11 percent, while it was 5 per cent in private sector companies like Suzlon Energy and 8 per cent in Tata Power. In the UAE, data from ADNOC, DEWA and Masdar - major RE-focussed state-owned companies, showed that women's share of the total workforce was 12 per cent, 18 per cent and 33 per cent respectively, while their share of the total workforce in private sector companies -Yellow Door Energy was 56 per cent and Alcazar Energy 38 per cent. Women are 59 per cent and 53 percent of UAE's Ministries of Energy and Infrastructure and Climate Change and Environment, each.

(b) Women's RE employment across its diverse value chains is marked by gendered skill and occupational segmentation. The reasonable presence of women with STEM and non-STEM technical skills in some non-traditional segments of the value chain and jobs, although mostly in corporate offices, holds promise for gender equality in the RE sector. However, women's on-site presence is poor.

(i) Globally, women hold 28 per cent of STEM jobs, 35 per cent of non-STEM technical jobs and 45 per cent of administrative jobs. Global solar PV value chains have over 35 percent of women in all segments, but notably in core segments: equipment manufacturing (47 per cent), project development (37 per cent).

(ii) Senior RE company officials in India and the UAE confirm women's strong technical expertise in non-STEM/STEM fields (engineering, data/computer sciences in particular), and work in strategy, project design, business development and sustainability, (commercial intelligence, site assessment, marketing, external customer relations), data analytics, finance/accounting, administration. human resources, communications, legal/tax compliance, and increasingly in office-based engineering teams.

(iii) In India, grid-connected rooftop solar has 18 per cent women in project design and pre-construction and 34 per cent in corporate support functions. In many rooftop solar companies, women engineers opted for corporate support functions. In solar DRE women account for 25 percent of the skilled work force in commercial &industrial DRE and 20 percent in mini-grids – mostly office jobs. They are also sales agents and distributors, including last-mile distributors to rural communities.

Women in the feminized textiles, handicrafts, food processing sectors that use clean energy products/services, undertake typically male functions such as operations and marketing, showing endless possibilities for them in enabling environs.



(iv) Women's presence in on-site segments of RE value chains is poor globally, in India and the UAE - 12 percent in installation in global solar PV and 12 percent in on-site business deployment of rooftop solar in India (3 percent in construction and commissioning and 1 percent in operations and maintenance). Half the surveyed roof top solar companies in India had no women in both these segments. Per India and UAE interviews, women in corporate strategy, data analytics and engineering teams made periodic on-site visits to assess sites, provide technical demonstrations of the plant to clients, monitor plant operations and maintenance. Low skilled construction and installation work on-site is done by males.

© Women's share of **leadership** positions varies across the three sites. It is low globally and in India and much higher in the UAE – per available data.

(i) Their share of **leadership** positions in the **global** RE sector is low at 10.8 per cent (2019), relative to oil and gas (12.1 per cent), and non-energy industries (15.5 per cent). In India, women's share of senior management in energy industries is 8.4 women. In rooftop solar women are12 per cent and 17 per cent of senior and middle man agement respectively. More generally, women in the UAE hold 30 per cent of leader ship roles in the public sector workforce and 15 per cent on the Board of **the UAE Chambers of Commerce and Industry. The UAE's 3 state-owned RE companies have between 18-23 per cent women in leadership positions (details in paper).**

(ii) The glass ceiling is most difficult to break in the senior most positions of the energ sector. Globally women held 5 per cent of these positions in 2019. The IRENA 2018 RE survey also showed that men held 65 per cent of board positions in participating private firms and were three fourths of the directors in half of all the firms.

The ceiling can be broken with enabling conditions. In the UAE, ADNOC had three senior VPs across the group in 2019, one of who was VP Operations. In Yellow Door Energy, women hold 20 percent (two out of ten) C-Suite positions. The legal, HR, health/safety departments are women-headed. At Alcazar Energy one out of four partners is a woman. In India, Tata Power has 20 per cent women on the board of directors. One of three CEOs in UNIQUS Consult Tech is a woman.

