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NOW IS THE TIME! REDUCE AND REDISTRIBUTE THE UNPAID DOMESTIC AND CARE WORK BURDEN OF WOMEN FOR SUSTAINABLE DEVELOPMENT

The paper is authored by Yumiko Yamamoto, independent consultant, as part of UNDP Bangkok Regional Hub's policy advocacy work on addressing unpaid domestic and care work in the context of sustainable development. Editing, format and cover design by Mailee Osten-Tan.

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Introduction

Asia and the Pacific has been enjoying rapid economic growth over the last few decades, which has helped to shift forward regional human development. More women and men, boys and girls can read and write. People are enjoying healthier lives and live longer on average. Income poverty has declined.

Yet a number of countries have been struggling to escape the middle-income trap, and the economic and human development gains in the region are not shared equally across countries. Income and wealth inequalities have been rising. The number of Asian billionaires may be increasing,¹ but the youth unemployment rate is two to three times that of the overall general population. When jobs are available, these tend to be informal employment; the percentage share of informal employment out of total employment is as high as 84 per cent in countries like India.² The majority of countries in Asia and the Pacific do not provide social safety nets for those who do not work or are underemployed. There is a significant share of youth who are not in school, employment, or training. In terms of adolescent mortality, maternal mortality is a problem among girls while violence is the most particular cause for concern in boys.3

While both men and women engage in informal work, women make up most of the population engaging in vulnerable employment – namely unpaid family work and own account workers. More women and young girls with education are entering the labour market, yet they continue to bear a disproportionate amount of unpaid household chores and family care work, which is largely considered as woman's responsibility.

Women and young girls are beginning to delay marriage. The fertility rate has on average been decreasing across Asia.⁴ As human development benefits from better nutrition and sanitation, and health care services have contributed towards longer lifespans, ageing has been a trending issue in countries with low fertility rates. The ageing population is likely to increase women's unpaid care work burden. Taking into account the fact that women tend to live longer than men, and that the number of single men and women has risen, this begs the question who will be able care for senior women and men who do not have families?

Industrial policies intend to tackle these emerging issues, create decent jobs, and expand basic services to aid human development while reducing some of women's unpaid care work burden. Furthermore, as engineer, economist, and the founder of the World Economic Forum Klaus Schwab announced in 2016, the world is heading towards a Fourth Industrial Revolution with an ever-increasing reliance on innovation, robotics and artificial intelligence to name a few. This throws some uncertainty over the job security of many low skilled or aged workers. How can we ensure the technological advancements of the Fourth Industrial Revolution can be properly harnessed to improve human lives?

Amid these questions, this short paper focalizes around Sustainable Development Goal 5.4 (SDG5.4); that reducing and redistributing "women's unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility ... " can help to tackle some of the issues presented above. It is important to remember that there is no magic bullet. Rather, this paper hopes to use data and examples from the Asia Pacific region to identify the areas of investment that governments could consider in order to achieve sustainable development through the promotion of gender equality and empowerment of women and girls.

¹ Ambler, 2017.

² UNDP, 2016.

³ UNDP, 2016.

⁴ In 2015, more than half of the economies in Asia has the fertility rate below the population replacement rate of 2.14 (UNDP, 2016).

Situation analysis

The Asia-Pacific region, particularly Asian developing countries, has enjoyed high economic growth rates for the last few decades. The 2016 national income per capita⁵ had doubled from the level in the year 2000 in 15 Asian developing countries. Of these 15 countries, nearly half marked a two-digit level of the annual growth rates of the national income per capita: China (52.7 per cent), Republic of Korea (12.5 per cent) Viet Nam (18.5 per cent), Lao PDR (16 per cent), Myanmar (38.8 per cent), Sri Lanka (13.2 per cent), India (15.4 per cent), and Bhutan (15.5 per cent).

While other countries' economic growth rates were much slower, particularly in advanced economies like Australia, Japan and the Pacific Islands, the proportion of people living under the poverty line has decreased.⁶ From 2002 to 2012, the population living at \$1.90 a day fell from 1.135 billion to 456 million people, translating to a decline in poverty headcount ratio – from 34.6 to 13.9 per cent. However, if the poverty line increased to \$3.10 per day, 1.352 billion people or 37 per cent of the population in the Asia-Pacific still live in poverty.

Persistent inequalities

Across the region, human development has improved since 1990, but the real concern of the region is that inequality deducts from human development achievements in all countries.⁷ The average human development loss due to inequality is close to 30 per cent for South Asia and 20 per cent for East Asia and the Pacific much higher than the 13 per cent of Europe and Central Asia. Human development loss due to inequality were particularly severe in some of the least developed countries such as Kiribati (31.5 per cent), Afghanistan (31.4 per cent), Timor-Leste (30.7 per cent), Bhutan (29.8 per cent), and Bangladesh (29.4 per cent) as well as developing countries such as Iran (33.6 per cent), Pakistan (29.9 per cent) and India (28.6 per cent).

I believe that virtually all the problems in the world come from inequality of one kind or another. - Amartya Sen

These countries have started seeing widening social inequalities in access to basic services and income-generating opportunities before reaching high- and middle-income status.

Gender inequality is not foreign to this discussion but rather forms one of the foundation stones. While overall gender gaps in human development elements such as educational attainment and health have narrowed over time, persistent gaps remain in areas such as economic participation. In developing countries - where the main economic contribution stems from subsistent, primary sector of agriculture, fishery and forestry – both women and men's labour force participation rates are high. As the country develops, and girls' and boys' educational attainment increases, the labour force participation rates gradually decline for both women and men. Yet this happens more rapidly for women in the countries where the implementation of gender equality laws and practices are inadequate and a division of labour by sex – men being breadwinners and women being homemakers - arises. When the country's income level further goes up, the fertility rates decreases, and the care facilities and services such as medical care and child care become widely available, women's labour force participation vis-à-vis men counterparts goes up again on average, known as feminization-U curve.

Figure 1 visualizes the female-to-male ratio of labour force participation against Gross National Income (GNI) per capita of the Asia-Pacific countries. It does not show a U-shape trend line, indicating positive change, but a rather more flat, linear trajectory. This means that women's labour participation remains low despite

7 UNDP, 2016.

⁵ Gross Domestic Product per capita at the 2011 constant international \$, World Bank database.

⁶ UNESCAP, 2016.



Figure 1. Female-to-male ratio of labor force participation and GNI per capita

economic development trends in Asia and the Pacific. About a half of low-income countries also have extremely low numbers of women participating in the labour force.

Demographic change

Relatively low women's labour force participation rates in the region has many implications given demographic change. According to the 2016 Asia-Pacific Human Development Report, Asia-Pacific is the second most rapidly ageing region after Latin America and the Caribbean. In China. Japan, Republic of Korea, Singapore, Sri Lanka and Thailand, doubling the share of older people, from 7 to 14 per cent, took only 18 to 26 years, whereas the United States, Sweden and France took 70, 80 and 115 years respectively in this process.⁸ In 2015, 489 million people at aged 60 and above lived in the Asia-Pacific region. By 2050, a quarter of the population in the region - or 1 billion people - are expected to be senior citizens.

Ageing has the following two implications. Firstly, the dependency ratio – or the ratio of older people to working-age people – is growing. The ratio, which was 36 per cent in 2015, could reach to 43 per cent by 2050. In other words, by 2050 about two working-age people will support each senior citizen. This support ratio of 2 has already happened in Japan. Other advanced economies such as Australia, New Zealand and Hong Kong (China, SAR) also have a less-than-5 support ratio, meaning less than 5 working-age people support each older person. The support ratios of developing economies such as Brunei Darussalam, China, Iran, Macao (China SAR), Thailand and Viet Nam were high but expected to decline rapidly to as low as 1 to 2 persons by 2050. On the other hand, in Afghanistan, Mongolia, Papua New Guinea, and the Solomon Islands, a support ratio is higher than 10, indicating large share of working population.⁹

Among the countries where social protection, universal health care, and other welfare programs are in place, the financial burden of the working-age population who support the system through taxes and contributions to these schemes would increase as the dependency ratio increases, or the support ratio decreases.

