



## International Journal of African Studies


Publisher's Home Page: <https://www.svedbergopen.com/>



Research Paper

Open Access

# Female Labor Force Participation in SAARC and SADC Countries: Understanding the Impact of Access to Clean Fuels and Technologies and Access to Electricity

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### Article Info

Volume 3, Issue 2, December 2023

Received : 30 June 2023

Accepted : 14 November 2023

Published : 05 December 2023

doi: [10.51483/IJAFRS.3.2.2023.97-131](https://doi.org/10.51483/IJAFRS.3.2.2023.97-131)

### Abstract

In the 21<sup>st</sup> century globalized world, each country is striving to grow be it high, upper-middle, lower-middle, or low-income countries. The regional groups; SAARC and SADC have mixed of both lower-middle-income economies and upper-middle-income economies. The abundance of labour resources and natural resources distinguishes it from all other regional groups. These regional groups face structural dualism, institutional dualism, and wage dualism as the greatest challenge. Male and female labour force participation is important for the faster growth of any economy. The economies of both regional groups show variation in female labour force participation. The study aims to examine the female labour force participation in SAARC and SADC countries. It tries to analyze the impact of access to clean fuels and technologies for cooking and access to electricity on female labour force participation in SAARC and SADC countries. The study tries to co-relate the factors and tries to look at the trend of all three; female labour force participation rate, access to clean fuels and technologies for cooking and access to electricity from 2000 to 2019. The findings derived from this study are anticipated to help the two regional blocs and other similar developing countries worldwide to partially attain the clean energy transition targets mentioned under the 2030 Sustainable Development Goals agenda of the United Nations. The move of the clean energy transition will not only improve the health of females but will save their time as well to participate in the labour force if they are willing to do so. The recommendations made in the paper will be valuable for policymakers to understand the role of females in nation-building and will push the Government's attention towards strengthening the existing policies and formulating new policies.

**Keywords:** SAARC, SADC, Female, Labor force participation, Clean fuels, Electricity

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## 1. Introduction

In the 21<sup>st</sup> century globalized world, each country is striving to grow be it high, upper-middle, lower-middle or low-income countries. To achieve high economic growth efficient use of factors for production is a must. The regional groups; SAARC and SADC have mixed of both lower-middle-income economies and upper-middle-income economies. The abundance of labor resources and natural resources distinguishes it from all other regional groups. These regional groups face structural dualism, institutional dualism, and wage dualism as the greatest challenge. Male and female labor

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force participation is important for the faster growth of any economy. The economies of both regional groups show variation in female labor force participation. The study aims to examine the female labor force participation in SAARC and SADC countries. It tries to analyze the impact of access to clean fuels and technologies for cooking and access to electricity on female labor force participation in SAARC and SADC countries. The study tries to co-relate the factors and tries to look at the trend of all three; female labor force participation rate, access to clean fuels and technologies for cooking and access to electricity from 2000 to 2019. Access to affordable, reliable, sustainable and modern energy, and increase in women's empowerment and participation in decision-making/politics are core to the attainment of the Sustainable Development Goals (SDGs) of the United Nations (UN). It highlights the importance of clean energy-based infrastructural development for the participation of females in the labor force and the prosperity of these two regional groups. This study separately estimates the effects of access to clean fuels and technologies for cooking and access to electricity on FLFPR of low-, lower-middle-, and upper-middle-income member countries of SAARC and SADC. The findings derived from this study are anticipated to help the two regional blocs and other similar developing countries worldwide to partially attain the clean energy transition targets mentioned under the 2030 Sustainable Development Goals agenda of the United Nations. The move of the clean energy transition will not only improve the health of females but will save their time as well to participate in the labor force if they are willing to do so. The recommendations made in the paper will be valuable for policymakers to understand the role of females in nation-building and will push the Government's attention towards strengthening the existing policies and formulating new policies.

## 2. Concept Methodology

South Asian Association for Regional Cooperation (SAARC) and Southern African Development Community (SADC); the two regional groups; one from South Asia and the other from South Africa are selected for the present study. All the Eight-member nations of SAARC and out of the fifteen-member nations of SADC nine nations are selected for the research work (The countries are selected on the basis of significant changes in FLFPR in the regional group). These regional groups represent a mix of world bank classifications of countries based on income levels. The study is based on a qualitative, analytical, descriptive and comparative study of female labor force participation from 2000 to 2019. It examines the trend of access to clean fuels and technologies for cooking (% of the population) and access to electricity (% of the population) in these member countries to understand the implication of changes in these two factors on female labor force participation. The data is taken from ILO Modeled Estimates and world bank database; World Development Indicators for the time period from 2000 to 2019. The two factors indicate the infrastructural development of any country. Unpaid work such as cooking is mostly the responsibility of women in almost all countries of the world. In lower-middle and upper-middle-income economies, due to poor infrastructural development, low income of individuals and lower skill, availability and affordability become barriers in accessing electricity. Accessing clean fuels and technologies for cooking and accessing electricity can reduce time spent by females on unpaid work, will provide them convenience and improve their health. It will encourage females to participate in paid work.

## 3. SAARC and SADC: Income-Based Classification

The World Bank assigns the world's economies to four income groups—low, lower-middle, upper-middle, and high-income countries.

**Table 1: World Bank Country Classifications by Income Level:  
July 1, 2020 (Old) and July 1, 2021 (New) - (in \$)**

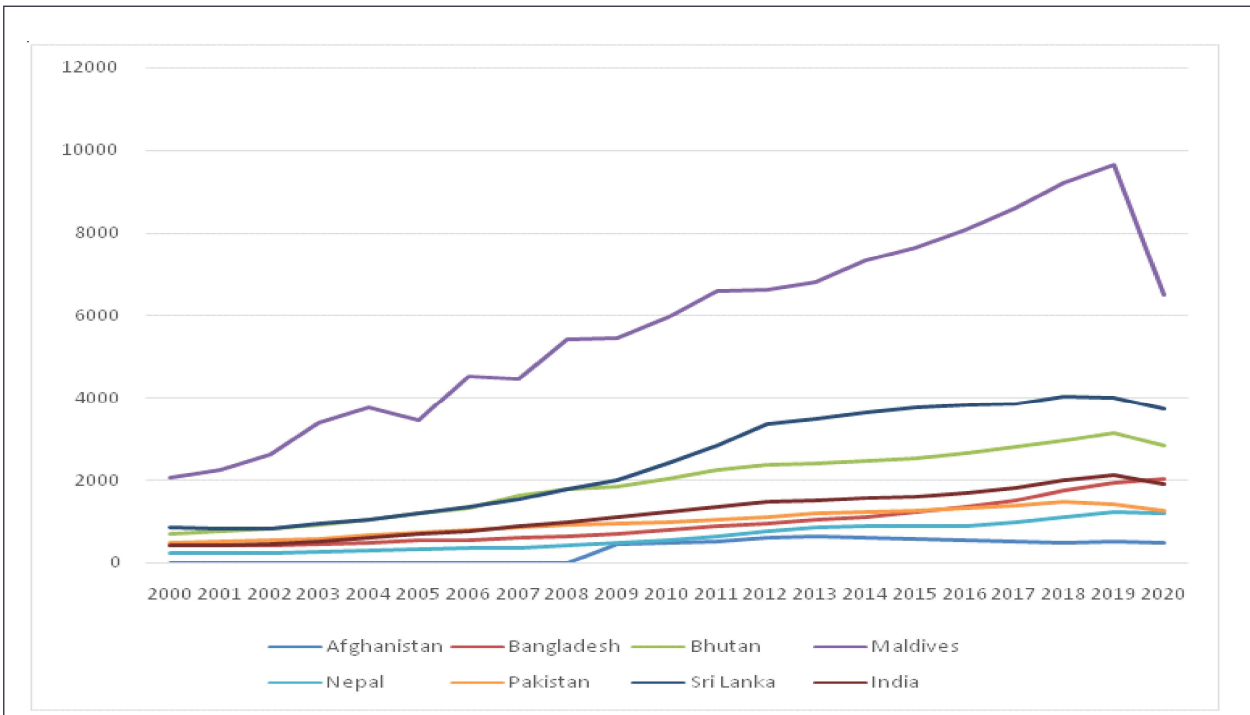
Group	July 1, 2021 (New)	July 1, 2020 (Old)
<b>Low income</b>		
Lower-middle income	1,046–4,095	1,035–4,045
Upper-middle income	4,096-12,695	4,046-12,535
High income	> 12,695	> 12,535

Year	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka	India
	AFG	BGD	BTN	MDV	NPL	PAK	LKA	IND
2000	..	440	700	2070	230	480	870	440
2001	..	440	750	2240	240	510	830	450
2002	..	440	810	2620	240	530	840	460
2003	..	460	910	3400	260	570	940	520
2004	..	510	1030	3770	280	660	1060	610
2005	..	550	1200	3460	310	740	1210	710
2006	..	570	1330	4540	340	800	1360	790
2007	..	610	1640	4480	370	860	1550	910
2008	..	660	1770	5420	430	920	1790	1000
2009	450	730	1860	5460	480	950	2010	1120
2010	510	800	2040	5960	540	970	2410	1220
2011	530	890	2240	6590	630	1030	2850	1360
2012	630	970	2390	6630	770	1120	3360	1480
2013	650	1040	2410	6800	860	1210	3490	1520
2014	630	1110	2460	7320	880	1230	3640	1560
2015	590	1220	2520	7650	890	1260	3760	1600
2016	550	1370	2650	8070	880	1310	3810	1680
2017	530	1520	2800	8600	990	1400	3870	1820
2018	510	1750	2970	9210	1120	1480	4040	2010
2019	520	1930	3150	9640	1230	1410	4010	2120
2020	500	2030	2840	6490	1190	1270	3720	1920

*Source: World Bank | World Development Indicators*

#### 4. SAARC and SADC: Female Labor Force Participation Rate

Table 3 and Figure 3 show the female labor force participation rate in the SAARC countries. It is rising in Afghanistan, Bangladesh, Maldives, Nepal and Pakistan but has a declining trend in Bhutan, Sri Lanka and India. The increase in participation is the fastest in Bangladesh. The drastic fall is visible in India. In recent years this decline is almost stagnant. Since the early 1980s, India slowly and gradually embraced the market system and moved towards opening up



**Figure 1: GNI per Capita, Atlas Method (Current US\$) in SAARC Countries**

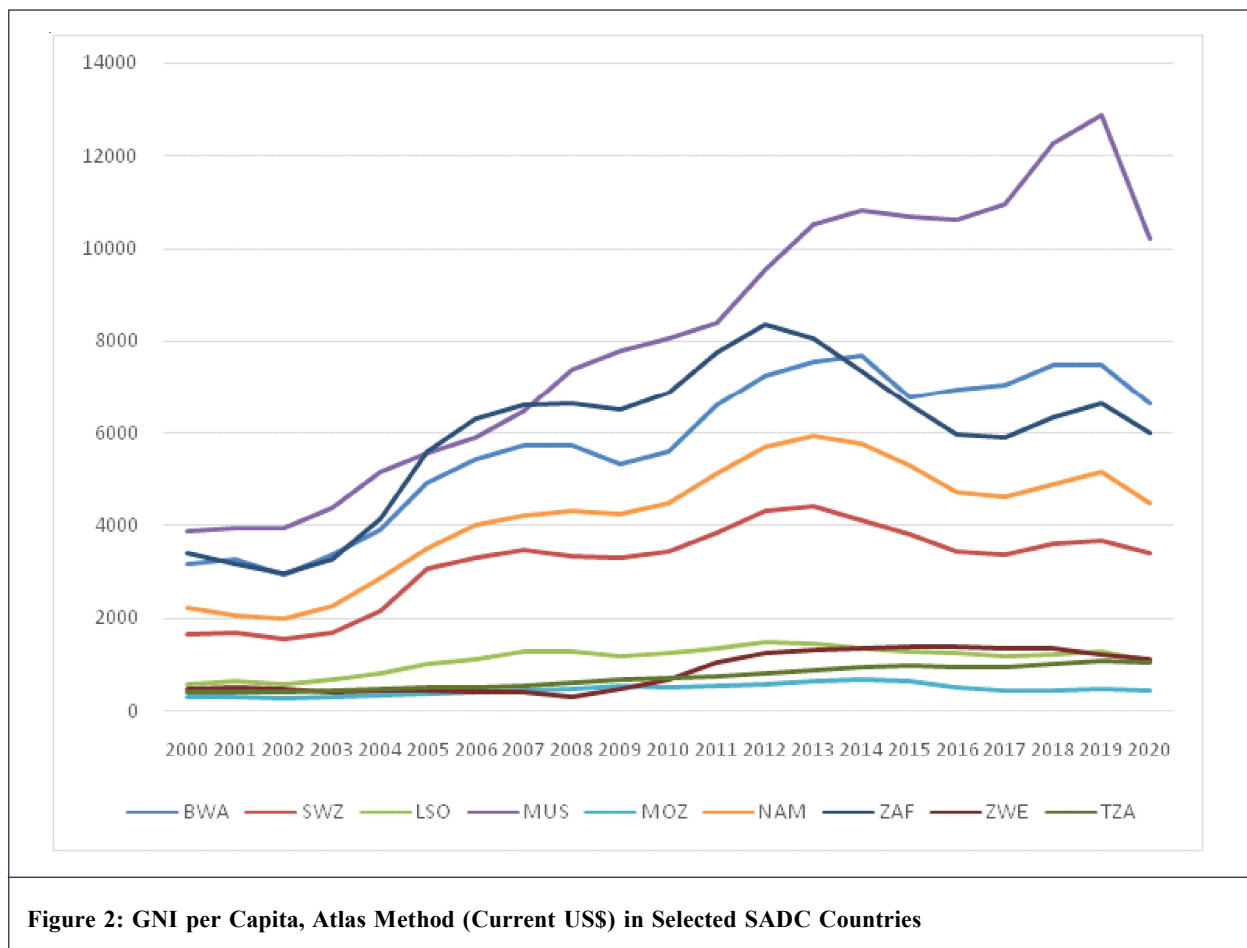
**Table 3: GNI per Capita, Atlas Method (Current US\$) in Selected SADC Countries**