(d) Gender gaps in wages and other work conditions abound, as in other non-traditional sectors

(i) Women earn about 19 per cent less than men in the RE sector globally. In India, 2021), solar rooftop businesses show persistent gender wage gaps (IEA and CEEW, 2019) Gender-based wage data for the **UAE's** RE sector was inaccessible, but the UAE has a gender equal pay policy for the same kind of work and ranks eighth worldwide on wage equality for similar work (WEF, 2022).

However, a 2020 survey of 11,000 students (52 per cent Emirati, 31 per cent Saudi, and 17 per cent UAE residents from other countries) at sixteen universities in Dubai (with 43 percent women respondents), showed that 50 percent of women expected to be paid AED 5000, while only 40 per cent men would accept at this level. According to an Institute of Management Accountants (IMA) 2014 survey of 131 IMA members in the UAE, average base salaries for women in the UAE (\$53,222) were found to be 97 per of those for men (\$54, 938).



(ii) Women entrepreneurs find it more difficult than men to set up RE businesses, especially with access to capital. Per interviews in India, other nuanced gender biases in access to capital and company ownership, include how much capital women get for the same dilution in ownership compared to a male-led company or how women negotiate the terms of the equity they bring in.

(iii) Other key gender concerns in the RE sector globally, in India and the UAE to different degrees include women's exit from the workforce at key points in their careers, coinciding with childbearing when the demands of balancing work and family are strong, the lack of flexible work cultures, assigning women managers portfolios related to enabling rather than core business functions, fewer opportunities for women in management roles to participate in more important business/ government meetings, engage with more critical business partners or enjoy more strategic travel, travel perks relative to male managers, women's lesser access to strategic mentoring /training and networking, more limits to women's career advancement and the lack of policies that address these hindrances. Women often tend to be taken less seriously by clients or even within organizations and must work twice harder than men to succeed.

2. With the **UAE's** dynamic transition to RE and a high-powered knowledge economy highly **skilled migrant women professionals** are in demand for their skill, knowledge and labour in private RE and RE-related firms **in the UAE** that continue to have a lower proportion of Emirati women.

(a) Data from this study shows that the majority of non-Emirati women work in the private sector, while the majority of Emirati women work in the public sector. Data from both private sector RE companies in the UAE had a variety of different nationalities, in one case 15. Migrant women were 0.56 per cent vs 99.4 per cent of Emirati women in the Ministry of Energy and Infrastructure, and 9 percent vs 91 per cent of Emirati women were 81.8 per cent and 61 percent of the female workforce in two state-owned companies featured in the study. These pattern match overall available employment data that says that migrant women dominate the private sector but are a mere 5.3 per cent of public sector employees, while Emirati women are 66 -71 percent of the public sector work force and 11 percent of private sector employees.

(b) Many migrant women professionals in UAE's RE sector work in firms that develop RE assets at utility scale, in sustainable infrastructure funding companies, in Engineering-Procurement-Construction turn-key companies, in consultancy firms providing business, legal, RE technical services to RE companies or to others to help them decarbonize.

© They are high-skilled professionals with non-STEM/STEM expertise, working in middle or senior management positions in non-technical/technical roles. They serve as partners, regional/country heads, division/team leads, senior technical advisers or mid/junior technical specialists.



(d) Most are in corporate settings, engaged in overall corporate strategy development or business development - commercial intelligence, site assessment, marketing, external customer relations finance, HR, legal, sales and marketing, communications departments, and in administration. They are far less involved in project execution – construction, installation, operations/maintenance. However, women from engineering or business development teams who have engineering backgrounds undertake periodic on-site visits with engineering functions as part of their jobs.

(e) The majority of blue-collar workers who set up RE infrastructure on-site in the UAE are male migrants, especially those employed in semi-skilled technical work or low-skilled construction. However, some companies are looking at increasing the number of women in on-site project execution through policies and agreements with their supply chain partners.

(f) Migrant women professionals in RE-related government ministries tend to be researchers, technical specialists such as on air quality and green house gas emissions in the department of Green Development and Environment Affairs (MoCCAE) or in international relations departments (MoEl) handling bilateral documentation between countries of a more administrative nature. Depending on the nature of the work contracts would be short term to longer term.

3. There are several challenges to women's recruitment, retention and upward mobility in the RE sector, which are being systematically eroded.