Figure 2 shows high rates of pension coverage in high income countries. But the majority of developing countries in the region have no or low pension coverage. The pension coverage dramatically increased in Nepal, China, Republic of Korea, Maldives, Thailand, and Timor-Leste between 2000 and 2010-2012 through the implementation of targeted programmes or universal coverage where everyone would benefit. However, pensions in many cases do not provide enough income for self-sufficiency¹⁰. Therefore, improving the pension coverage as well as the amount of pension individuals receive requires an increase in the amount of contributions by the working-age population as well as public injections.

⁸ UNDP, 2016.

⁹ UNDP, 2016.

¹⁰ UNDP, 2016.

Figure 2. Pension coverage in the Asia-Pacific, %



Source: UNDP 2016, Figure 4.11.

Secondly, the higher dependency ratio or lower support ratio suggests that care burden for the elderly will significantly increase as well. In the case of China, for example, the burden of elder care in terms of estimated caregiver hours in 2030 is expected to rise by about 40 per cent relative to its value in 2010 and double by 2050.¹¹ Many of the working-age population are likely to have child care responsibilities. If one considers ageing together with the traditional family care system, the working-age population has multiple responsibilities for taking care of their own children, parents or other adult family members in the household while making their own livelihood, which is on the whole unsustainable.

In order to reduce the financial as well as care burdens of the households, particularly among the poor, a universal care programme for young children and the elderly as well as

11 UNDP, 2015.

the sick and people with disabilities ought to be implemented. SDGs calls for governments, private sector companies and civil society members to "(r)ecognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility" between men and women as well as among the households, public and private sectors (SDG 5.4).

Moreover, SDG 4.2 says, "By 2030, [governments, private sector companies and civil society members should] ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education." SDG 1.3 calls for the implementation of social protection systems and measures for all. To achieve sustainable coverage of the poor and the vulnerable by 2030, SDG 10.4 requests to adopt "policies, especially fiscal, wage and social protection policies" to reduce inequality in countries.

Although there is a time lag of ageing among the Asia-Pacific countries, sooner or later the population of countries in the region will become older, and the number of working-age people will fall. Postponing the introduction of the universal care system would not be a wise policy option as the current system – including having cheap migrant domestic helpers and nannies to fill the care needs at home – is not sustainable when the region as a whole is ageing. Now is the time to consider public interventions to introduce universal care systems.

Urbanization

The care crisis described above is exacerbated through urbanization. People in the Asia-Pacific region are increasingly moving to cities.¹² In 1950, only 17 per cent of the regional population lived in cities. This proportion increased to nearly half of the population in 2015 and to nearly two-thirds of the population in 2050, with an additional 1.1 billion new urban dwellers between 2015 and 2050; of which more than half will be in South Asia.

¹² UNDP, 2016.

Cities attract young and working-age people as there are more opportunities for them to study and find jobs. Those who settle in cities are likely to establish their families there, contributing to an increase in the urban population. Given the high population density, the majority of public services – including medical, elderly and child care – are provided in cities while rural areas have higher shares of older people living¹³ yet fewer human and financial resources to take care of them.

To foster urban agglomeration as the core of national urbanization strategies, UNDP (2016) calls for considering the concept of 'compact and smart cities' in the Asia Pacific region. However, it is important to ensure the adequate amounts of public care services in rural and peri-urban areas in order to avoid widening inequalities between rural and urban populations. To meet the demand, a system to redistribute the wealth generated in cities for the services in rural and peri-urban areas is required.

Youth unemployment, underemployment and related conflicts and violence

With an ageing population at hand, particularly in advanced economies, labour shortage is becoming an ever-increasing problem. At the same time, there is an issue of high youth unemployment and youth not in education, employment, or training (NEET). In countries where the data is available, the youth unemployment rate is typically two to three times higher than the total unemployment rate – and growing.¹⁴ Nearly one in five young people are unemployed in Fiji, Sri Lanka, and Samoa, whereas the rate increases to a quarter in the Maldives. About 30 per cent of the youth in Indonesia and Iran, and more than half of the youth in Kiribati are unemployed. Even when the youth find jobs, many of them engage in informal and vulnerable employment.

A significant amount of youth are NEET (Figure 3). Since they are not often looking for jobs, they are not counted in the unemployment rate. In the Asia Pacific region, more than 30 per cent of the youth in Bangladesh, Samoa, and more than 20 per cent of youth in Indonesia and India belong to the NEET category. Among the 358 million youth globally who are in NEET category, 220 million are in Asia and the Pacific, of which 101 million live in South Asia.¹⁵

UNDP (2016) states that youth in the NEET category are at a higher risk of becoming involved in military or armed conflict for an extensive period of time, as well as becoming victims of illegal migration or trafficking. Among adolescent mortality, violence is a particular problem among boys while maternal mortality is for girls; and the rate of youth unemployment and youth in NEET category is higher for girls.



Figure 3. Percentage rate of youth not in education, employment or training

13 See Figure 5.7 in UNDP, 2016.

- 14 UNDP, 2016.
- 15 World Economic Forum 2013, cited in UNDP 2016

There are a number of reasons why a higher proportion of youth are unemployed or in NEET category in the Asia Pacific region. While more children are now in education, the knowledge and skills they obtain in school do not match the skills required in the jobs. Lack of effective vocational training is another problem. Those who reside in remote areas or conflict areas may face limited mobility, thus limited access to vocational training and to work. While some may wish to start a business, youth have more difficulties in obtaining credit from banks.

Technological advancement, such as the development of automation, robotics and Artificial Intelligence (AI) may also throw some uncertainty over the job security of many people. It is therefore important to increase public investment in education from early childhood development programmes all the way to higher education. It is proposed that the adequate expenditure on education in early childhood development would particularly contribute to the provision of good quality education.¹⁶ However, many of developing countries in Asia have on the whole allocated 1-4 per cent of GDP to education (Table 1). As a comparison, the global or OECD average percentage rate of public education expenditure is 5.0 per cent of GDP. In order to meet SDG 4: achieve universal access to quality primary and secondary education alone, 69 million teachers would be required globally, of which South Asia would need to account for 15 million teachers (mostly in secondary education) while Southeast Asia would need to account for 1 million teachers.17

The region's investment in the health sector is also low. While the world's and OECD's average percentage rate of public health expenditure is about 10 and 12 per cent of GDP respectively, the rates for East Asia and the Pacific and South Asia are 5.3 and 4.3 per cent of GDP respectively.¹⁸ The rate of doctors per 10,000 people is around 20 in countries with high human development, but the rate decreases to as low as 1-2 for less developed countries. Public investment in increasing the number of doctors, nurses, and other health care professionals is essential for improving human development, creating decent and sustainable jobs, and thus contributing to sustainable development and economic growth.

Governments could allocate more public investment in basic services such as medical and health care and care of the elderly and people with disabilities as well as education, which would help increase human development as well as create a greater number of decent employment opportunities in the related services sector.

Table 1. Some countries with large young populations invest little in education, %

	Share of children and youth in population	Government expenditure on education as a share of GDP
Bangladesh	49	1.8
Bhutan	46	6.8
Cambodia	52	1.8
China	31	4.1
Fiji	46	3.1
India	47	2
Republic of Korea	27	3.4
Kiribati	55	10.9
Malaysia	43	5.5
Nepal	54	3.6
Philippines	52	2.9
Singapore	29	2.9
Sri Lanka	40	1.8
Thailand	31	3.9
Timor-Leste	62	1.6

Source: UNDP 2016, Table 3.15.