Year	Botswana	Eswatini	Lesotho	Mauritius	Mozambique	Namibia	South Africa	United Republic of Tanzania	Zimbabwe
	BWA	SWZ	LSO	MUS	MOZ	NAM	ZAF	ZWE	TZA
2000	3170	1670	580	3900	320	2240	3420	510	410
2001	3260	1700	640	3970	320	2090	3190	540	410
2002	2930	1570	590	3960	290	2010	2990	490	420
2003	3370	1700	670	4410	320	2280	3280	440	430
2004	3920	2160	810	5170	360	2900	4180	450	470
2005	4930	3080	1020	5600	400	3530	5610	460	500
2006	5440	3300	1130	5930	420	4030	6310	440	520
2007	5730	3480	1300	6490	460	4230	6630	420	540
2008	5740	3360	1290	7400	500	4320	6660	330	600
2009	5330	3320	1190	7800	540	4250	6510	480	670
2010	5610	3460	1270	8080	520	4500	6880	700	720
2011	6610	3860	1360	8400	540	5130	7760	1060	770

Table 3 (Cont.)

Year	Botswana	Eswatini	Lesotho	Mauritius	Mozambique	Namibia	South Africa	United Republic of Tanzania	Zimbabwe
	BWA	SWZ	LSO	MUS	MOZ	NAM	ZAF	ZWE	TZA
2012	7250	4310	1500	9550	600	5730	8370	1260	810
2013	7570	4420	1460	10520	670	5950	8070	1320	890
2014	7700	4130	1350	10820	690	5790	7370	1370	970
2015	6780	3800	1310	10700	640	5310	6610	1390	980
2016	6950	3450	1270	10640	530	4740	5990	1390	970
2017	7050	3390	1190	10980	470	4620	5910	1350	970
2018	7510	3620	1230	12270	460	4920	6340	1350	1030
2019	7510	3690	1290	12890	490	5160	6670	1210	1100
2020	6640	3410	1100	10230	460	4500	6010	1140	1080

Source: World Bank | World Development Indicators



**Table 4: SAARC and SADC: GNI per Capita (Current US\$) (2019) and Their Status in Country Classification by Income Level (2020, World Bank)**

Name of the Selected SAARC Country	Country Code	GNI per Capita (Current US\$) ( 2019)	World Bank Country Classifications by Income Level (2020)
Afghanistan	AFG	500	Low income
Bangladesh	BGD	2030	Lower-middle income
Bhutan	BTN	2840	Lower-middle income
Maldives	MDV	6490	Upper-middle income
Nepal	NPL	1190	Lower-middle income
Pakistan	PAK	1270	Lower-middle income
Sri Lanka	LKA	3720	Lower-middle income
India	IND	1920	Lower-middle income

**Table 5: SAARC and SADC: GNI per Capita (Current US\$) (2019) and Their Status in Country Classification by Income Level (2020, World Bank)**

Name of the Selected SAARC Country	Country Code	GNI per Capita (Current US\$) ( 2019)	World Bank Country Classifications by Income Level (2020)
Botswana	BWA	6640	Upper-middle income
Eswatini	SWZ	3410	Lower-middle income
Lesotho	LSO	1100	Lower-middle income
Mauritius	MUS	10230	Upper-middle income
Mozambique	MOZ	460	Low income
Namibia	NAM	4500	Upper-middle income
South Africa	ZAF	6010	Upper-middle income
United Republic of Tanzania	ZWE	1140	Lower-middle income
Zimbabwe	TZA	1080	Lower-middle income

the economy for private and foreign investment. It brought competitiveness on national and international fronts and faster economic growth after 2000 but it has not helped much in boosting female participation in the labor force. India's position is lowest amongst all the SAARC countries in terms of female labor force participation rate in the year 2019 (Figure 3).

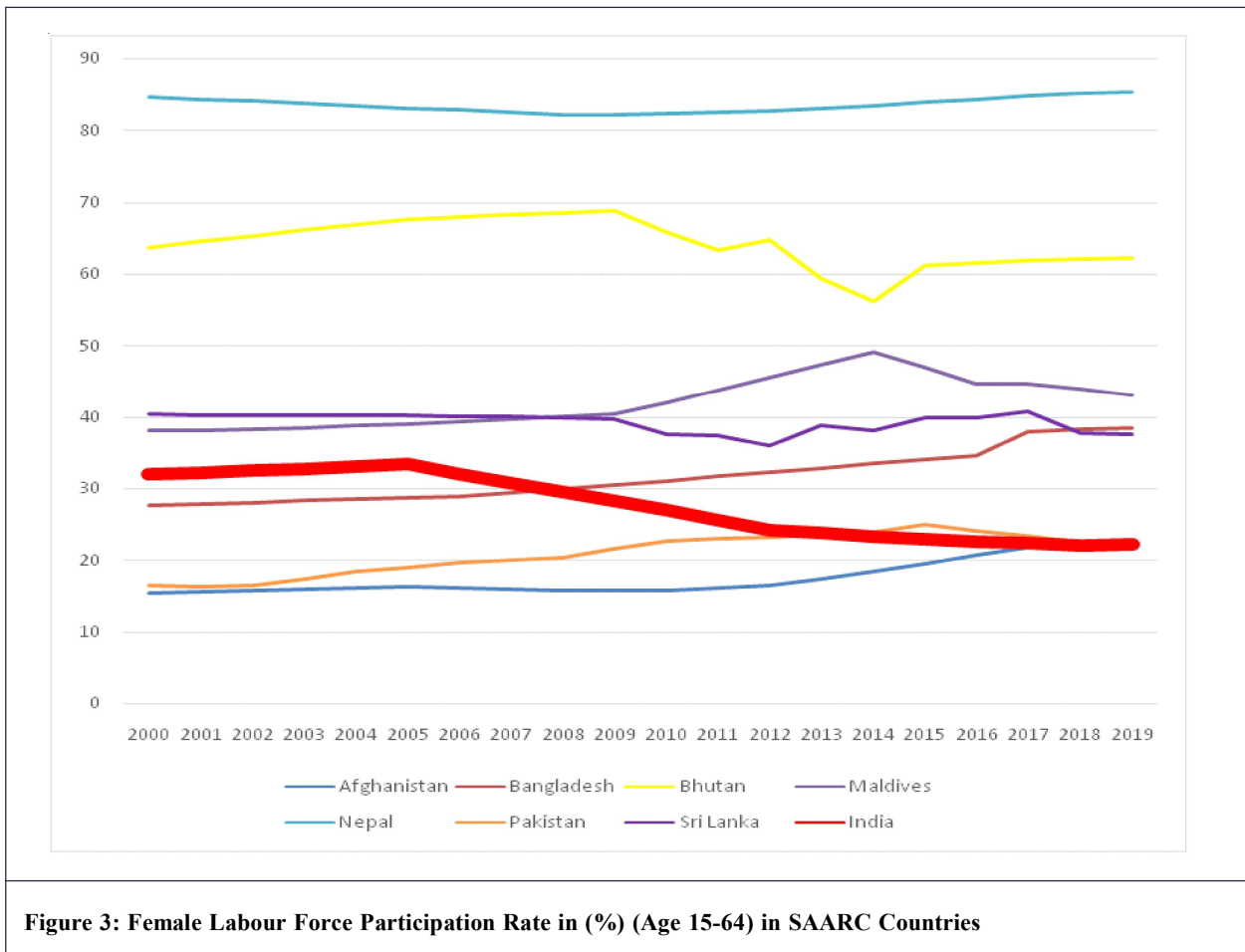
SAARC countries are the region which exhibits hardships for females. It is due to geographic location, poor socio-economic indicators, strongly rooted patriarchy, religious sentiments, veil system, caste, class and race-based

discriminatory society, poor infrastructure and gender-based wage discrimination. Females have to struggle to make their position in the family and society. Their political representation is poor due to which proper policies are lacking which can upgrade their situation. In a country like Sri Lanka, the above reported problems are not that much severe. In countries like Bangladesh and Nepal prevalence of matriarchal families is the major reason for more female participation in the labor force. The geographical hardship in the hilly areas makes females physically strong and acclimatizes them to the changing weather conditions. Klasen (2019) observes that there are powerful forces such as historical gender roles and different historical trajectories that have a powerful influence today due to which large differences in female participation across regions are visible. Rahman (2018) believes that the South Asian region has developed socially and economically over the last few decades which has provided more work opportunities for underprivileged men and

**Table 6: Female Labor Force Participation Rate in (%) (Age 15-64) in SAARC Countries**

Year	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka	India
2000	15.35	27.65	63.71	38.06	84.59	16.46	40.37	31.97
2001	15.5	27.85	64.51	38.1	84.31	16.36	40.31	32.25
2002	15.7	28.07	65.34	38.23	84.02	16.51	40.27	32.55
2003	15.92	28.29	66.17	38.44	83.73	17.46	40.25	32.84
2004	16.13	28.51	66.95	38.71	83.42	18.45	40.21	33.15
2005	16.33	28.72	67.66	39.01	83.11	19.04	40.15	33.46
2006	16.12	28.83	67.95	39.32	82.8	19.68	40.08	32.11
2007	15.91	29.39	68.25	39.66	82.49	20.04	39.97	30.81
2008	15.74	29.96	68.55	40	82.18	20.54	39.85	29.55
2009	15.65	30.53	68.85	40.32	82.23	21.7	39.72	28.32
2010	15.65	31.1	65.9	42.01	82.32	22.81	37.63	27.14
2011	16	31.68	63.35	43.73	82.45	23.18	37.47	25.67
2012	16.44	32.26	64.73	45.49	82.72	23.39	36.01	24.26
2013	17.42	32.84	59.4	47.3	83.09	23.62	38.85	23.85
2014	18.46	33.43	56.2	49.15	83.48	24.07	38.15	23.46
2015	19.55	34.01	61.2	47	83.84	25.09	39.8	23.1
2016	20.7	34.59	61.59	44.71	84.34	24.24	39.88	22.77
2017	21.91	37.95	61.9	44.61	84.75	23.42	40.76	22.45
2018	22.32	38.25	62.13	43.97	85.07	22.62	37.7	22.16
2019	22.74	38.48	62.31	43.05	85.3	22.63	37.58	22.26

Source: ILO Modelled Estimates, 2020



**Figure 3: Female Labour Force Participation Rate in (%) (Age 15-64) in SAARC Countries**

women in these regions, changing the employment dynamic. But women arguably have less access to these opportunities because of many social norms and a lack of education and skills. Jafrin *et al.* (2021) observe demographic dividend impacted the economic growth of the five SAARC countries but this economic growth is unaffected by trade openness and unemployment rates in these countries. The authors find that the rate of labor force participation is negatively related to the GDP growth rate in the aggregated model in the SAARC countries. Rahman and Islam (2013) states that in Bangladesh women's participation in the labor market is often not her own decision but a result of strong patriarchy. Male members of the family usually dictate or guide such a decision in Bangladesh. Sadaquat (2011) feels that in Pakistan mostly, women are concentrated in sectors known for a low level of productivity, less income stability and low security of employment due to their dual role at home and workplace. Moon (2019) finds that Bangladesh has witnessed a substantial increase in female employment in rural and urban areas. This growing women empowerment is evident in the fact that Bangladesh has the third highest number of female lawmakers among the SAARC countries. Maqsood (2014) investigates the effect of globalization as measured by Foreign Direct Investment (FDI), Trade Openness (TOP) and Urbanization (URBAN) on Female Labor Force Participation (FLFP) for a period of 1990-2010 in the SAARC region. The findings of his study showed that urbanization and FDI played a key role in the female labor force participation decision and had an increasing trend in the SAARC region. Kousar *et al.* (2019) explore social, cultural, and institutional barriers to female labor force participation in Lahore, Pakistan. Their study reveals that cultural barriers (male dominance, gender stereotype, joint family system, and the influence of relatives), social barriers (viz., children's upbringing, care of older family members, social acceptability, social isolation, and interfamily challenges), and institutional barriers (policies and procedures, opportunity biases, rewards and awards, and behavior of male colleagues) affects female labor force participation. Begam and Mujahid (2019) explore the role of economic stability through female unemployment rate, inflation rate and per capita income, and increase in productivity through human capital investment in female labor force in Pakistan. The authors find out the impact of gender disparity on female labor force participation. Their empirical finding proves a positive and significant relationship between economic globalization and FLFP in long run as well as in the short run for Pakistan. Audi and Ali (2017) explore the impact of trade liberalization on women's empowerment and utilizes the sample of five SAARC countries for the time period of 15 years, that is, from 2000 to 2014. Their study also finds out whether trade liberalization is beneficial for the gender gap or not. The authors conclude that whenever trade



liberalization increases, it does not reduce the gender gap, which means the female to male participation rate goes down. It encourages women to actively participate in the labor market, but it does not play a role in reducing the gender gap. Education of females is essential because it creates awareness among girls and enhances their skills, which leads to empowering women, making them self-sufficient and active participants in economic activity, which can improve their standard of living.