(a) The challenges to women's recruitment include:

(i) Gendered and other limited perceptions about the sector and its work (e.g., technology -based infrastructure sector, with heavy physical work). However, the sector has growing proportions of women with technical competencies and many heavy manual tasks are being automated.

(ii) Gendered perceptions and practice about women's location in RE value chains and related infrastructure and protections.

Women's presence mostly in administrative, non-STEM technical and then STEM technical jobs in corporate offices is partly because enabling and administrative functions are seen as more appropriate for women versus core technical business functions or on-site roles. Office-based roles offer routine and stability conducive to family life, while on-site roles involve long, tedious travel, and prolonged onsite -stationing often in hard-to-reach sites that disrupt family life; challenges in working with male vendors, supply chain partners, contractors/laborers and communities in which solar projects are being developed. Some contexts have very poor on-site infrastructure, safety and security.

(iii) Gender biases in employment, recruitment policies/practices, and in application processes.

The constitutions of both countries enshrine gender equality, including in employment, but there are variations between them in employment and recruitment policies/ practices.



India has a history of implementing quotas for various groups of disadvantaged people, and legally mandated job quotas for women in certain sectors. UAE has quotas for women in public sector jobs, and targets for women's presence on boards of federal entities/institutions, which while not specific to the private sector can extend to all institutions. There is need for more granular data on these policy impacts, especially in the UAE. Further, private sector RE companies tend to adopt gender neutral approaches or soft or hard targets to women's recruitment in line with evolving organizational diversity policies. Lack of intentional recruitment of women contributes to poor gender ratios weighted against them, because conscious and unconscious biases drive recruiters to pursue potential male candidates; men tend to apply even if they are not a perfect fit for the job affirmative actions for women are discriminatory, CEDAW deems it a gender equality measure that compensates for women's historical disadvantages.

(iv) Gender disparities in tertiary education and TVET for RE jobs. Despite a robust proportion of STEM graduates in both sites, this does not necessarily translate into RE jobs, partly due to gendered social norms/practices, combine with more nuanced gender biases in STEM study streams. A 2018 UNESCO study showed that women are overrepresented in sciences e.g., the medical / health sciences (India:61.6 percent; UAE:81.1 percent) and natural sciences (India:51.4 percent; UAE:85.9 percent).

Also, although India has a range of RE skills development programs e.g., Suryamitra, Vayumitra, Varunmitra, there is a lack of sex-disaggregated data on enrolments, placements, types of courses pursued and sector-specific participation in the workforce post-training in these programs. Programs tend to be largely focused on skills relevant to the execution phase of RE projects, which involves fewer women workers, and are likely to have less women enrolled in them. Moreover, the operational elements of access to these programs need to be women-friendly. Sex-disaggregated data on TVET for the RE sector in the **UAE** was not accessible, but overall enrolment in these at the upper-secondary level is about 2.5 per cent. TVET generally draws in males, and Emirati women are about 37 per cent of enrollees. Low levels of TVET enrolment in the UAE and other GCC states reflect a lack of preference for TVET relative to academic education, despite state investments in TVET.

(v) Inadequate embedment of RE programmes in core educational curriculum, thin alignment between education and RE industry demands, and a scarcity of RE job skills, despite progress in both sites. A World Bank study on women in energy sector jobs in the MENA region says that STEM study fields are "often theoretical and or related to more traditional types of occupations such as medicine, engineering and research. Anecdotal evidence indicates that early education and training in newer areas of technology are nascent and not necessarily integrated into educational curriculums, leaving critical gaps in skills development for youth competing in future markets. "A study on engineering programs in public/private universities in the UAE says that the integration of RE fundamentals and applications by university officials to advance this change. In India too, integrating RE pervasively into the core engineering syllabus is still developing.



(vi) Women's unequal access to entry points for RE jobs (e.g., internships, apprenticeships) that help acquire required skills and jobs. A Government of India study (2019) showed that women were only 11 per cent of apprentices clustered in a few women-oriented trades in Industrial Technical Institutes (ITIs).

(vii) Women's greater lack of access to adequate information on RE job opportunities as they are excluded from the 'all-boys' social/professional networks and other formal channels of communication (industry conferences, exhibitions, job fairs and events organized by government, industry, financiers and international organizations). These events feature research and development, innovation, good RE policy/ programs and provide a range of RE job opportunities. Also, not all universities have dedicated information, mentoring/counselling programs on RE job prospects targeting women.