Climate change

Another regional problem is climate change; the Asia-Pacific region is the most vulnerable to climate change risks. Yet the genderdifferentiated impacts of climate change and natural disasters on populations are not well understood.

17 UNESCO, 2016.

¹⁶ For example, Heckman and Masterov (2007) argue from a case of the United States, that the return of investment in enriched pre-school facilities for children from disadvantaged households is very high, reduce school repetition, increasing productivity and reducing crime rates among others.

¹⁸ UNDP, 2016.

SDG 13 calls for urgent action to combat climate change and its impacts. SDG 13.1 calls for strengthening "resilience and adaptive capacity to climate-related hazards and natural disasters in all countries." SDG 13a proposes to mobilize \$100 billion annually by 2020 for the Green Climate Fund to support developing countries to adopt meaningful mitigation actions and transparency on implementation.

To make climate change mitigation, adaptation, impact reduction, and early warning programs more meaningful and effective, gender-sensitive analysis of current practices is essential. As we discuss later, women's gender roles of collecting water and fuel, such as wood, make them dependent on climate-vulnerable natural resources. Natural disasters such as droughts result in women walking for longer distances, increasing their amounts of physical labor, exposing them to negative health effects, and increasing risks to their safety.¹⁹

Despite low rates of land and asset ownership, women make considerable contributions to livelihoods, family well-being, natural resource management, biodiversity conservation, health, and food security. Case studies from India and Nepal show that women are the primary managers of agricultural biodiversity, and in some cases, custodians and users of traditional knowledge. This includes knowledge around climate resilience, which is of critical importance for agricultural adaptation to climate change.²⁰ While men start growing cash crops and rely on seed commercialization, women grow a variety of crops for household food security. Climate change, therefore, alters cropping and weather patterns, which may increase women's burden as food producers and providers.

In addition, their knowledge of and roles in the household and communal experiences would add value to adaptation and mitigation policies, and programmes geared towards sustainable development.²¹ Therefore, greater women's participation in decision-making processes and more respect of their rights are essential to reduce women's and their communities' vulnerability to climate risks.

For example, in many parts of the region, women are not allowed to leave the home without the permission from a man, such as a father and husband. More women and girls than men and boys are illiterate and have less access to training about early warning systems or survival skills in the case of disasters. These gender norms, biases, and inequalities make women and girls more exposed to and vulnerable to climate change-induced disasters, particularly floods. Studies have found that women and children are 14 times more likely to die than men during disasters.²² Women earning their own income and having a better bargaining power at home may help women and girls to make their own decision for survival in the case of disasters.

UNDP, 2013.
 UNDP, 2010.
 UNDP, 2013.
 UNDP, 2013.

22 UNDP, 2013.

What is unpaid domestic and care work?

Throughout our lives, we need to be taken care of. For a newborn baby to grow healthy, somebody has to feed, clean, and nurture them for years. We all run a risk of falling sick at some point in our lives, while the elderly people and persons with disabilities require physical assistance. Caring is essential for humans to survive. It is also a way to make a decent living. A caring activity – such as preparing for food, feeding and cleaning – can be paid or unpaid, depending on to who provides the services. A UN guideline on time-use statistics sets 9 categories of human work activities (United Nations, 2016).

- (1) Employment and related activities;
- (2) Production of goods for own final use;
- (3) Unpaid domestic services for household and family members;
- (4) Unpaid care services for household and family members;

Anyone who does anything useful will not go unpaid. - Henry Ford

- (5) Unpaid volunteer, trainee and other unpaid work;
- (6) Learning;
- (7) Socializing and communication, community participation and religious practice;
- (8) Culture, leisure, mass-media and sports practices;
- (9) Self-care and maintenance.

'Unpaid domestic and care work' in general refer to activities under (3) unpaid domestic services for household and family members, (4) unpaid care services for household and family members, and part of (5) unpaid volunteer, trainee and other unpaid work (Figure 4).

Intended destination of Production	for own final	use		for use by othe	rs						
	Own-use product work		Employment				Other work ac-	Volunteer work		ork	
Forms of work						Unpaid		in market	In households producing		
	of se	of services of goods		(work for pay or profit)			work	tivities	and non- market units	Goods	Services
				1 Employment and related activities			5 Unpaid volunteer, trainee and other unpaid work				aid work
ICATUS 2016	4 Unpaid caregiving services for household and family members	3 Unpaid domestic services for household and family members	2 Production of goods for own final use	11 Employment in corporations government and non-profit institutions	12 Employment in household enterprises to produce goods	13 Employment in households and household enterprises to provide services	53 Unpaid trainee work and related activities	59 Other unpaid work activities	Unpaid oth Unpai orga	51 Unpaid direct volunteering for other households 52 Unpaid community- and organization- based volunteering	
Type of work	Unpai (Unpaid care tic v	d work e and domes- vork)		Unpaid work (community, volunteer, trainee work)					Ð		
Relation to					Activities within	n the SNA produc	tion boundar	у			
2008 SNA				Ac	tivities inside the	e SNA general pro	duction bour	ndary			

Figure 4. International Classification of Activities for Time Use Statistics and its relation to the forms of work and SNA

Note: Text in the "ICATUS 2016" row corresponds to the categories (major divisions or divisions) from the classification. Source: UN 2016.

Unpaid domestic services refer to domestic services without remuneration done for household and family members and for other households. They are:

- Food and meals management and preparation;
- Cleaning;
- Care of clothes and textiles (e.g., washing, ironing);
- House maintenance and repair;
- Household management (e.g., paying bills, organizing);
- Pet care;
- Shopping for household and family members;
- Traveling, moving, transporting or accompanying goods or persons related to this kind of unpaid domestic services.

Unpaid care services refer to caregiving services without remuneration for household and family members and for other households. They are:

- I. Childcare;
- II. Care for dependent adults;
- III. Care for non-dependent adult household and family members;
- IV. Traveling and accompanying goods or persons related to unpaid care giving services for household and family members;
- V. Other activities related to unpaid care giving services for household and family members.

An example of the activities under point (V) is a grandfather visiting his daughter's house to take care of his grandchild.

Unpaid domestic and care services listed above are the activities that satisfy the 'third-person criterion'²³, which means that the activity can be delegated to another person and yield the same desired results. They fall within the 'general production boundary' in the System of National Account (SNA) – the United Nations Statistics system of national accounts used for estimating the country's national income (e.g., GDP, Gross Domestic Product) – (see Figure 4) but are not counted in the national accounts such as GDP in the SNA²⁴. On the other hand, paid and unpaid activities under (1) and (2) and part of (5) in the UN classification above fall within the SNA production boundary and counted in the National Account such as GDP. As we discuss below, domestic and care services such as cleaning and human care were counted as economic or production activities in the estimation of National Accounts, when they were done as paid work of, say, cleaners or nurses.

It is important to mention a few issues regarding these work classifications to understand the paid and unpaid work.

The boundary of unpaid domestic work is vague

In many parts of the world, piped water and electricity are not yet widely available. People - mostly women and girls in Asia - collect water from rivers and ponds, and firewood and other natural products as fuel for cooking and heating. These activities are classified under (2) 'production of goods for own final use' in the UN guidelines and produce SNA, since households collect water for agricultural production such as farming and raising livestock. Water and firewood among others are also collected to meet the household members' reproduction needs, including securing safe drinking water, daily cooking, washing, bathing, and so on. In the context of a developing country, the hours spent fetching water and fuelwood are analyzed and discussed as part of unpaid domestic work although they fall within the SNA production work.

Often, people perform several tasks at the same time

The UN statistical guideline categorises 9 work activities into SNA production, non-SNA production and personal activities. But this doesn't mean that our daily activities can be rigidly aligned with these. Quite contrarily, we perform multiple tasks at the same time.