Prakash *et al.* (2019) feel that the SAARC countries are striving their best to meet the millennium development goals which they have vowed to achieve. India being a large country with huge Gender Inequality looks meagre when compared to other SAARC countries that are small in size geographically and demographically as well. Rustagi *et al.* (2013) find that the Labor Force Participation Rates (LFPR) of women are not only low but there are also wide differences in the male-female rates across most South Asian countries. Bayanpourtehrani and Sylwester (2013) empirically examine Female Labor Force Participation (FLFP) in a cross-section of countries between 1985 and 2005 and the religion practiced in these countries. They initially find that FLFP is lower in Muslim countries. However, they feel that association between Islam and FLFP greatly diminishes once other controls are included in the regression, suggesting that Islam might not diminish FLFP as some have argued. They further add that moreover, once these additional controls are included, the association between Islam and FLFP is similar to that between Catholicism and FLFP. Countries where Protestantism is prevalent or where no religion is practiced have higher FLFP. They also find some evidence that the association between FLFP and religion is weakening over time. Jaffri *et al.* (2015) have empirically investigated the impact of urbanization on Female Labor Force Participation (FLFP) in Pakistan for the period 1982-2012. The findings of their study suggest that employment opportunities for females in urban areas need to be accompanied by growing urbanization in Pakistan. Ratna (2014) opines that female labor force participation rates in South Asia, with the exception of Nepal, are low compared to other regions. Wider access to education and skills training, the emergence of new industries and new work opportunities, notably in the Information Technology (IT) sector, are changing the aspirations and work-related decisions of younger and educated women, but mediated by accepted normative behavior.<sup>1</sup> Social norms<sup>2</sup> continue to influence work-seeking behavior. Zakir Hussain and Mousumi Dutta (2015), believe that the difficulties of balancing work and household have become a major issue in South Asian societies as the concept of household sharing of labor is yet to become popular. In particular, the responsibilities of childcare fall almost entirely on mothers. The consequent pressure on working women affects them physically and mentally and may even lead to their withdrawal from the labor market. In such situation, the potential of grandparental supply of childcare services becomes crucial in the context of retaining women in employment in developing countries.

There are considerable differences in female labor force participation rates in the countries of the Southern African Development Community (SADC). Brenton *et al.* (2013) opine that women play a key role in trade in Africa and will be essential to Africa's success in exploiting its trade potential. In many countries in Africa, the majority of small farmers are women, and they produce crops such as maize, cassava, cotton, and rice that have enormous potential for increased trade between African countries and with the global market. Women are also involved in providing services across borders, such as education, health, and professional services, including accountancy and legal services. Hundreds of thousands of women cross borders in Africa every day to deliver goods from areas where they are relatively cheap to areas in which they are in shorter supply.

Table 4 and Figure 4 show the female labor force participation rate in the SADC countries. The countries are selected on the basis of significant changes in FLFPR in the regional group ('regioness' speaks to the degree to which a certain space is considered distinct entity. It is the center of the new global architecture. SADC member states see regions as a way to foster accelerated sustainable socioeconomic transformation while creating favorable macroeconomic environments through indicators such as trade surpluses, low inflation rates, increased foreign investment and high employment. According to Article 5 of the SADC Treaty (1992), one of the objectives is to promote and maximize productive employment in the region Machadu and Jena (2015)). It is rising in Botswana, Eswatini, Mauritius, Namibia, South Africa, and Zimbabwe but has a declining trend in Lesotho, Mozambique and the United Republic of Tanzania.

<sup>1</sup> It is generally believed that normative decision theory prescribes how people should behave and make choices, whereas descriptive decision theory explains how they actually behave. The development of behavioral economics has facilitated the acceptance of the distinction between normative and descriptive theory in the studies of economic decision making: the common view is that modern neoclassical economics consists mostly of normative theories or models of decision making, whereas behavioral economics is descriptive and aims to explain how agents in economic settings 'really behave'. M. Malecka. (2020).

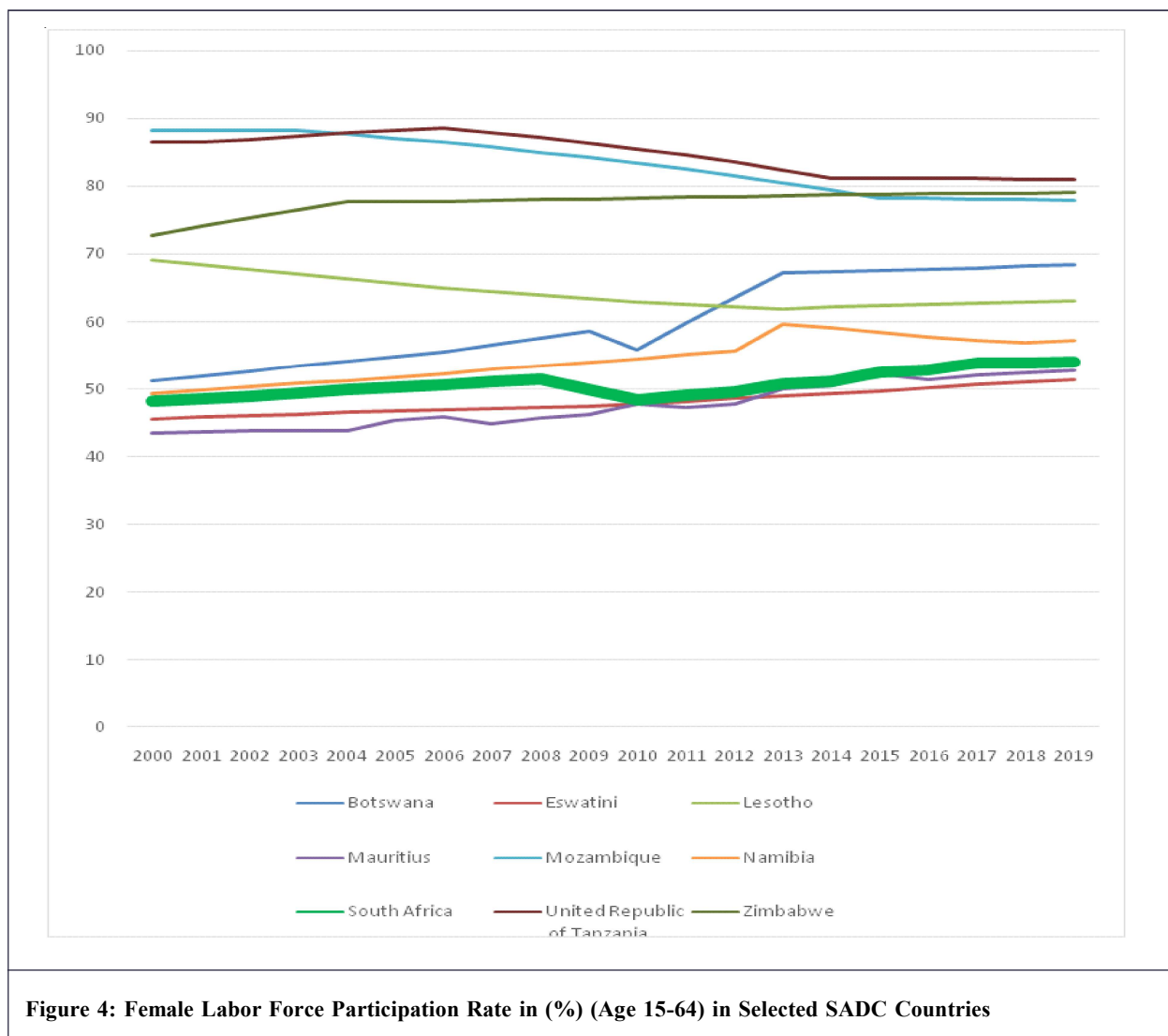
<sup>2</sup> Social norms are common behaviors considered appropriate in a given society. They emerge as the result of a deliberate decision among people to solve a problem they are faced with. Typically, they regulate what people do and apply to everyone (or almost everyone in a particular group). L.M.J. Eriksson. (2015).

**Table 7: Female Labor Force Participation Rate in (%) (Age 15-64) in Selected SADC Countries**

Year	Botswana	Eswatini	Lesotho	Mauritius	Mozambique	Namibia	South Africa	United Republic of Tanzania	Zimbabwe
2000	51.21	45.5	69.2	43.45	88.16	49.33	48.22	86.49	72.74
2001	51.91	45.77	68.47	43.63	88.23	49.86	48.59	86.48	74.12
2002	52.63	46.01	67.75	43.76	88.24	50.36	48.99	86.97	75.4
2003	53.37	46.25	67.04	43.84	88.2	50.84	49.43	87.43	76.58
2004	54.11	46.48	66.35	43.85	87.67	51.31	49.88	87.84	77.71
2005	54.84	46.67	65.67	45.43	87.09	51.78	50.32	88.23	77.71
2006	55.59	46.89	65.09	45.85	86.46	52.33	50.7	88.59	77.8
2007	56.62	47.07	64.51	44.76	85.77	52.88	51.07	87.94	77.9
2008	57.63	47.27	63.96	45.75	85.03	53.42	51.45	87.23	78.01
2009	58.65	47.46	63.41	46.15	84.23	53.96	49.9	86.45	78.11
2010	55.8	47.67	62.88	47.84	83.39	54.51	48.38	85.59	78.21
2011	59.85	48.08	62.57	47.3	82.49	55.11	49.11	84.66	78.41
2012	63.69	48.52	62.24	47.74	81.53	55.72	49.59	83.63	78.48
2013	67.28	48.94	61.87	50.05	80.51	59.68	50.73	82.5	78.6
2014	67.44	49.3	62.14	50.62	79.43	59.2	51.11	81.25	78.7
2015	67.61	49.54	62.34	52.31	78.27	58.53	52.6	81.25	78.77
2016	67.81	50.17	62.54	51.35	78.2	57.85	52.82	81.24	78.87
2017	68.02	50.66	62.74	52.12	78.11	57.34	53.89	81.2	78.94
2018	68.23	51.03	62.91	52.39	78.02	56.89	53.85	81.16	79
2019	68.46	51.34	63.08	52.81	77.93	57.21	54.07	81.1	79.11

Source: ZAF, ILO, Modelled Estimate, 2020

The increase in female labor force participation is the fastest in Botswana. The drastic fall is visible in Mozambique. Though in the last few years, the decline is very small. After apartheid, South Africa introduced many reforms in labor laws to bring gender-related equity in the labor market. It improved the overall situation in the labor market but not for all equally as Afro-Asians and black are still the heavily marginalized section in the country. South Africa is still facing gender and racial disparity in the labor market. Men's labor force participation rate is much higher than females. Table 1 and Figure 1 highlight that South Africa's position is average amongst all the SADC countries in terms of female labor force participation rate in the year 2019. Matandare (2018) opines that Botswana has a more stable labor market in



**Figure 4: Female Labor Force Participation Rate in (%) (Age 15-64) in Selected SADC Countries**

comparison with Namibia and South Africa. Botswana's economically active population growth is increasing significantly faster than GDP per capita growth. Regarding labor force participation, males in Botswana have higher labor force participation than females. The author feels that for Botswana, Namibia and South Africa, with further human capital formation, technological development with a focus on labor-intensive industries like textiles, construction, tourism, agriculture and manufacturing sectors, and a structural change of the economy, are important to reverse the effects of unemployment across age and gender. Gofhamodino *et al.* (2018) opine that trade and agricultural sectors play a key role in socioeconomic development of the SADC region. They further add that women play a vital role in trade and agriculture in SADC, yet they face enormous challenges that hinder their full potential as farmers and traders. Labor markets in SADC have undergone substantial change as a result of privatization; deregulation and liberalization of the economy. Although there are significant variances across the region, available data suggest a low labor force participation rate particularly felt amongst younger workers and women (Policy, 2014. cited ILO WB 2010). Brixiová *et al.* (2021) believe that persistent gender gaps characterize labor markets in many African countries. They find that women have notably lower employment rates and earnings than men, even though the global financial crisis had a less negative impact on women than it had on men in Eswatini. Both unadjusted and unexplained gender earnings gaps are higher in self-employment than in wage employment. Tertiary education and urban location account for a large part of the gender earnings gap and mitigate high female propensity to self-employment. Their findings suggest that policies supporting female higher education and rural-urban mobility could reduce persistent inequalities in Eswatini's labor market outcomes as well as in other middle-income countries in southern Africa. Smit and Tessendorf (2021) find the South African legal framework quite all right as it aimed at promoting gender equality, so that females should be sufficiently represented at

all levels of the labor force. They further add that the country's female labor force has grown exponentially over the past twenty years, the position of Chief Executive Officer (CEO) of the Johannesburg Stock Exchange (JSE) is held by a female, and women constitute 46% of members of Parliament. More broadly, however, true gender equality is still far off in terms of female representation in top-level positions. In 2019, females represented only 3.31% of CEOs nationwide, despite making up 51% of the South African population. The country has produced only one (now retired) female CEO among the top 40 JSE-listed companies. The authors opine that as females continue to be subjected to male domination in the form of patriarchy, they are automatically relegated to the realm of unpaid work, carrying a disproportionately heavy burden of child-rearing and other domestic responsibilities. Both barriers are fuelled by deep-rooted social norms and cultural traditions, which are difficult and will take time to change in South Africa.