(b) Challenges to women's retention and career progression into senior leadership roles include:

(i) Marriage, childbearing and unpaid care work: Catalyst's First Step: India Overview Tool, for example, says that about 50 per cent of Indian women drop out of the corporate employment pipeline at junior and mid-levels, compared to 29 per cent of women across all of Asia. Key reasons for this include marriage, which in many cases entails relocation, childbearing, family pressures and socio-cultural expectations for women to conform to socially prescribed family roles.

(ii) Gender-based protection deficits for women employees, senior managers and entrepreneurs In India few rooftop solar companies surveyed had gone beyond basic government-mandated policies (e.g. maternity/paternity leave and sexual harassment prohibitions) to provide a more enabling work environment, partly because they were young. Child-care support after initial years of birth was an expressed need. Also like many sectors in India, most rooftop solar companies had no equal pay for equal work policy but claimed that the wage structure was based on educational qualifications, work experience and previous salary.

This has disproportionate adverse impacts on women as they start from an unequal playing field, tend to negotiate wages less than men, and are more likely to take maternity and care-work breaks disrupting careers. Despite equal pay for similar work in the **UAE**, studies show gender wage gaps, and women underestimating their skills and needing to negotiate to ensure they are paid the same as men. Also, in **both sites**, research shows employer/recruiter gender biases in performance evaluations/ promotions that view men as better managers than women who are deemed primary caregivers, and women as non-ambitious and disinterested in career progression. Women are presumed to be unable to work late, attend events, enrol in mentorship/training programs, receive critical on-job experience, travel, or take on demanding projects and are thus passed over for promotions. At times, this happens without consulting with them about their career goals, and/or not providing enabling support that could address these 'perceived or lived realities.' However, women do tend to be reticent to express a justified promotion or highlight their achievements that puts them in the line of vision of employers/sponsors for a promotion.



(iii) The leaking pipeline and the glass ceiling. This is partly because there are few women in the job pipeline, reflecting the lack of intentionality in targeting women at the hiring phase through all levels of employment. There is a consequent lack of role models for women in senior leadership positions.

4. Recommendations for action drawing on good practice from the selected sites and beyond. Promoting and protecting women's access to decent/productive RE employment in line with ILO and CEDAW labour and human rights standards is a moral imperative, promotes efficiency and must underscore all responses. Policies/programs must adopt a whole-of-government and whole-of-society approach across RE and related policy fields and ensure women's full and effective representation across all sectors.

Governments

(a) Generate national labour force data on women-owned RE businesses and women and men employees in the RE sector by sub-sector, occupation, education, skill and wage levels. At a minimum, data should be disaggregated by sex, age, nationality and migration status..

(b) UUndertake comprehensive gender-responsive analyses on the strengths and constraints underpinning the employment of national and migrant women in various job categories and levels in RE sub-sectors/DRE and women's RE businesses; and on government schemes for women's RE businesses and employment.

© Use data, analyses, workable good practices and recommendations generated in research to inform the design, implementation, monitoring and evaluation of policies, plans and programs for national and migrant women in the RE sector, backed by gender-responsive targets, indicators and budgets.

(d) Build capacities of government/quasi-government staff to design and implement gender-responsive RE policies, plans, programs and budgets.

(e) Build capacities of government/quasi-government staff to design and implement gender-responsive RE policies, plans, programs and budgets.

Government policies, plans and programs backed by temporary special measures (TSMs) should ensure women's equal opportunity and real access to:

(i) Non-discriminatory enrolment, retention and graduation from RE-related **TVET and tertiary STEM education** aligned with areas of current and potential RE job demand for women, backed by job grooming/matching, first-work placements as needed, quality on-job mentoring for both sexes;

(ii) Non-discriminatory recruitment of women with mechanisms to give effect to this;



(iii) Decent and productive RE employment, including provisions for: minimum wages for those in low-skilled jobs; equal wages and benefits for work of equal value; paid maternity/paternity and/or parental leave of reasonable duration; work-life balance measures for female/male employees to undertake post-partum childcare; support for parenting and other care responsibilities without compromising career tracks (flexi-hours, remote work, child-care subsidies/facilities); workplace incentives that place an equal and tangible value on 'productive' and 'unpaid care work' for male and female employees; equal opportunities and access to promotions; repeal of laws and regulations banning women from working night shifts; transport and worksite safety, including safe transportation to RE project sites that is reimbursed, safe/woman-friendly on-site infrastructure and personal protective equipment for women on site duty; annual casual/ sick leave; on-job and post-retirement general/ occupational health insurance; compensation for occupational injuries and death; prevention/protection against sexual harassment at work; post-retirement pension benefits; the right to association/collective bargaining.