²³ The activities under the UN classification categories (6)-(9) above such as eating, sleeping and studying cannot be delegated to another person. These activities are called personal activities and remain outside of the SNA.

²⁴ When time use data was available, the value of unpaid domestic and care work can be estimated and reported as 'satellite account' under the National Accounts.

It can be a combination of two paid work activities. It can be a combination of paid work and unpaid domestic and care work. Examples are that an unpaid family contributing worker deals with customers while watching her baby at the family shop, or a farmer carries his baby on his back while plowing his farm. It can also be a combination of various unpaid domestic and care work. For example, a mother cooking a dinner while watching her children to do homework. Or, it can be a combination of leisure and unpaid domestic and care work, such as one is watching TV while folding or ironing clothes.

In the time use survey, there is a way to capture these simultaneous activities and categorize them accordingly. However, it is not always easy to understand the quality of work and responsibilities attached to the activity. For example, 'sleeping' is a considerable amount of time people spend under the personal activity 'self-care and maintenance,' assuming that sleeping means resting. But the parent or household care giver is always 'on-call' when s/ he is sleeping (thus, not resting). In the case of an emergency, such as a household member falling sick in the middle of the night, the care giver will get up to take care of the sick household member and perhaps sleeps aside the sick person to monitor the condition. So even during sleeping hours, some are performing unpaid care work.

Services and goods can replace much of unpaid work, often for better quality

If one performs the activities such as food preparation, cleaning, child care etc. external to the household or not for family members (the work category (1) above), the work is paid and counted in the GDP. Some may say, one cooks for the family for love, not for salary or money. However, the household members take care of each other at home without remuneration for various reasons. It can be personal incentives or moral obligation. Or, some have no other options; for example, they are too poor to purchase the services that can replace unpaid work.

Nations already provide services that meet basic human needs such as primary education and medical care, but more can be done towards the achievement of sustainable development. And often, public and private services provided by professionals in education or in the care of the sick, elderly, and people with disabilities, offer better quality than services provided at home. Moreover, public investment for better access to irrigation, water purification, electricity, and modern energy for cooking or heating can reduce time spent on unpaid work and improve people's health outcome. If people are the real wealth of nation (UNDP, 2016), nations need to make sure such services are available to all households at free of charge or at affordable price.

What are the issues pertinent to unpaid domestic and care work?

Everybody has the same 24 hours; but how one uses her or his time is not all up to the individual. Those who don't have the power and choice to determine how they spend their time – such as women, girls and the poor – take up most of the unpaid work.

All work – whether paid or unpaid – is important work. But some work is not recognized or is stigmatized because it is done at home – in the private sphere - and because it does not generate income or revenue. Rather, unpaid domestic and care work often provides savings for the households and nations by providing the services that should be, otherwise, widely available with public support or purchased. When nations take unpaid domestic and care work for granted or are blind to the important contribution that unpaid domestic and care work makes in society, they may not provide or delay financial investment in basic social services and infrastructure. The subsequent failures to achieve equitable, sustainable development is currently where the Asia Pacific region stands.

Women and girls bear disproportionate unpaid domestic and care burden

Table 2 displays the average time spent on unpaid domestic and care work, paid work and total work according to sex for all persons in the countries where the data is available. Since the surveying years, age groups, and survey methods vary, it is not wise to compare the time spent on each activity across the countries. However, commonalities across the countries include the fact that women on the whole spend more time than men in unpaid domestic and care work, and when paid and unpaid work is combined, women work longer hours than men each day in all countries – except New Zealand where women and men work for same hours.

Figure 5 shows the participation rates and average time spent by women and men of Bangladesh, China, Japan, Mongolia, New



By Neelabh Banerjee (the image developed for UN Women India.)

Zealand, Pakistan, and Thailand on various unpaid and paid work. Please note that Chinese and Thai data looks at time use of married women and men, and the Mongolian data compares persons between 18-50 years old. Moreover, Thai data in Figure 5 was from the 2009 time use survey. Therefore, summary results for China, Mongolia and Thailand presented in Figure 5 are not corresponding with the figures in Table 2.

Like Table 2, surveyed age group, year, and methods (such as work classification) differ by country, so the purpose of the analysis here is not to compare the figures across the region. Despite the different methodologies, overall nearly 90 per cent or more of women in the Asia Pacific region participated in unpaid domestic and care work, except Japan where the majority of children do not perform housework, thus the average participation rate is low. Moreover, participating women spent on average 4-6 hours a day on these activities. The majority of women perform household chores, of which 10-45 per cent of them are likely to perform family care work as well. The majority of time spent on family care is child care.

On the other hand, participation rates of men and boys vary by country. For example, a relatively higher percentage share (62%) of

	Survey year	Age group	Unpaid domestic and care work		domestic Paid work are work		Total w	/ork
Country	_		Women	Men	Women	Men	Women	Men
Pacific								
Australia	2006	15+	5.11	2.52	2.08	4.08	7.19	7.00
New Zealand	2009-2010	12+	4.36	2.39	2.16	4.13	6.52	6.52
East and North	Asia							
China	2008	15-80	3.54	1.31	4.23	6.00	8.17	7.31
Japan	2016	10+	3.28	0.44	2.29	4.41	5.57	5.25
Mongolia	2011	12+	4.50	2.19	3.58	5.48	8.48	8.07
Rep of Korea	2014	10+	3.28	0.47	2.26	4.08	5.54	4.55
Southeast Asia								
Cambodia	2004	18-60	3.54	0.56	3.57	6.10	7.51	7.06
Lao PDR	2002-2003	10+	2.30	0.36	4.30	5.12	7.00	5.48
Thailand	2015	6+	3.25	1.48	7.29	7.52	10.54	9.40
Viet Nam	2016	15+	5.14	3.10	5.09	5.57	10.23	9.07
South Asia								
Bangladesh	2012	15+	3.36	1.24	5.12	6.54	8.48	8.18
India	1998-1999	15-64	5.52	0.52	2.29	5.18	8.21	6.10
Nepal	2014-2015	15+	3.03	0.43	5.21	6.25	8.24	7.08
Pakistan	2007	10+	4.47	0.28	1.18	5.21	6.05	5.49

Table 2. Average time spent on unpaid domestic and care work and paid work by sex

Source: UN Women, 2015, except Japan, New Zealand, Nepal, Rep of Korea, Thailand and Viet Nam. See the references. "Paid work" of Thailand include studying (school work).





Source: Hirway et al., 2017a.





Source: Fengdan, Xuhua, Bruyere and Floro, 2016.



Note: Studying refers to school work, excluding self-learning and training. Both paid work and studying exclude commuting time to work place and school.

Source: Japan Statistics Bureau, 2016.



Source: Terbish and Floro, 2016.









Note: Education and training include homework. For both paid work and education and training, commuting to work place and schools are included.

Source: Statistics New Zealand, 2010.



Source: Hirway et al., 2017b.



Source: Yokying et al., 2016.







married men in China participate in unpaid domestic work whereas less than 40 per cent of married men in Thailand participate in unpaid domestic work. On average, men who participate in unpaid domestic and care work spend shorter hours a day than women counterparts.

A breakdown of domestic and care work, when available, shows that there is a gendered division of labour within the household. For example, women are responsible for daily food and household management including food preparation, cleaning, and physical care of children, whereas men mainly participate in shopping for the household, traveling for household upkeep, teaching children, and accompanying children to places.

Furthermore, in Bangladesh, Japan, Mongolia, New Zealand, and Pakistan where the breakdown of care work is available, women's participation rates in caring of the adults – predominantly elderly care – was slightly higher than men's participation rates. However, women and men spent about same hours in caring or nursing activities in Japan, Mongolia, and New Zealand, whereas in Bangladesh and Pakistan, the average time spent by participating men was longer than women (Table 3). On average, women's time spent on caring of the adults were still greater than men's while men's participation is becoming important in caring for adults. Like child care, the activities men and women performed also slightly vary.