Behera *et al.* (2015) observe that the majority of households in the world that uses solid fuels such as firewood and cow dung cake are located in south Asian countries. The authors opine that the age, gender and education levels of a household head influence a household's choice of energy sources. Wealthy households are found to use clean energy sources such as Liquid Petroleum Gas (LPG) and electricity, whereas poorer households tend to use solid fuels such as fuelwood and dung cake. His findings are based on three Asian countries: India, Bangladesh and Nepal. Murshed (2021) finds that economic growth, environmental pollution, financial globalization, financial development, and women empowerment are some of the major drivers of the clean cooking fuel transition across Sub-Saharan Africa. Rahut *et al.* (2020) find that households with a higher level of education and wealthy families mainly use clean energy, such as gas, and are less likely to use dirty solid fuels, such as cake dung and crop residue for cooking. Das *et al.* (2019) opine that Women are the backbone of the cooking system, as they mostly manage it. The authors observe that in most developing countries, many rural households use fuelwood and a Traditional Cook Stove (TCS). Garba (2021) examines the impact of inaccessibility to clean fuels for cooking on social development. The author finds that the household use of solid fuels has a statistically significant negative effect on primary and secondary education, as well as life expectancy.

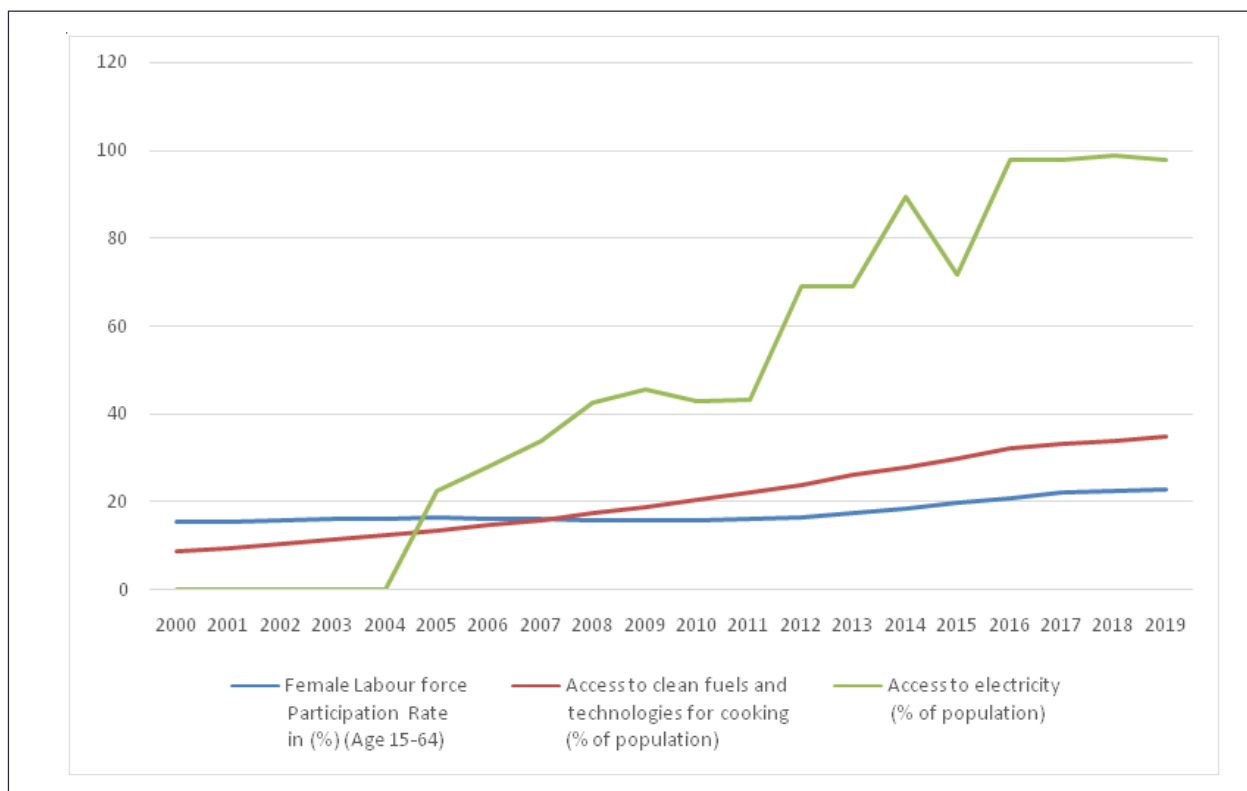
## 5. SAARC Countries

<b>Table 8: Afghanistan</b>			
	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	15.35	8.8	..
2001	15.5	9.51	..
2002	15.7	10.39	..
2003	15.92	11.46	..
2004	16.13	12.43	..
2005	16.33	13.49	22.29526901
2006	16.12	14.81	28.09996223
2007	15.91	15.99	33.9016037
2008	15.74	17.44	42.4

Table 8 (Cont.)

	Female Labor Force Participation Rate in (%) (Age 15-64)	Access to Clean Fuels and Technologies for Cooking (% of the Population)	Access to Electricity (% of the Population)
2009	15.65	18.84	45.52068329
2010	15.65	20.68	42.7
2011	16	22.33	43.22201891
2012	16.44	24.08	69.1
2013	17.42	26.17	68.98294067
2014	18.46	27.99	89.5
2015	19.55	30.1	71.5
2016	20.7	32.44	97.7
2017	21.91	33.26	97.7
2018	22.32	34.02	98.71562195
2019	22.74	35.01	97.7

Source: World Bank | World Development Indicators(12/16/2021)

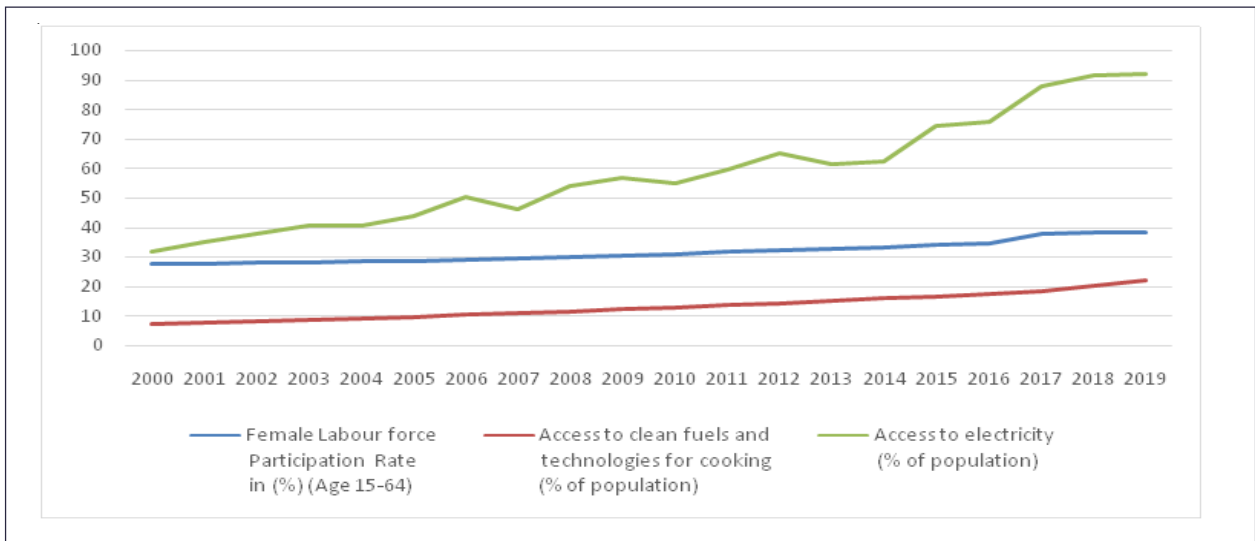


**Figure 5: Afghanistan**

**Table 9: Bangladesh**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	27.65	7.24	32
2001	27.85	7.78	35.109272
2002	28.07	8.16	37.88195801
2003	28.29	8.73	40.64517975
2004	28.51	9.2	40.6
2005	28.72	9.74	44.23
2006	28.83	10.36	50.52510246
2007	29.39	10.92	46.5
2008	29.96	11.59	54.33111954
2009	30.53	12.2	57.07246017
2010	31.1	12.9	55.26
2011	31.68	13.63	59.6
2012	32.26	14.33	65.41366577
2013	32.84	15.06	61.5
2014	33.43	15.96	62.4
2015	34.01	16.68	74.44007874
2016	34.59	17.72	75.92
2017	37.95	18.43	88
2018	38.25	20.11	91.8
2019	38.48	22.21	92.2

*Source: World Bank | World Development Indicators(12/16/2021)*

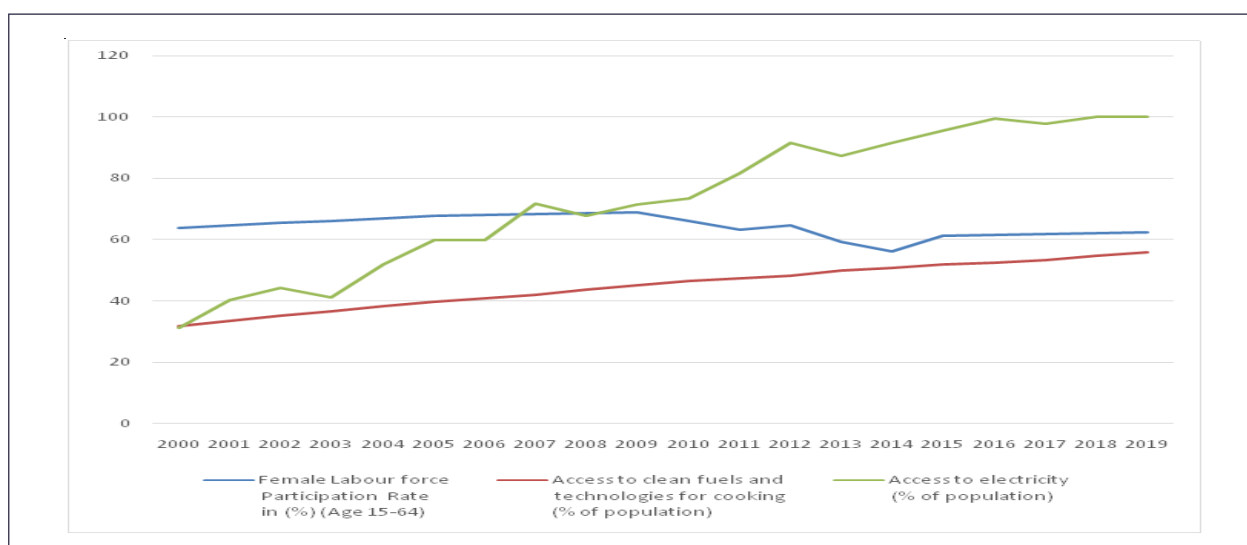


**Figure 6: Bangladesh**

**Table 10: Bhutan**

	Female Labor Force Participation Rate in (%) (Age 15-64)	Access to Clean Fuels and Technologies for Cooking (% of the Population)	Access to Electricity (% of the Population)
2000	63.71	31.67	31.15
2001	64.51	33.34	40.09151
2002	65.34	35.16	44.04301
2003	66.17	36.36	41.1
2004	66.95	38.11	51.91645
2005	67.66	39.58	59.80811
2006	67.95	40.85	59.7468
2007	68.25	41.81	71.8
2008	68.55	43.54	67.56509
2009	68.85	44.98	71.48524
2010	65.9	46.33	73.28291
2011	63.35	47.2	81.688
2012	64.73	48.11	91.5
2013	59.4	49.76	87.37115
2014	56.2	50.65	91.39948
2015	61.2	51.75	95.44389
2016	61.59	52.5	99.50036
2017	61.9	53.22	97.7
2018	62.13	54.66	99.96877
2019	62.31	55.79	100

*Source: World Bank | World Development Indicators(12/16/2021)*



**Figure 7: Bhutan**

**Table 11: Maldives**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	38.06	32.18	83.8
2001	38.1	38.56	87.51950836
2002	38.23	45.18	88.41437531
2003	38.44	51.9	89.2997818
2004	38.71	58.33	90.17454529
2005	39.01	64.78	91.03765106
2006	39.32	69.74	91.89161682
2007	39.66	74.19	92.74253845
2008	40	78.36	93.59664154
2009	40.32	81.46	99.9
2010	42.01	84.43	99.41575623
2011	43.73	86.7	99.48480225
2012	45.49	88.63	99.53594971
2013	47.3	90.45	99.5657959
2014	49.15	91.71	100
2015	47	92.88	99.79016113
2016	44.71	93.83	100
2017	44.61	94.56	99.8
2018	43.97	95.45	100
2019	43.05	96.99	100