(iv) Customized support for women-owned RE businesses, such as business mentoring including on legal frameworks, technical/financial assistance, financial inclusion including innovative alternatives to credit history for first-time female entrepreneurs, market linkages, and tax rebates for SMEs;

In addition to the above, Government measures for migrant women professionals and low-skilled migrant women workers who may be employed in the RE sector should ensure:

(i) Non-discriminatory labour law coverage and programmes such as comprehensive information on rights, wage protection and portable social security backed by robust enforcement and accountability mechanisms;

(ii) Harmonization of labour laws with migration and other legal regimes, and more legal migration pathways for low-skilled women migrant workers;

(iii) Harmonized worker-employer skills matching and skills-based mobility for migrant women workers aligned with labour market demand that includes developing national and regional occupation-based competency standards with commensurate wages and benefits; developing, assessing and recognizing workers' skills against these standards; and promoting mobility tied to these standards;

(iv) Skills development and women's recruitment in non-traditional RE jobs;

(v) Fair and accountable recruitment processes that are accessible to and protective of low-skilled migrant women workers, especially where online recruitment is increasing;

(v) Effective bilateral labour agreements/MOUs with robust protections for migrant women workers backed by strong monitoring and enforcement mechanisms;

RE Companies

1. Ensure that corporate mandates, standard operating procedures, programs and budgets espouse gender equality and women's empowerment and have robust monitoring/enforcement mechanisms, and ensure that these principles and provisions are incorporated in contracts with vendors.



2. Generate company- and industry-wide data on women-led RE businesses and women's and men's representation as employees in the RE sector by sub-sector, occupation, education, skill and wage levels - disaggregated by sex, age, nationality and migration status at minimum.

3. Ensure gender equality performance incentives that tie employee performance assessments, compensation, etc., to the company's and/or industry's gender equality mandate.

4. Ensure regular, transparent and broadly disseminated communication on the company's gender equality mandates and its implementation of related work plans with targets and indicators.

RE company policies, plans and programmes backed by temporary special measures should ensure women's equal opportunity and real access to:

(i) Targeted information reach to women on the RE sector including internships, apprenticeships and long-term job opportunities, through diverse strategies including special measures for women to participate in industry events, job fairs etc;

(ii) Intentional recruitment of women at all levels and in all segments of the **RE value chain** to ensure gender parity and **a pipeline of women for leadership** positions. Recruitment should include **diversified strategies** beyond traditional head-hunters;

(iii) Decent and productive RE employment provisions in line with all aforementioned recommendations to government (see iii under details of recommendations to government);

(iv) Retention and career progression through inclusive workplace cultures that create a sense of belonging, protection, safety and security. This should include: onboarding that introduces women (and men) to the organization – its culture, benefits and social-physical infrastructure that addresses women's specific needs and access to women's informal groups as a support mechanism; clear communication on career pathways to all employees in the organization; equal opportunities and real access to up-skilling and professional development that takes account of women's needs and priorities; women's equal opportunities, conditions and access to gender-sensitive mentors and sponsors with similar levels of competence, seniority and influence as those for men with a mid-to long-term time frame; fair and comprehensive performance assessment feedback to female employees from supervisors that takes account of women's concerns, backed by avenues for women to express disagreement on feedback; public endorsement of women's achievements that inform upward career mobility; periodic anonymous feedback mechanisms or walk-in sessions with senior managers, mentors, coaches, counsellors on workplace policies, individual/group concerns, and career progression goals and concerns; training on conscious and unconscious biases for employees at all levels and celebration of diversity of all kinds; and policies that prevent and protect employees against workplace harassment and abuse, including sexual harassment and abuse, backed by effective enforcement mechanisms.