Collection of water and fuel

Table 4 shows a breakdown of the activities under the SNA unpaid work according to available data. Across the region more women and girls are responsible for collecting water and fuel, such as fuelwood. In Bangladesh and Pakistan, women's participation rates of collecting water and fuel is not as high as in their neighboring country, India. Moreover, in Bangladesh and Pakistan, when participating men spent more time in collection of fuelwood than participating women. On the other hand, in Mongolia about 40 per cent of women and men participate in collecting water and fire wood.

As for other countries, although the participation rates by sex is not available, in 2016 Vietnamese women and men spent on average 60 and 45 minutes a day respectively collecting water, fuel, and firewood.²⁵ In Nepal, more than half of the population (53.3 per cent) has no access to piped drinking water and nearly 60 per cent of the population is using firewood as a major source of cooking fuel in 2014-2015. Women and girls on average spent 12.3 per cent of their

	Participatic	on rates, %	Average minutes spent on the activity per day		
Country	Women	Men	Women	Men	
Bangladesh, 2012	6.0	0.7	38.4	48.0	
Pakistan (elderly care), 2007	1.1	0.5	83.2	149.5	
Pakistan (caring of the sick and disabled), 2007	2.2	0.6	53.0	63.1	
Japan, 2016	4.6	1.6	122.0	126.0	
Mongolia, 2011	4.3	2.2	73.0	74.0	
New Zealand, 2009-2010	3.0	1.0	79.0	74.0	

Table 3. Participation rates and average time conditional on participation in caring of the adults by sex

Source: Bangladesh (Hirway et al., 2017a); Pakistan (Hirway et al., 2017b); Japan (Statistics Bureau, 2016); Mongolia (Terbish and Floro, 2016, the data is only for 18-50 years old); New Zealand (Statistics New Zealand. 2010).

²⁵ ActionAid Viet Nam, 2016.

	Participatio	on rates, %	Average min the activi	utes spent on ty per day
Country	Women	Men	Women	Men
Bangladesh (gathering wild product and fir, wood cutting), 2012	4.4	3.0	32.3	57.6
Bangladesh (collecting water), 2012	4.5	1.4	20.3	37.4
Pakistan (collecting fuel and wood), 2007	3.5	1.7	78.5	89.3
Pakistan (collecting water)	3.5	0.8	86.1	61.8
India (fetching of water), 1998-1999	22.9	1.1	14.0	0.4
India (fetching of fuel and wood/twigs)	15.7	0.5	14.0	0.5
India (fetching of fodder)	12.1	1.7	12.0	1.5
Mongolia (collecting wood and water), 2011	40.4	35.9	57.2	57.4

Table 4. Participation rates and average time conditional on participation in collection of water or fuel by sex

Source: Bangladesh (Hirway et al., 2017a), Pakistan (Hirway et al., 2017b), India (Hirway and Jose, 2011), Mongolia (Terbish and Floro, 2016, the data is only for 18-50 years old).

total work hours fetching water and/or collecting firewood, while men and boys spent 4.5 per cent of their total work hours on the same activities. In richer quintiles and in urban areas, LPG gas is currently the second most used cooking fuel in Nepal (25.8 per cent).

In Nepal, children are heavily involved in collection of water and firewood. Employed children aged 10-14 years old spend 18.5 per cent of their total work hours engaged in these kinds of activities, whereas 15-19 years old children spend 12.1 per cent of their work hours. The percentage of time spent on collecting water and fuel. compared to total work hours decreases as the age increases, perhaps because the total work hours of adults can be longer than that of children. In Nepal, 45 per cent of 10-14 years old, and 63 per cent of 15-19 years old children were 'employed' in 2014-2015. Therefore, a significant share of children under the age of 20 were involved in the collection of water and firewood.

In Pakistan, firewood is also a major source of fuel in 2007. More than half (57.3 per cent) of households used wood for cooking, and this

percentage increased to nearly 80 per cent among the rural population. Nearly threefourths of urban households used natural gas for cooking and for heating whereas almost all of rural households used firewood. More than half (52.8 per cent) of urban households had piped/tap water whereas in rural households, only 18 per cent had piped/ tap water. The rest drew water from boreholes, communal water sources, or streams, rivers or springs. It therefore follows that the participation rates for the collection of water and fuel such as firewood was much higher in rural populations (7.2 per cent of women, 2.2 per cent of men) than urban populations (0.6 per cent of women and 0.2 per cent of men).²⁶

As for India, the data in Table 2 was taken from a time use survey in 1998-1999 and nationalaverage. However, according to more recent field-based survey in agrarian Maharashtra and Orissa states, women still spent significant hours to collect water and fuelwood for household and caring livestock. In the villages in Maharashtra that had access to piped water, the women saved time collecting water. For example, in 2011 women spent 15 minutes to 2 hours a day fetching water and 1-14 hours a week collecting firewood in Maharashtra and Orissa. However, with the 2011 drought, women were forced to fetch water from nearby wells or streams. Unpaid time spent on fetching water increased in periods of drought to 0.5-5.5 hours a day.²⁷

In the village of Mulegaon, Maharashtra, women had to queue at a canal near the village from 12 a.m. onwards to get water in the morning. This whole process took 3-4 hours. During the drought, water in the nearby well became contaminated, so women had to walk to the nearest neighboring well 3-4 km away from their homes. In the village of Ukhunda, Orissa, the women had to walk 7-8 km to get water after the only hand pump in the village had become dysfunctional and many fainted on their way to fetch water.

Determinants of time spent on unpaid work – analysis of selected countries

As for the determinants that affect time spent on unpaid domestic and care work, this section summarizes the findings from country studies consisting of Bangladesh (Hirway et al., 2017a), China (Fengdan et al., 2016), Japan (author's analysis based on Statistics Bureau (2016)), Mongolia (Terbish and Floro, 2016), Nepal (Central Bureau of Statistics, 2016), Pakistan (Hirway et al., 2017b), Thailand (Yokying et al., 2016), and Viet Nam (Action Aid Viet Nam, 2016).

Simply being a woman is the most significant factor affecting the amount of unpaid domestic and care work responsibilities. Married women with small children tend to bear much of unpaid domestic and care work burden. Other factors include low income level and living in rural populations. Rural populations in general spend longer hours on unpaid domestic and care work than urban populations. This is due to both supply and demand constraints. On the supply side, absence of, or limited availability of, services such as child care facilities, electricity, safe drinking water, energy, and affordable public transportation in rural areas affect how people spend their time. On the demand side, many in rural areas are also income poor. Those who

engage in subsistence farming do not have much cash to pay for services even if the public services are available in their communities. Without electricity, piped water, or fuels for example, household chores such as food preparation and processing and washing clothes takes more time.

Married women with small children tend to bear much of unpaid domestic and care work burden

- The 2012 data from Bangladesh shows that married women are more likely to bear the burden of unpaid work than women who are not married or widowed. Younger women aged 15-20 years tend to shoulder most of the burden of unpaid work. The 2007 Pakistan data also showed that persons in the age group 10-19 years are likely to spend more time on household chores compared with persons from age groups 20 years and over. This might be due to the early marriage of girls in those countries.²⁸ The percentage of women aged 20 to 24 years who were first married or in a union before ages 15 and 18 were 22 and 59 per cent respectively in Bangladesh and 3 and 21 per cent respectively in Pakistan.²⁹
- In Pakistan, persons from households with more than 5 members are likely to spend more time on unpaid work than households with 5 members or less. Persons from households with more than 2 children below 18 years of age are likely to spend more time on unpaid work than households with 1-2 children. Persons from households with more than 5 children are likely to spend more time on unpaid work than the households with 1-2 children, while the households with 3-5 children has a mixed result. Persons from households with children below 7 years are likely to spend more time on unpaid work compared to the households without any children below 7 years old. This is the same for time spent on unpaid child care except when the size of the household is large – it is assumed that several family members share the care work.
- In Viet Nam, in 2016 women with children

²⁷ Mahajan, 2014.