*Source: World Bank | World Development Indicators(12/16/2021)*



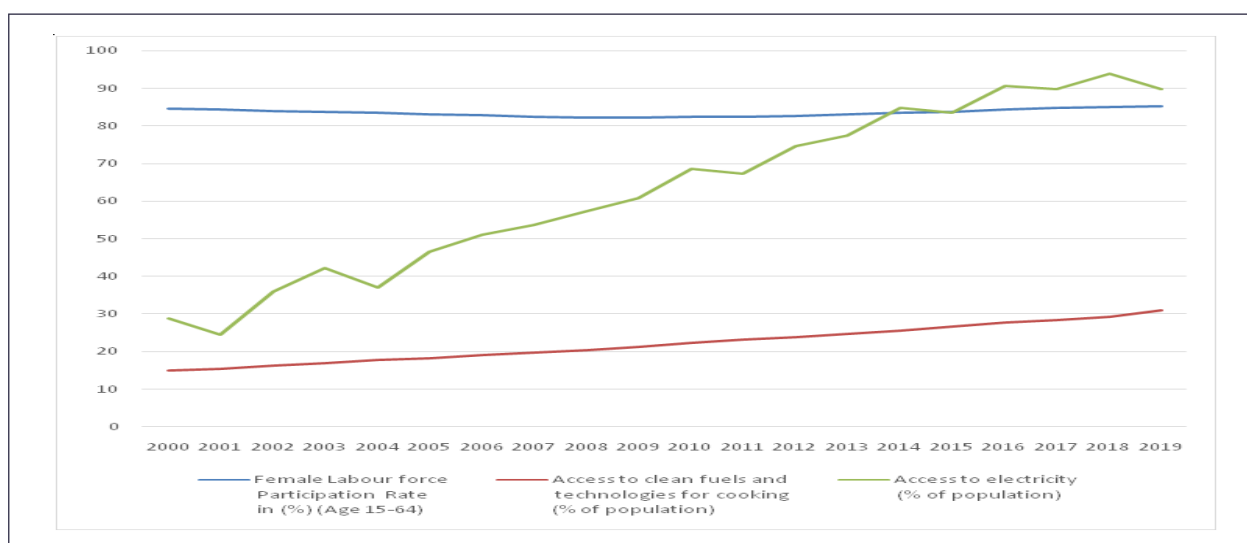
**Figure 8: Maldives**



**Table 12: Nepal**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	84.59	14.92	28.91624069
2001	84.31	15.45	24.6
2002	84.02	16.18	36.07150269
2003	83.73	16.96	42.41
2004	83.42	17.67	37.2
2005	83.11	18.13	46.73062515
2006	82.8	19.02	51.2
2007	82.49	19.78	53.7927475
2008	82.18	20.42	57.32546997
2009	82.23	21.25	60.86761093
2010	82.32	22.31	68.6
2011	82.45	23.1	67.26
2012	82.72	23.81	74.73197174
2013	83.09	24.59	77.60891724
2014	83.48	25.5	84.9
2015	83.84	26.56	83.52746582
2016	84.34	27.62	90.7
2017	84.75	28.45	89.92308044
2018	85.07	29.19	93.92
2019	85.3	30.98	89.9

*Source: World Bank | World Development Indicators(12/16/2021)*

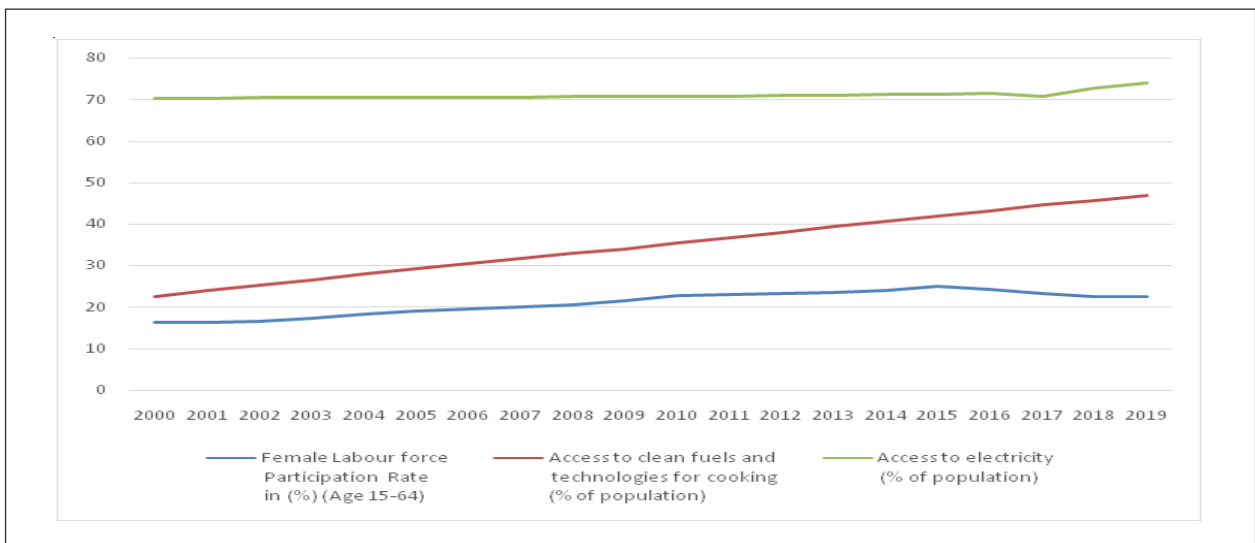


**Figure 9: Nepal**

**Table 13: Pakistan**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	16.46	22.62	70.348991
2001	16.36	24.14	70.425514
2002	16.51	25.39	70.493744
2003	17.46	26.63	70.552513
2004	18.45	28.12	70.600647
2005	19.04	29.23	70.637115
2006	19.68	30.5	70.664452
2007	20.04	31.81	70.688736
2008	20.54	33.05	70.716202
2009	21.7	34.17	70.75309
2010	22.81	35.59	70.805641
2011	23.18	36.85	70.880081
2012	23.39	38.13	70.980942
2013	23.62	39.47	71.105919
2014	24.07	40.74	71.250984
2015	25.09	42.13	71.412125
2016	24.24	43.32	71.58532
2017	23.42	44.67	70.79
2018	22.62	45.87	72.634979
2019	22.63	46.99	73.91436

*Source: World Bank | World Development Indicators(12/16/2021)*

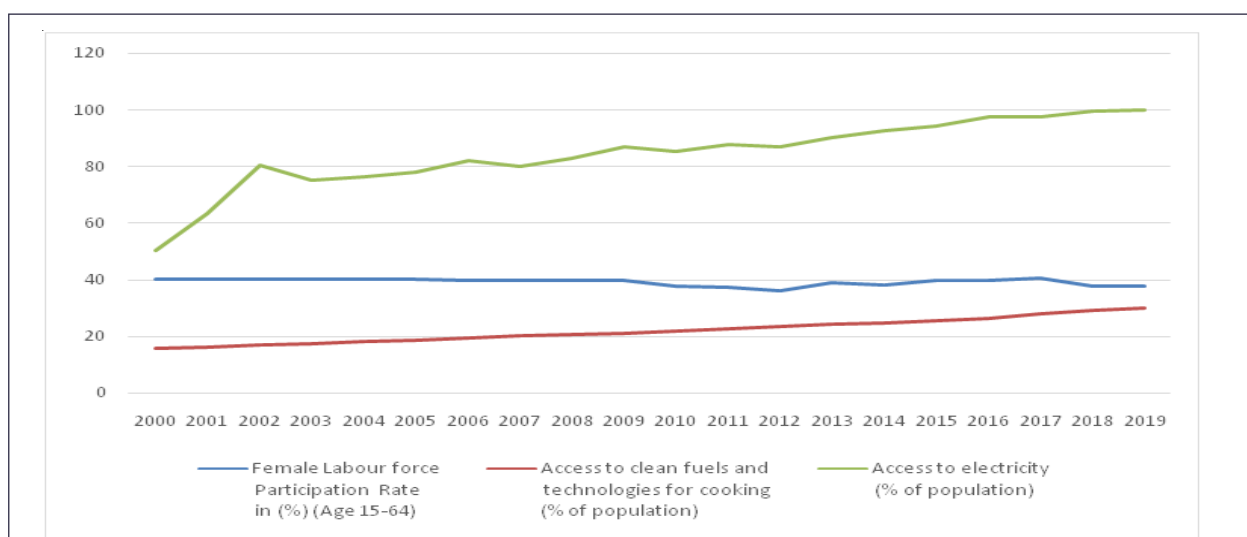


**Figure 10: Pakistan**

**Table 14: Sri Lanka**

	Female Labor Force Participation Rate in (%) (Age 15-64)	Access to Clean Fuels and Technologies for Cooking (% of the Population)	Access to Electricity (% of the Population)
2000	40.37	15.64	50.45
2001	40.31	16.2	63.6
2002	40.27	16.94	80.7
2003	40.25	17.31	75.04403
2004	40.21	18.03	76.62809
2005	40.15	18.68	78.20049
2006	40.08	19.41	82.05
2007	39.97	20.01	80
2008	39.85	20.69	82.88735
2009	39.72	21.12	87.09
2010	37.63	21.83	85.3
2011	37.47	22.74	87.76
2012	36.01	23.37	87
2013	38.85	24.06	90.2
2014	38.15	24.76	92.6377
2015	39.8	25.44	94.33477
2016	39.88	26.33	97.5
2017	40.76	27.99	97.5
2018	37.7	28.89	99.58686
2019	37.58	29.9	100

*Source: World Bank | World Development Indicators (12/16/2021)*

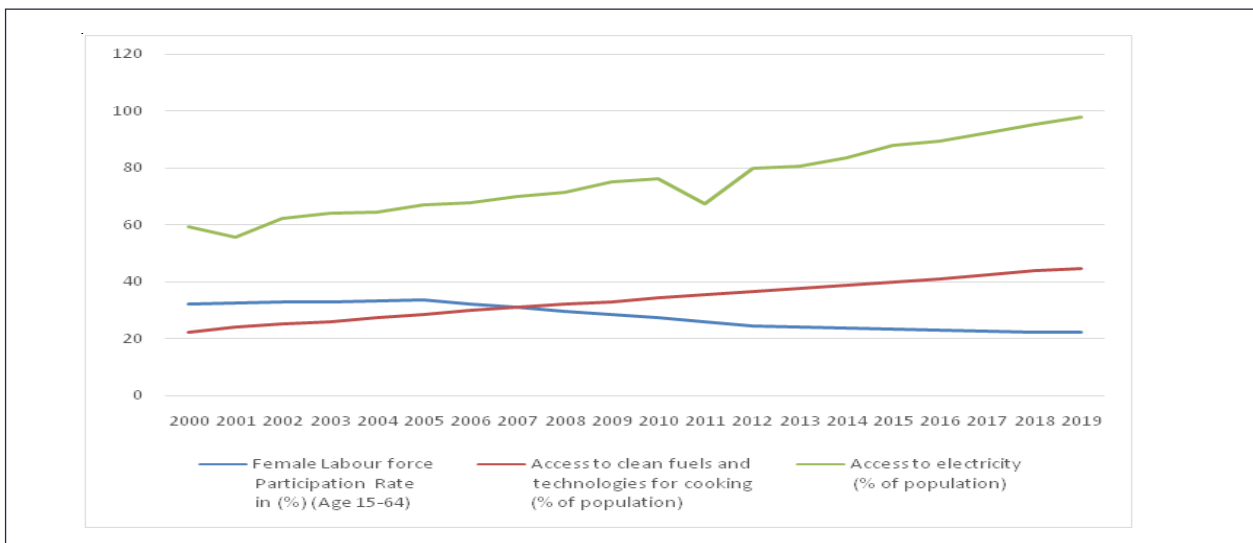


**Figure 11: Sri Lanka**

**Table 15: India**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	31.97	22.15	59.34105
2001	32.25	23.85	55.8
2002	32.55	25.01	62.3
2003	32.84	25.93	64.02313
2004	33.15	27.41	64.4
2005	33.46	28.34	67.09344
2006	32.11	29.74	67.9
2007	30.81	30.95	70.13076
2008	29.55	32.06	71.65108
2009	28.32	32.82	75
2010	27.14	34.4	76.3
2011	25.67	35.42	67.6
2012	24.26	36.64	79.9
2013	23.85	37.81	80.73804
2014	23.46	38.8	83.58521
2015	23.1	39.88	88
2016	22.77	41.04	89.53488
2017	22.45	42.45	92.45683
2018	22.16	43.88	95.1933
2019	22.26	44.67	97.81528

*Source: World Bank | World Development Indicators(12/16/2021)*



**Figure 12: India**

**Table 13: SAARC Countries: Understanding FLFPR Concerning Access to Clean Fuels and Technologies for Cooking and Access to Electricity**