²⁸ Hirway et al., 2017a.

²⁹ UNICEF global database as of March 2018. Bangladesh data is from DHS 2014 and Pakistan data is from DHS 2012-2013.

spent more time on unpaid domestic and care work than women without any children. The time women spent on unpaid work increases as the number of children increases up to 2.

- Regression analysis using the 2009 Thai Labour Force Survey and Time Use survey shows that the number of children below 12 years old increases the household work time of both women and men, with a much stronger effect on women. Rural women manage their care responsibilities by allocating less time for leisure. On the other hand, urban women manage their care responsibilities by reducing their time spent in market work. In addition, older household members provide assistance with household chores, enabling urban women to have greater time for leisure.
- In China too, in 2008 both husbands and wives spent more time on housework when there were young children in the home. The amount of time spent is much greater for wives (about 89 minutes per day) compared to husbands (about 30 minutes per day). The presence of retired (older) family members appears to reduce the wife's household work by 24 minutes per day and increase their time spent on market work by 16 minutes per day. But this bares no statistically significant impact on the husbands' time use. These results suggest that older family members help alleviate the household work burden of women.
- In Japan, men's age, marital status, having children or not, or age of their youngest child do not affect the time men spent on unpaid domestic work. On the other hand, the time women spent on unpaid domestic and care work changes in accordance with their life cycles. Unlike girls in developing Asia, girl students in Japan hardly do household chores daily. On average, they spent only 6 minutes a day in 2016. Single women who are less than 35 years old spent 23 minutes on household chores a day, whereas their married counterparts without children spent about 2 hours on household chores. Married women with children spent about 6 hours a day on unpaid domestic and care work, of which married women with pre-school children spent 7 hours and 22 minutes in the same

activities. Women with pre-school children spent 3 hours and 34 minutes for child care activities, and this time is reduced to 36 minutes a day on average in the household where the youngest child is in the elementary school.

Educational attainment has a mixed impact on women's time spent on unpaid domestic and care work

If higher educational attainment were to help empower women and girls, the time spent on unpaid domestic and care work may reduce as their educational attainment becomes higher. They may challenge gender norms and inequalities in the household and society. They tend to share the unpaid work burden with male members of the household. Higher educational attainment may lead to higher-paid jobs, leading to a great amount of disposable income that can be used to purchase time-saving appliances or market services to replace some of the unpaid work. However, the analysis from Asian countries shows a mixed result.

- An analysis of married couples in China in 2008 found that educated women spent less time on household work and more on labour market work. The opportunity cost of not working, that is foregone earnings, could be higher among educated women. Therefore, educated women might have an economic incentive to increase their time on labour market work. The level of education does not significantly impact husbands' time spent on housework. However, husbands with higher education tend to perform a larger share of household work.
- In Viet Nam, in 2016 women without education spent more time (9 hours and 20 minutes) on unpaid domestic and care work than women with education. In comparison, women with primary education spent 5 hours and 43 minutes. After this level, higher educational attainment does not necessary reduce women's time spent on unpaid domestic and care work. Women who completed intermediate education spent 7 hours and 25 minutes on unpaid work, and women with college education spent about the same hours with women with primary education.

- Bangladeshi women with greater levels of education are likely to participate more in unpaid work, especially those who have completed secondary schooling, matriculation, or higher education. This could be because they spend more time teaching children.³⁰
- In Nepal, those who are literate spent a higher amount of their working hours fetching water than those who are illiterate (1.9 per cent vs. 1.5 per cent). However, literate individuals spent less on firewood collection than those who are illiterate (5.7 per cent vs. 9.0 per cent).
- Educated Thai men and women tend to have longer market work hours and less time for leisure, social, religious, and civic engagement in comparison to those with less education. Yokying et al.(2016) argue the prevalence of a strong working culture, especially in skilled, professional and managerial jobs, that normalize long work hours due to social values that place more emphasis on the rewards of work than on the benefits of leisure and socializing as a plausible explanation.

Ensuring good social infrastructure and basic services matters

Generally speaking, having access to safe drinking water, electricity, and gas for cooking and heating or having time saving assets such as cooking stove is likely to reduce time spent on unpaid work for collecting water and fuelwood. However, in Asia there are cases that people use fuelwood for cooking even in the villages where gas or electricity is available.³¹

 In Bangladesh and Pakistan, rural populations are likely to have poorer infrastructure and relatively basic services. Households with gas, electricity, or better-quality stoves are likely to reduce the participation and time spent on fuel collection. In Bangladesh, respondents from

households with access to LPG/electricity for cooking are likely to spend less time on unpaid activities than their counterparts who do not have access to such facilities. However, in Pakistan, similar time saving asset effects were not found perhaps due to the fact that the level of the use of such utilities is low.³² In 2007, electricity was widely available (85 per cent in rural and 99 per cent in urban areas) but it was mainly used for light. Natural gas was used in 74 per cent of households for cooking and 41 per cent for heating in urban areas, but not widely used in rural areas. Nearly 80 per cent and 46 per cent of rural households used wood for cooking and heating respectively.33

- In Viet Nam, people living in big cities such as Hanoi and Ho Chi Minh City – as well as those who live in flat land (e.g., river delta) are likely to spend less time on unpaid domestic and care work than those who live in rural provinces, particularly mountainous areas. For example, in 2016 women in Ha Noi and Ho Chi Minh City spent about 5 hours and 4 hours and half respectively on unpaid domestic and care work including fetching water and firewood, whereas women in Ha Giang and Cao Bang provinces in mountainous areas spent about 9 hours and 6 hours and 50 minutes on the same activities respectively. Likewise, ethnic minorities living in Northern provinces with mountains - such as Dao, H'Mong and Giay – spent much longer hours on unpaid domestic and care work. Dao women, for example, spent 8 hours and 20 minutes a day on unpaid work.
- In Nepal, fetching water and collecting firewood is a responsibility delegated mainly to women and girls, who spent on average 12 per cent of their total working hours on these activities. People in rural areas spent nearly 10 per cent of their total working hours for collecting fuel wood and fetching water, whereas persons in urban areas spent only 5 per cent of their times in these activities.

³⁰ Hirway et al., 2017a.

³¹ Brown, 2015.

³² Hirway et al., 2017b.

³³ The remaining 47 per cent of rural households do not use anything for heating (Government of Pakistan, 2009).

Income poor equates to time poor

The respondents from less economically stable households are likely to spend as much time on unpaid work. Households with high income could purchase time saving assets, such as cooking stove and washing machine, or purchase time saving services such as buying cooked food or hiring domestic help. As a result, they tend to spend less hours on unpaid domestic work. However, there is a tendency that high income earners spend more time on unpaid work, particularly on unpaid care work. According to Floro and Miles (2003), higher earners may have high expectations and standards, and place more importance on the quality of the output or on the self-fulfilling elements of the tasks, of cleanliness, better care for the sick or older persons, more nutritious meals, or a greater involvement in their children's activities.

- In the case of Bangladesh, the respondents from households living in kutcha houses built with natural materials such as mud walls and thatched roof are likely to spend more time on unpaid activities than their counterparts in non-kutcha houses in 2012. Moreover, the respondents from agricultural households are likely to spend more time on unpaid work than their counterparts whose major source of income is not from agriculture.
- Similar results are found in Pakistan. In 2007. persons from households whose major sources of income are from 'remittances'. 'compensation' and 'other sources' are more likely to spend time on unpaid work compared to the households whose major source of income is from 'wage/salaries.' Persons reporting no income spent more time on unpaid domestic and care work vis-à-vis persons earning Rs. 4000 or less income per month, which is the reference category. People who earn more than Rs. 4000 per month spent less time on unpaid work. As for the fetching water, only those earn more than Rs. 10,000 a month spent less time on this activity.
- In Nepal, in 2014-2015 percentage shares of total working hours spent on fetching water and collecting fuelwood decreased as the household income (by quintile) increased (Figure 6). Fuelwood collection take longer time than fetching water; thus, the rate of change is greater in fuelwood collection.
- In Thailand, in 2009 low wage earnings were associated with rural women's long hours of unpaid work and with longer hours of paid work among rural men and urban women and men. As an increase in hourly wages reduced rural women's unpaid work and urban women's paid work time, higher earnings may enable women to



Figure 6. Distribution of total working hours in fetching water and fuelwood collection by employed individuals, 10 years and above, %.



Figure 7. Time use patterns of Japanese women by income level, 2016

Source: Japan Statistics Bureau, 2016.

purchase time-saving goods and services and enhance their ability to bargain for a more equal division of household tasks. On the other hand, an increase in a spouse's hourly wages incentivizes rural and urban women to substitute their paid work time for household work. In comparison, an analysis of time-use of married couples in China in 2008 indicates that higher wage earnings were associated with less time in paid work and more time in unpaid household work for both wives and husbands.

In the case of Japan, a trade-off between paid and unpaid work does not necessarily evolve. In 2016, women without regular income, many of them are housewives, spent longer hours on unpaid domestic and care work than women with income (Figure 7). The time women spent on unpaid domestic and care work gradually declined as their income went up to 2.99 million yen or US\$ 26,000 a year. However, women who earned between 3 million and 7 million yen had the longest work hours when paid and unpaid work combined. As a result, they tended to reduce their time in personal care, including sleep, and leisure, such as watching TV or reading newspapers. Historical data of time-use analysis among women shows that the time they spent on household chores has been slowly declining, thanks to time-saving home appliances and services that can be purchased but the time they spent on child care has increased. On other hand, the employment status or the

amount of income does not affect men's participation in unpaid domestic and care work, or the time they spend on these activities.

Unpaid work burdens constrain women and girls' learning and economic opportunities

What are the consequences of women's disproportionate burden of unpaid domestic and care work? Among women, the top reason for not participating in paid work is their household responsibilities. The time use surveys or labor force surveys in four Asian countries showed that the percentage share of women who noted the household work responsibility as a reason for being out of the labour force was much higher than men (Table 5). Men and boys tended to respond education, retirement or illness as the reasons for not participating in paid work.

Figure 8. shows the gender time use gap (average time women spent on unpaid domestic and care work minus average time men spent on unpaid domestic and care work) and women's share of the total labour force in the corresponding year of the time use surveys. The figure shows a negative correlation; that is, the country with greater gender time use gaps has low female share the labor force. Of course, there are other barriers preventing women from entering the labour market besides women's disproportionate burden of unpaid domestic and care work. One of them is discrimination and

	Bangladesh (2012)		Pakistan (2007)		Japan (2016)		Nepal (2014/15)	
	Women Men		Women	Men	Women	Men	Women	Men
Household work responsibility	32.7	9.5	70.7	2.4	50.1	4.4	38.7	4.6
Studying	8.0	46.1	19.4	67.7	10.9	21.8	24.3	53.6
Others					39.4	73.8	47.0	41.7
Illness/injury	2.5	16.4	1.9	4.3				
Retired or too old to work	1.1	8.2	4.8	11.5				

Table 5. Reasons for not being available for work in the labour market, %

Source: Bangladesh (Hirway et al., 2017a); Pakistan (Hirway et al., 2017b); Japan ("Historical data 2 Population aged 15 years old and over by labour force status – Whole Japan" Japan Statistical yearbook 2017.) Nepal (Central Statistics Bureau for 15 years and older)

Figure 8. Correlation between gender gap in unpaid domestic and care work time and female share of total labour force



Source: Time use gap is calculated from Table 2. Female share of the total labour force is from World Bank Open database.

latent gender bias in hiring. Among the countries listed in Table 2 above, Bangladesh, Lao PDR, Mongolia, Nepal and Pakistan do not have laws of non-discrimination based on gender in hiring as of 2014.³⁴ Regardless, women and men's labor force participation rates were about same in Lao PDR and Nepal; in those agrarian societies, both women and men's labour force participation is high. India, on the other hand, has a nondiscrimination law; yet in 2014, India's woman labour force participation rate was one of the lowest in the region.

34 UN Women, 2015.

Many women work full-time but the unpaid domestic and care work responsibility still remains with them. As a result, when women get paid jobs, it is women, not men, who carry the double burden of unpaid and paid work. Women who wish to avoid the double burden (and if they can afford to do so) choose not to take paid work or work part-time to balance this with their household responsibilities. Women's limited participation in the labour market in turn results in both women's lower wages relative to men and low share of managerial and decisionmaking posts in both economic and political spheres.

As for girls and young women, a review of infrastructure projects by Brown (2015) found that improved access to water supplies in six states in India and in Punjab of Pakistan helped save time for women and girls and increased the attendance of girls at school. In Japan and New Zealand, girls and young women participate in the same levels of education and trainings as boys and young men but on average study hours for girls and young women is lower than boys and young men.³⁵ Similar trends were observed in Bangladesh and Pakistan.³⁶

Japan Statistics Bureau (2016) and Statistics New Zealand (2010).Hirway et al. (2017a, 2017b)

Reducing unpaid domestic and care work burdens are good for women and the economy

Valuing unpaid domestic and care work

Several studies have assigned a monetary value to unpaid domestic and care work. Otherwise, the important contribution that unpaid domestic and care work makes to welfare goes unnoticed in conventional economic discussions and undervalues a country's welfare.³⁷ Since women perform most of the unpaid domestic and care work, women should get a fair share of the benefits generated from national growth. For example, in current pension systems that are conducted on a contribution-basis, higher income earners receive higher amounts of pension. Since a significant share of women's contribution to the economy and society is unpaid, women with no or low income are unlikely to contribute to the pension system well. This makes them more vulnerable to poverty when they get older. The monetary valuation of unpaid work helps to raise public awareness of women's contribution to the economy and lead to a greater recognition of their need for support from wider society.³⁸ There are various methods of estimating the value of unpaid work.

- The output approach assigns a value to the output produced by unpaid work by multiplying the quantity of the output by the price of a corresponding good produced in the market.
- 2) The input approach calculates the value of the output produced by unpaid work by focusing solely on the value of labour inputs, corresponding to wage rates. The input approach may involve either an opportunity cost method or a replacement cost method.
 - 2.1) The opportunity cost method sets the value of unpaid work as equal

"Women were spending so much time collecting water and fodder that they had little time to participate in the employment guarantee work scheme that had been started in the village." - A 40-year-old woman in the village of Nimon, Maharashtra, India

> to the income that the person who performs the unpaid work could have earned in the labour market if s/he had performed paid work rather than unpaid work. In this method, often the average wage for all people or all people of a particular sex in the economy, instead of the actual or predicted wage of the person who performed the unpaid work, will be used. One problem with this method is that value of unpaid work would vary by who performed the work. As women's average wage of women is usually lower than men's, unpaid domestic and care work tends to be undervalued.

2.2) The replacement cost method calculates the value of unpaid work by computing what it would cost to hire someone to do it. This method can be divided further by distinguishing between generalist and specialist approaches. While the generalist

³⁷ Dong and Xinli, 2012.

³⁸ Budlender, 2010.

method sets the value of unpaid work at the wage of a housekeeper, the specialist method estimates market costs by first determining how much time is spent on each specific activity and then using the wage rates that apply to the occupations (such as a cook or laundry service) to calculate the value of the time spent on these non-market activities.