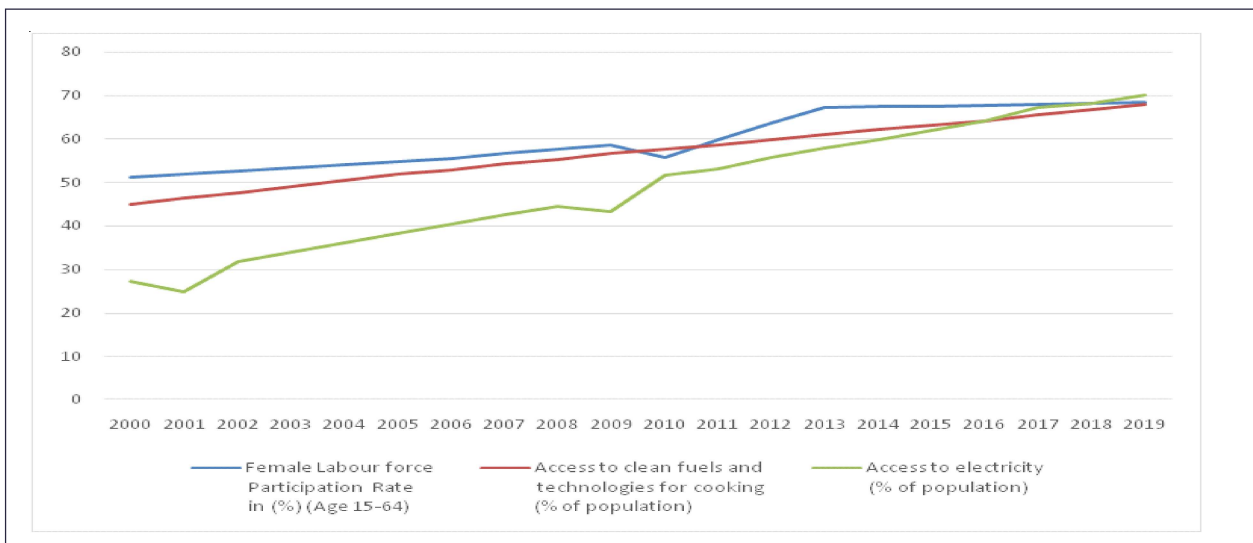
	Afghanistan (Table 5 & figure 5)	Bangladesh (Table 6 & figure 6)	Bhutan (Table 7 & figure 7)	Maldives (Table 8 & figure 8)	Nepal (Table 9 & figure 9)	Pakistan (Table 10 & figure 10)	Sri Lanka (Table 11 & figure 11)	India (Table 12 & figure 12)
Access to clean fuels and technologies for cooking (% of population)	Moderate increase	Moderate increase	Moderate increase	Very High increase	Low increase	Moderate increase	Moderate increase	Moderate increase
Access to electricity (% of population)	Very High increase	Very High increase	Very High increase	Already very high which increased marginally further	High increase	Already very high which increased marginally further	Very High increase	High increase
Female Labor force Participation Rate in (%) (Age 15-64)	Low increase	Low increase	Low decrease	Low increase	Already very high FLFPR which decreased marginally	Low increase	Low decrease	Low decrease
Result/ finding	Both the above factors had brought positive change as FLFPR increased in 2019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Afghanistan.	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Bangladesh.	Both the above factors had brought no positive change as FLFPR decreased in 20019 in comparison to 2000. The impact was not visible as there was a decrease in FLFPR in Bhutan.	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Maldives.	Both the above factors had brought no positive change as FLFPR decreased in 20019 in comparison to 2000. The impact was not visible as there was already a very high FLFPR in Nepal.	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was slower than the increase in Access to clean fuels and technologies for cooking in Pakistan but it was greater than the increase in access to electricity in Pakistan.	Both the above factors had brought no change as FLFPR has decreased in 20019 in comparison to 2000. The impact was not visible as there was decrease in FLFPR in Sri Lanka.	Both the above factors had brought no positive change as FLFPR has decreased in 20019 in comparison to 2000. The impact was not visible as there was decrease in FLFPR in India.

**Note:** In comparison to 2000 if in 2019: Below 10% increase: it is considered as low In between 10 % to 30% increase: it is considered a moderate In between 30 % to 50% increase: it is considered a high Above 50% increase: it is considered a very high (vice-versa in the case of decrease).

**6. SADC Countries (Selected)**

<b>Table 16: Botswana</b>			
	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	51.21	45.12	27.27221
2001	51.91	46.53	24.8
2002	52.63	47.72	31.68865
2003	53.37	49.24	33.88326
2004	54.11	50.64	36.06723
2005	54.84	52.01	38.23954
2006	55.59	53	40.40271
2007	56.62	54.39	42.56283
2008	57.63	55.38	44.5
2009	58.65	56.73	43.36
2010	55.8	57.59	51.78107
2011	59.85	58.72	53.24
2012	63.69	59.92	55.87431
2013	67.28	61.05	57.89069
2014	67.44	62.12	59.9404
2015	67.61	63.15	62.13
2016	67.81	64.08	64.29515
2017	68.02	65.44	67.4
2018	68.23	66.67	68.35866
2019	68.46	67.89	70.18318

Source: World Bank | World Development Indicators(12/16/2021)

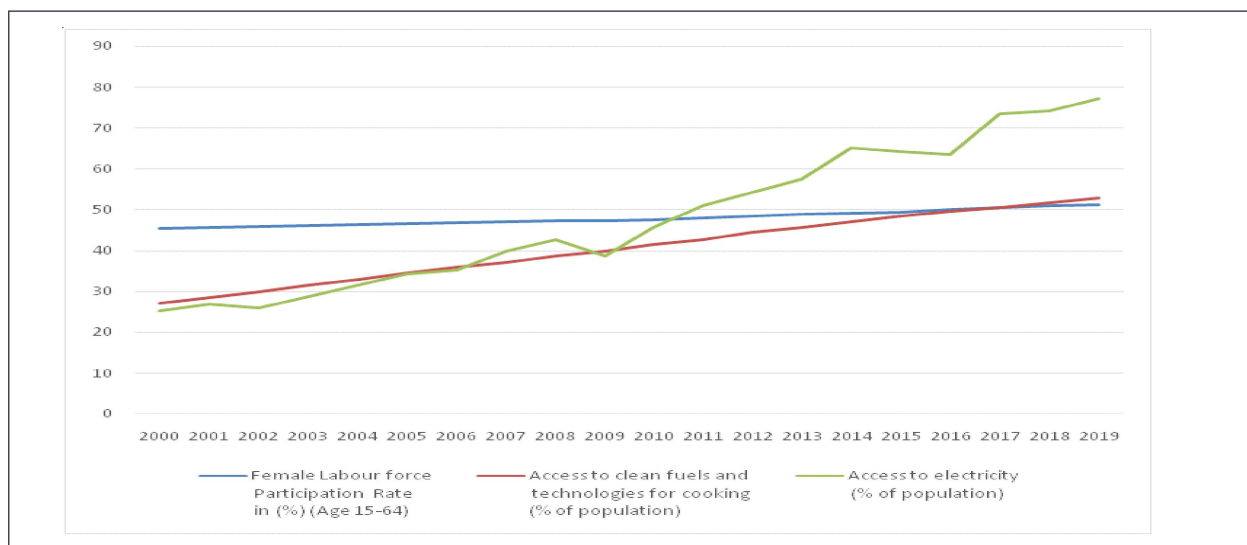


**Figure 13: Botswana**

**Table 17: Eswatini**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	45.5	27.24	25.234
2001	45.77	28.72	26.9
2002	46.01	29.98	25.87891
2003	46.25	31.63	28.69206
2004	46.48	32.96	31.49458
2005	46.67	34.57	34.28542
2006	46.89	35.93	35.2
2007	47.07	37.26	39.84581
2008	47.27	38.78	42.62766
2009	47.46	40.01	38.6
2010	47.67	41.57	45.55234
2011	48.08	42.82	51.05468
2012	48.52	44.49	54.21105
2013	48.94	45.73	57.4631
2014	49.3	47.15	65
2015	49.54	48.52	64.13185
2016	50.17	49.7	63.43
2017	50.66	50.67	73.5
2018	51.03	51.67	74.10944
2019	51.34	52.88	77.16964

*Source: World Bank | World Development Indicators(12/16/2021)*

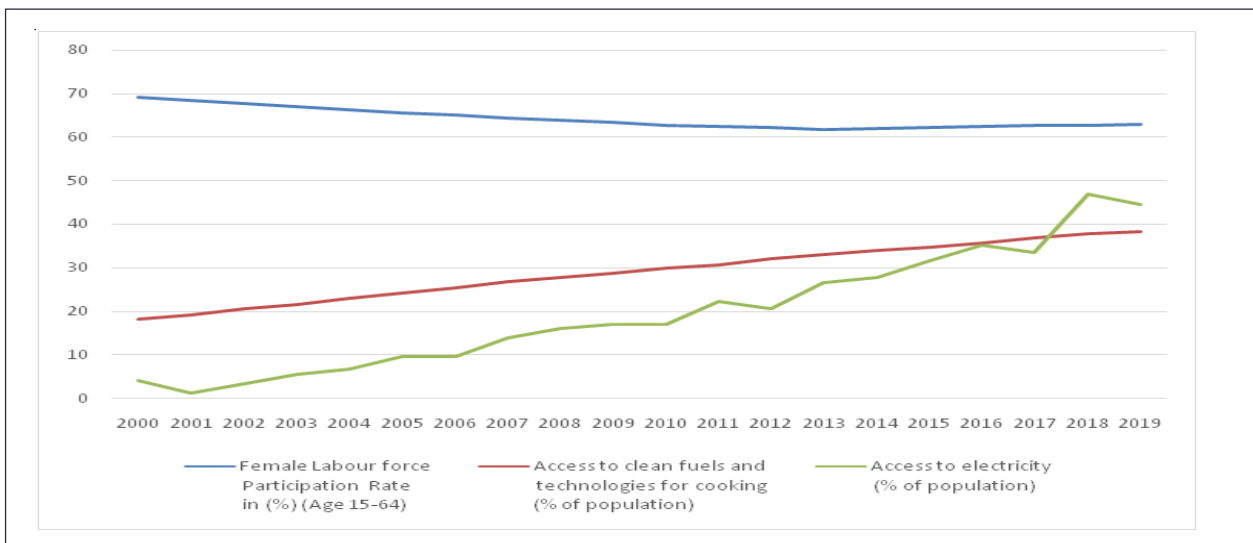


**Figure 14: Eswatini**

**Table 18: Lesotho**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	69.2	18.14	4.25876011
2001	68.47	19.03	1.27018034
2002	67.75	20.61	3.40366483
2003	67.04	21.48	5.52768517
2004	66.35	23.05	6.8
2005	65.67	24.1	9.74278164
2006	65.09	25.29	9.7
2007	64.51	26.69	13.9248991
2008	63.96	27.63	16.0176182
2009	63.41	28.78	17
2010	62.88	29.86	17
2011	62.57	30.68	22.3772469
2012	62.24	31.96	20.56
2013	61.87	32.99	26.7335815
2014	62.14	33.93	27.8
2015	62.34	34.74	31.7840767
2016	62.54	35.61	35.1815109
2017	62.74	36.77	33.7
2018	62.91	37.89	47
2019	63.08	38.29	44.6406784

*Source: World Bank | World Development Indicators(12/16/2021)*



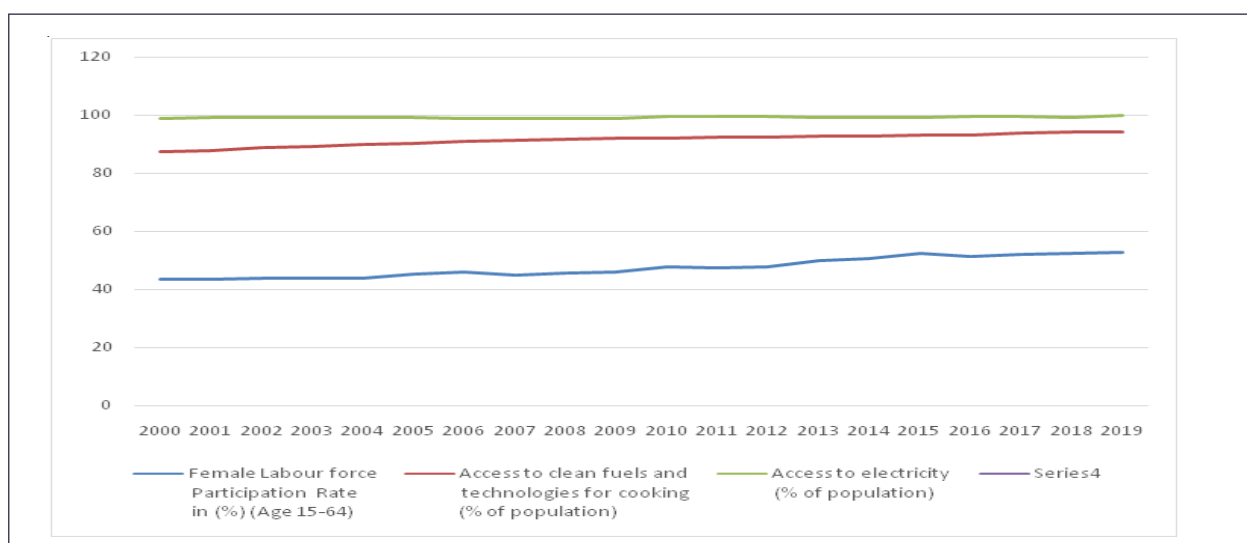
**Figure 15: Lesotho**



**Table 19: Mauritius**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	43.45	87.35	99
2001	43.63	87.68	99.24628
2002	43.76	88.69	99.4
2003	43.84	89.24	99.21391
2004	43.85	90.09	99.18236
2005	45.43	90.43	99.13914
2006	45.85	91.17	99.08678
2007	44.76	91.43	99.03138
2008	45.75	91.64	98.97916
2009	46.15	92.23	98.93636
2010	47.84	92.27	99.58998
2011	47.3	92.56	99.6
2012	47.74	92.62	99.49635
2013	50.05	92.74	99.41929
2014	50.62	92.94	99.37556
2015	52.31	93.11	99.42982
2016	51.35	93.34	99.54343
2017	52.12	93.88	99.61
2018	52.39	94.21	99.42007
2019	52.81	94.33	100

*Source: World Bank | World Development Indicators(12/16/2021)*

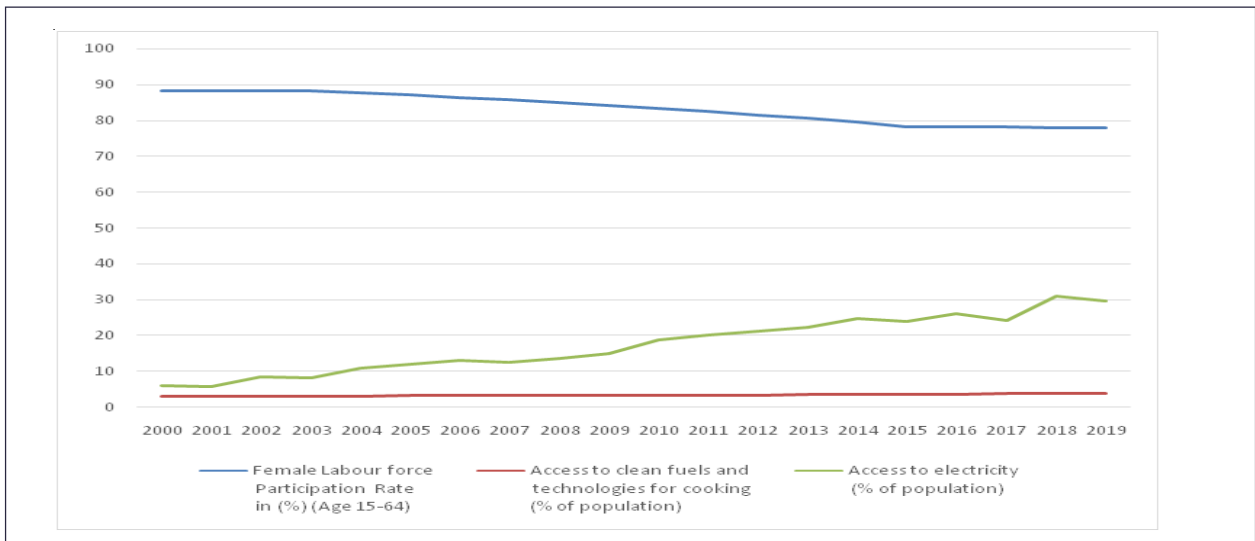


**Figure 16: Mauritius**

**Table 20: Mozambique**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	88.16	3.07	6.089136
2001	88.23	3.08	5.7
2002	88.24	3.13	8.486649
2003	88.2	3.09	8.1
2004	87.67	3.11	10.8463
2005	87.09	3.21	12.00915
2006	86.46	3.25	13.16286
2007	85.77	3.25	12.4
2008	85.03	3.3	13.57122
2009	84.23	3.28	15
2010	83.39	3.4	18.8376
2011	82.49	3.46	20.2
2012	81.53	3.48	21.23672
2013	80.51	3.56	22.40603
2014	79.43	3.56	24.8
2015	78.27	3.62	24
2016	78.2	3.69	26.26931
2017	78.11	3.78	24.3
2018	78.02	3.8	31.1
2019	77.93	3.91	29.61616

*Source: World Bank | World Development Indicators(12/16/2021)*

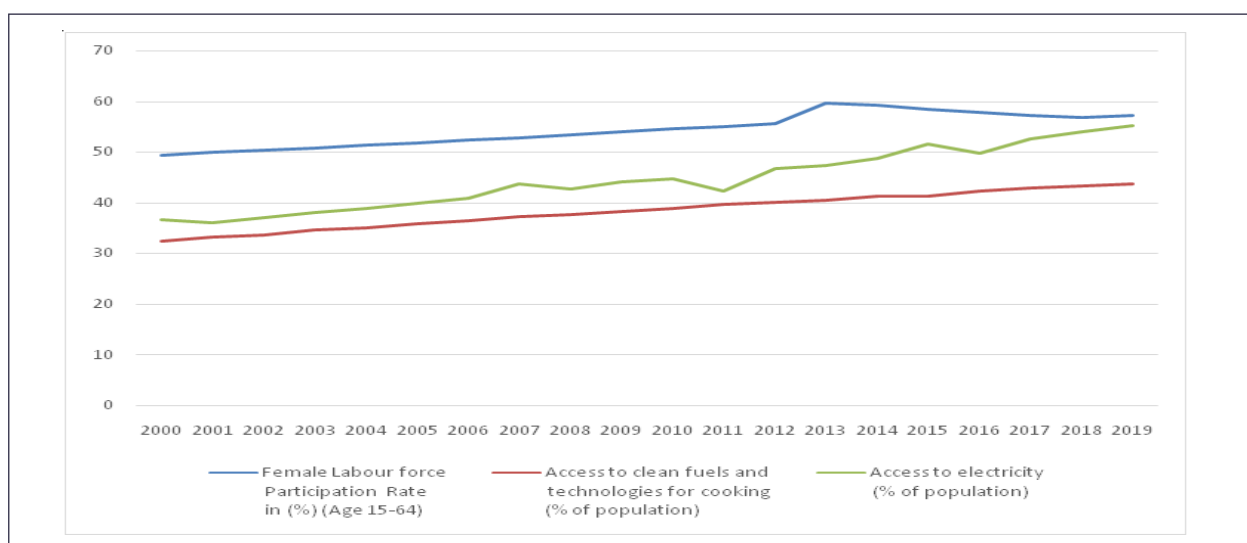


**Figure 17: Mozambique**

**Table 21: Namibia**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	49.33	32.51	36.5
2001	49.86	33.22	35.98637
2002	50.36	33.76	36.96955
2003	50.84	34.64	37.94327
2004	51.31	35.13	38.90635
2005	51.78	35.87	39.85777
2006	52.33	36.52	40.80005
2007	52.88	37.31	43.7
2008	53.42	37.72	42.68171
2009	53.96	38.34	44.1
2010	54.51	38.88	44.60104
2011	55.11	39.59	42.3
2012	55.72	40.11	46.60624
2013	59.68	40.53	47.4
2014	59.2	41.25	48.70618
2015	58.53	41.32	51.6
2016	57.85	42.2	49.7
2017	57.34	42.89	52.5
2018	56.89	43.21	53.96954
2019	57.21	43.66	55.19512

*Source: World Bank | World Development Indicators(12/16/2021)*

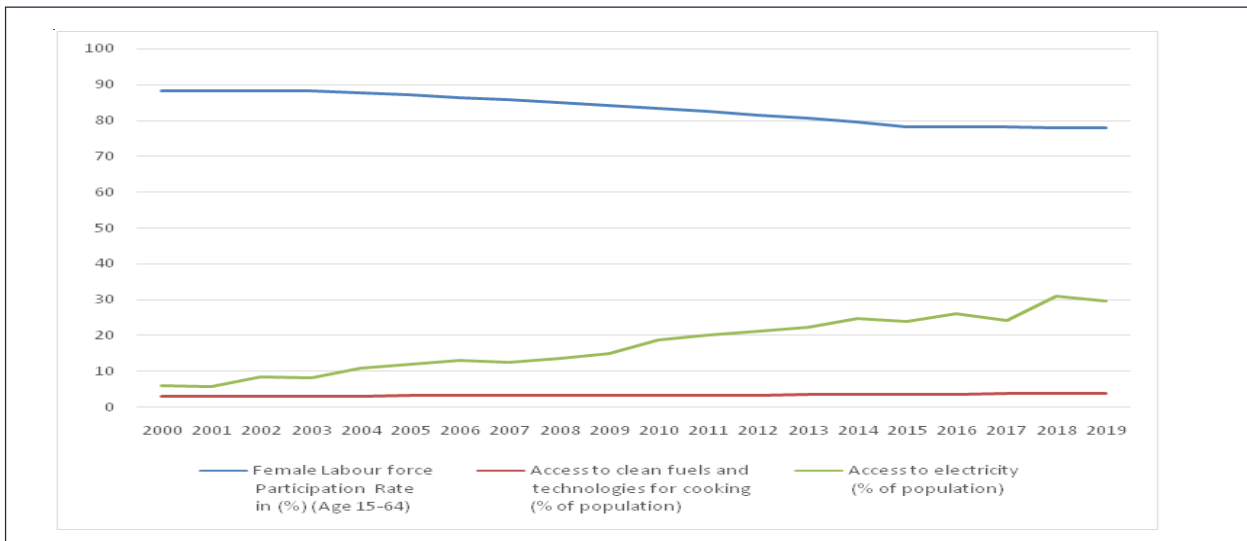


**Figure 18: Namibia**

**Table 22: South Africa**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	88.16	3.07	6.089136
2001	88.23	3.08	5.7
2002	88.24	3.13	8.486649
2003	88.2	3.09	8.1
2004	87.67	3.11	10.8463
2005	87.09	3.21	12.00915
2006	86.46	3.25	13.16286
2007	85.77	3.25	12.4
2008	85.03	3.3	13.57122
2009	84.23	3.28	15
2010	83.39	3.4	18.8376
2011	82.49	3.46	20.2
2012	81.53	3.48	21.23672
2013	80.51	3.56	22.40603
2014	79.43	3.56	24.8
2015	78.27	3.62	24
2016	78.2	3.69	26.26931
2017	78.11	3.78	24.3
2018	78.02	3.8	31.1
2019	77.93	3.91	29.61616

*Source: World Bank | World Development Indicators(12/16/2021)*

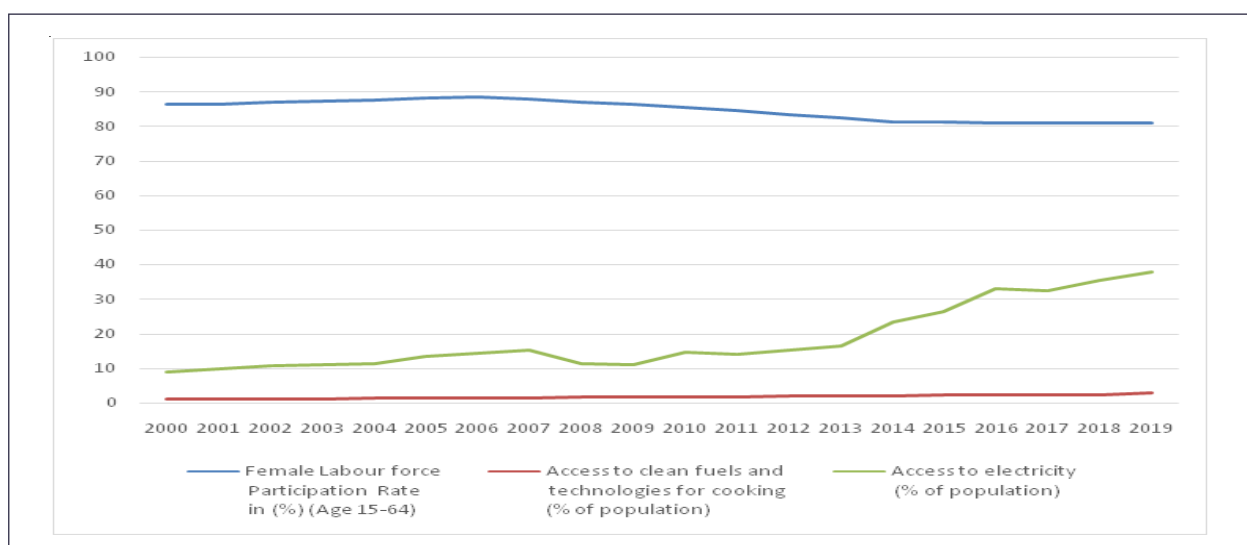


**Figure 19: South Africa**

**Table 23: United Republic of Tanzania**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	86.49	1.08	9.056112289
2001	86.48	1.1	9.996443748
2002	86.97	1.15	10.92848778
2003	87.43	1.2	11.1
2004	87.84	1.28	11.4
2005	88.23	1.35	13.66328144
2006	88.59	1.36	14.55442524
2007	87.94	1.44	15.44251728
2008	87.23	1.53	11.5
2009	86.45	1.54	11.2
2010	85.59	1.66	14.8
2011	84.66	1.74	14.2
2012	83.63	1.85	15.3
2013	82.5	1.93	16.4
2014	81.25	2	23.5
2015	81.25	2.15	26.34278107
2016	81.24	2.16	32.8
2017	81.2	2.18	32.41840363
2018	81.16	2.19	35.22945023
2019	81.1	2.87	37.7

*Source: World Bank | World Development Indicators(12/16/2021)*

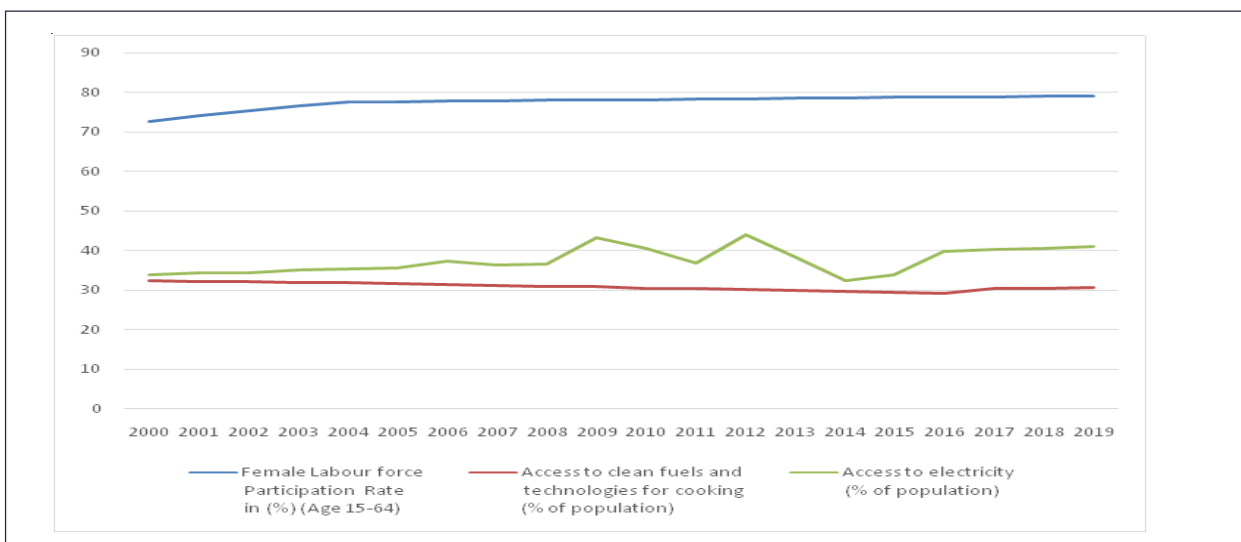


**Figure 20: United Republic of Tanzania**

**Table 24: Zimbabwe**

	<b>Female Labor Force Participation Rate in (%) (Age 15-64)</b>	<b>Access to Clean Fuels and Technologies for Cooking (% of the Population)</b>	<b>Access to Electricity (% of the Population)</b>
2000	72.74	32.4	33.8507
2001	74.12	32.25	34.21405
2002	75.4	32.18	34.2
2003	76.58	32.01	34.91471
2004	77.71	31.77	35.24966
2005	77.71	31.64	35.57295
2006	77.8	31.34	37.2
2007	77.9	31.17	36.19822
2008	78.01	30.97	36.51251
2009	78.11	30.81	43.36908
2010	78.21	30.46	40.45818
2011	78.41	30.27	36.9
2012	78.48	30.02	44
2013	78.6	29.88	38.33635
2014	78.7	29.63	32.3
2015	78.77	29.36	33.7
2016	78.87	29.05	39.67623
2017	78.94	30.21	40.14428
2018	79	30.23	40.61636
2019	79.11	30.54	41.08911

*Source: World Bank | World Development Indicators(12/16/2021)*



**Figure 21: Zimbabwe**

<b>Table 25: Selected SADC Countries: Understanding FLFPR Concerning Access to Clean Fuels and Technologies for Cooking and Access to Electricity</b>									
	<b>Botswana (Table 13 and figure 13)</b>	<b>Eswatini (Table 14 and figure 14)</b>	<b>Lesotho (Table 15 and figure 15)</b>	<b>Mauritius (Table 16 and figure 16)</b>	<b>Mozambique (Table 17 and figure 17)</b>	<b>Namibia (Table 18 and figure 18)</b>	<b>South Africa (Table 19 and figure 19)</b>	<b>United Republic of Tanzania (Table 20 and figure 20)</b>	<b>Zimbabwe (Table 21 and figure 21)</b>
Access to clean fuels and technologies for cooking (% of population)	Moderate increase	Moderate increase	Moderate increase	Already very high which increased marginally further	Almost stagnant (Already low)	Moderate increase	High increase	Almost stagnant (Already low)	Low decrease
Access to electricity (% of population)	High increase	Very High increase	High increase	Already very high which increased marginally further	Moderate increase	Moderate increase	Moderate increase	Moderate increase	Low increase
Female Labor force Participation Rate in (%) (Age 15-64)	Low increase	Low increase	Low decrease	Low increase	Low decrease (Already very high FLFPR.)	Low increase	Low increase	Low decrease (Already very high FLFPR.)	Already very high which increased marginally further
Result/finding	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Botswana.	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Eswatini.	Both the above factors had brought no positive change as FLFPR decreased in 20019 in comparison to 2000. The impact was not visible as there was decrease in FLFPR in Lesotho.	Both the above factors had brought positive change as FLFPR increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was slow in Mauritius.	Both the above factors had brought no positive change as FLFPR has decreased in 20019 in comparison to 2000. The impact was not visible as there was already very high FLFPR in Mozambique.	Both the above factors had brought positive change as FLFPR has increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in Namibia.	Both the above factors had brought positive change as FLFPR has increased in 20019 in comparison to 2000, but the impact was not very strong as the increase in FLFPR was much slower than the increase in the two factors in South Africa.	Both the above factors had brought no positive change as FLFPR has decreased in 20019 in comparison to 2000. The impact was not visible as there was already very high FLFPR in United Republic of Tanzania.	Access to electricity had brought positive change as FLFPR has increased in 20019 in comparison to 2000 even when there was decrease in percentage of population accessing to clean fuels and technologies for cooking in Zimbabwe.
<p><b>Note:</b> In comparison to 2000 if in 2019: Below 10% increase: it is considered as low In between 10% to 30% increase: it is considered a moderate In between 30 % to 50% increase: it is considered a high Above 50% increase: it is considered a very high (vice-versa in the case of decrease).</p>									

## 7. Results and Findings

### 7.1. The Two Regional Groupings; SAARC and SADC and FLFPR

Name of the Selected SAARC Country	Country Code	GNI per Capita (Current US\$) (As per the year 2019)	World Bank Country Classifications by Income Level (As per July 1, 2020, old)	Female Labor Force Participation Rate in (%) (Age 15-64) (As of the year 2019)
Afghanistan	AFG	500	Low income	22.74
Bangladesh	BGD	2030	Lower-middle income	38.48
Bhutan	BTN	2840	Lower-middle income	62.31
Maldives	MDV	6490	Upper-middle income	43.05
Nepal	NPL	1190	Lower-middle income	85.3
Pakistan	PAK	1270	Lower-middle income	22.63
Sri Lanka	LKA	3720	Lower-middle income	37.58
India	IND	1920	Lower-middle income	22.26

Name of the Selected SADC Country	Country Code	GNI per Capita (Current US\$) (As per the year 2019)	World Bank Country Classifications by Income Level (As per July 1, 2020, old)	Female Labor Force Participation Rate in (%) (Age 15-64) (As of the year 2019)
Botswana	BWA	6640	Upper-middle income	68.46
Eswatini	SWZ	3410	Lower-middle income	51.34
Lesotho	LSO	1100	Lower-middle income	63.08
Mauritius	MUS	10230	Upper-middle income	52.81
Mozambique	MOZ	460	Low income	77.93
Namibia	NAM	4500	Upper-middle income	57.21
South Africa	ZAF	6010	Upper-middle income	54.07
United Republic of Tanzania	ZWE	1140	Lower-middle income	81.1
Zimbabwe	TZA	1080	Lower-middle income	79.11

FLFPR in most of the SADC Countries is much higher than in SAARC countries except Nepal which has the highest FLFPR amongst all the member countries of the two regional groupings. This is a significant factor which distinguishes SADC from SAARC. The table below is used to show the distinction:

### 7.2. FLFPR and Accessing to Clean Fuels and Technologies for Cooking and Accessing to Electricity in SAARC and SADC Countries

#### 7.2.1. SAARC

Increase in the percentage of the population in accessing clean fuels and technologies for cooking and accessing electricity brought an increase in FLFPR though small in Afghanistan, Bangladesh, Maldives and Pakistan. In Bhutan,



<b>Table 28: FLFPR (Age 15-64) in %</b>										
<b>SAARC</b>										
<b>Year</b>	<b>Afghanistan</b>	<b>Bangladesh</b>	<b>Bhutan</b>	<b>Maldives</b>	<b>Nepal</b>	<b>Pakistan</b>	<b>Sri Lanka</b>	<b>India</b>		
	<b>Low Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Upper-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	
2000	15.35	27.65	63.71	38.06	84.59	16.46	40.37	31.97		
2019	22.74	38.48	62.31	43.05	85.3	22.63	37.58	22.26		
<b>SADC</b>										
<b>Year</b>	<b>Botswana</b>	<b>Eswatini</b>	<b>Lesotho</b>	<b>Mauritius</b>	<b>Mozambique</b>	<b>Namibia</b>	<b>South Africa</b>	<b>Tanzania</b>	<b>Zimbabwe</b>	
	<b>Upper-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Upper-middle Income</b>	<b>Low Income</b>	<b>Upper-middle Income</b>	<b>Upper-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>	<b>Lower-middle Income</b>
2000	51.21	45.5	69.2	43.45	88.16	49.33	48.22	86.49	72.74	
2019	68.46	51.34	63.08	52.81	77.93	57.21	54.07	81.1	79.11	

Nepal, Sri Lanka and India FLFPR decreased in 2019 in comparison to 2000. The fastest decline was visible in India. Thus, the two factors were not very significant in the context of these four countries.

### 7.2.2. SADC

Increase in the percentage of the population in accessing clean fuels and technologies for cooking and accessing to electricity brought an increase in FLFPR though small in Botswana, Eswatini, Mauritius, Namibia and South Africa.

In Lesotho, Mozambique and the United Republic of Tanzania FLFPR has decreased in 2019 in comparison to 2000. Thus, the two factors were not very significant in the context of these three countries. Mozambique and the United Republic of Tanzania are entirely unique in the respect that these two countries have already very high FLFPR even though a negligible percentage of the population accessing to clean fuels and technologies for cooking and accessing to electricity. Zimbabwe also exhibited similar characteristics even when there was a decrease in the percentage of the population accessing to clean fuels and technologies for cooking.

## 8. Conclusion

The integrity of the South Asian Association for Regional Cooperation (SAARC) and the Southern African Development Community (SADC) can create enormous opportunities for females by engaging in diplomatic relations and treaties for sustainable development of clean fuel and accessing electricity in the remotest regions. Both the regional blocs can work together on fostering economic diplomacy for benefit of female labor. SAARC countries should learn from SADC countries about the factors which have pushed the regional group to a higher level in achieving improved levels of Gross National income Per Capita and female labor force participation rate. Murshed (2021) feels that the associated governments should implement policies that can expedite the rate of energy efficiency improvement, speed up the economic growth rate, restrict the influx of unclean foreign direct investment develop the financial sector, and ensure greater empowerment of women for facilitating clean cooking fuel transition across the regions of Sub-Saharan African Regions. Rahut *et al.* (2020) suggest that looking at the expansion of middle-class households and anticipating their demand for clean fuel for cooking, it is important to ensure an adequate supply of clean sources of energy to meet future demand as well as augment the affordability and awareness among households who are still dependent on solid fuels. Guruswamy (2015) writes that Around 2.8 billion people globally, also known as the “Other Third” or “Energy Poor,” have little or no access to beneficial energy that meets their needs for cooking, heating, water, sanitation, illumination,

transportation, or basic mechanical power. Both the regional blocs should focus on policies that can deliver, reliable, safe, clean fuels and technology mainly for cooking to enhance female health and their participation in the labor force. Mutually beneficial cooperation between SAARC and SADC in the direction of encouraging female participation in the labor market and harnessing clean fuel energy for cooking and supply of electricity will be a boon for both the regional groups as the two economically important regional groups are the potential platform for their member nations. The strong ties between the two can give opportunities to member nations to compete with the globally competitive markets by recognizing the strength of huge female labor force potential. The need of the hour is to tap the potential of these economies.

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**Cite this article as:** Uma (2023). Female Labor Force Participation in SAARC and SADC Countries: Understanding the Impact of Access to Clean Fuels and Technologies and Access to Electricity. *International Journal of African Studies*, 3(2), 97-131. doi: 10.51483/IJAFRS.3.2.2023.97-131.