There are several concerns with this approach. Firstly, the quality and productivity of the substitute hired from the market may differ from the quality and productivity of the person doing unpaid work. Secondly, the substitute from the market might be more productive as a result of having received special training. On the other hand, the replacement method may fail to capture the value of "personal and emotional care" in unpaid domestic work, thus yielding values of unpaid work that are too low. ³⁹ Thirdly, the generalist method may undervalue the unpaid work because the average earnings of domestic workers tend to be lower than the wages of most other occupations. Finally, the valuation

of unpaid work is more challenging in developing countries because equivalent occupations or market services may not available.

Despite the various methods and pros and cons for each method, the monetary valuation provides important information relevant to policy-making. Whether the country is rich or poor and regardless sub-regions, unpaid domestic and care work accounts for 20-40 per cent of the GDP (Figure 9).⁴⁰ And its contribution to the GDP is often larger than any other existing sectors, such as services and manufacturing (Figure 10).⁴¹

Similarly, the income of the work performer can be estimated well. Based on the replacement cost generalist approach, women in the Ha Giang province of Viet Nam who performed the longest hours of unpaid domestic and care work on average in 2016, could earn about US\$10 a day – much higher than the country's minimum wage. Using the opportunity cost method, the value of unpaid domestic and care work done by married Japanese women without income was estimated as 3 million yen or US\$ 26,500 based on the 2011 time use data (ESRI, 2013). This is close to the average income of all occupations including both women and men.



Figure 9. Value of unpaid care and domestic work, as percent of GDP.

40 When the estimations made by various methods are available, mean average is shown here. A rough estimate of the value of unpaid domestic and care work in Viet Nam also accounted for 20 per cent of GDP in 2015 (ActionAid Viet Nam, 2016).

³⁹ Folbre and Nelson, 2000.

⁴¹ Also, see the estimates for Mexico in UN Women (2015).



Figure 10. Care sector could be the largest sector in Japan, 2011.

The paid work can replace much of unpaid domestic and care work as we know it

As the economy of each country develops, households replace much of unpaid domestic and care work by purchasing products or services. In the past, clothes had to be washed by hand. Nowadays, households use washing machines at home, pay to use a laundromat, or opt for dry cleaning. The time spent on unpaid washing activities is therefore reduced dramatically while jobs will be created, say in the manufacturer of washing machines or in laundromat business. The same holds for cooking, cleaning and other household chores. Below is the summary of literature review of the impacts of the (public) investment in infrastructure for better access to safe drinking water and energy.

Safe drinking water

Irrigation for piped water, community wells, or installing water purification systems in communities would reduce women's time for fetching water. Since water is needed not only for cooking but also for bathing, washing dishes and clothes, and feeding animals, women need to make frequent trips to boreholes, rivers, ponds, or wells, and carry heavy water, which can lead to physical ailments. Some women encountered sexual violence on the way to the water source as they often walk for long hours in the evening to fetch water for the next day⁴². An improvement of water irrigation services or water purification systems not only reduce women's work hours but also help improve their health and reduces the risk of violence.

- Improved access to water in the home in India, Nepal and Pakistan reduced women's participation in water collection. Women were more likely to spend the additional time available on leisure. It also improved schooling for boys and girls in countries where a large gender gap existed. There is also some evidence of improvements in health measured by anthropometric scores.⁴³
- The evaluation of rural water supply and sanitation projects in Punjab, Pakistan, found significant benefits for women and girls; the reduction of drudgery measured in terms of pain and other health impacts caused by carrying water and an increased attendance of girls in high school.⁴⁴
- A water supply project in Vanuatu helped women to manage time reallocation efficiently. One woman interviewed said that carrying water was hard and heavy work. With the water supply, she has now more time at home to care her children properly and teaching good hygiene practices. As a result, healthy children made less visits to the hospital.⁴⁵
- A survey conducted in Sri Lanka in 2011 found that 82 per cent of women found

⁴² Mahajan, 2014.

⁴³ Koolwal and van de Walle, 2010.

⁴⁴ ADB, 2009.

⁴⁵ Willetts et al., 2010.

it easier to collect water after the Water Supply and Sanitation Project of the Asian Development Bank that provided better access to safe water supply to 1.4 million people. Moreover, 57 per cent of women surveyed increased their monthly incomes by utilizing the time saved in collecting water to pursue income-generating activities. The impact on health was also significant; incidences of waterborne diseases among beneficiaries decreased from 17 per cent to less than 1 per cent, which in turn may also have contributed to the increase in women's time available for income-generating activities.46

- The 2006 evaluation of the water supply projects in Nepal indicated that time collecting water was reduced from 28 to 8 minutes in the wet season and from 32 to 11 minutes in the dry season. Beneficiary households were able to spend saved time on vegetable growing, animal raising, and small business creation, and women spent more time in the care of their children and improved sanitary conditions.47
- Econometric simulations based on the 2011 time use data of Mongolia indicates that access to safe water, such as piped-in water in dwellings, could reduce women's time in cooking by 117 minutes, and gathering water and fuel by 38 minutes, as well as men's time for fetching water by 91 minutes, compared to others who rely on surface water. Piped-in water in public kiosks also could reduce women's time, although the impact is smaller than piped-in water within dwellings.48

Electricity

The Rural Energy Development Programme of UNDP in Nepal provided electricity to the most remote populations of Nepal by building micro-hydropower systems and improved cooking stoves. The project, started in 1999 as a pilot project in five remote hill districts, reaches more than 1

million beneficiaries. The project generated a number of positive impacts within the community, 49 including:

- A decrease in firewood consumption, thereby also a decrease in the number of hours that both men and women spent on firewood collection;
- An increase in men's participation in such chores as "cleaning," "agroprocessing" and "cooking";
- A significant increase (nearly doubling) of social involvement of both men and women[.]
- An increase in participation of women (up to 48 per cent) in community life and political decision-making decisions;
- 0.25 days of schools missed by girls living in electrified communities, compared to 0.7 days for girls living in non-electrified communities. Girls living in electrified communities are 2.2 times more likely to be in grades 4 or 5,7 times more likely to be in grades 6 or 7, and 15 times more likely to be in grade 8 or higher;
- More women than men (234 vs.145) were beneficiaries/consumers of new productive activities;
- 155 and 85 hours saved per year for women and men respectively in agroprocessing activities through the use of electrical mills instead of manual agro-processing; and
- Increased access to television for women (78 televisions in electrified communities versus 1 in the nonelectrified ones).
- Rural electrification in Bhutan led to a reduction in the time spent on collecting firewood by about 35 minutes per round trip; 27 minutes for women and 22 minutes for men.50
- In India, rural women and men in the households with electricity spent 10 and 5 hours per month respectively collecting

⁴⁶ ADB 2011

⁴⁷ WaterAid, 2006. 48 Terbish and Floro, 2016.

⁴⁹ UNDP. n.d.

⁵⁰ ADB 2010.

biofuels whereas women and men in the households without electricity spent 12 and 6 hours respectively in collecting biofuels.⁵¹

 The presence of electric water pumps and modern rice mills after electrification had an impact in reducing women's and girls' housework in Lao PDR. Before electrification, a woman in Phon Home had to make 24 trips to Nam Mong each day to fetch water and fill in 200 liters water containers at home. Each trip took 10 minutes; roughly it took 4 hours a day for a woman to fetch water. With electrification, electric pumps were used to bring water to the village, and modern rice-milling methods are now being used. Electricity also created options for children to study in the evening.⁵²

With electricity, some cases report that women use the additional time available for income generating activities, such as weaving or preparation of the products for the markets in the evening.⁵³ As a result, the total work hours could increase in spite of reduced unpaid work hours.

Public investment in human care has positive impacts on both GDP and job creations

Economists in the UK conducted a macroeconomic simulation to show the impacts of a 2 per cent of GDP investment in either the care industry (including child care, elderly care, nursing support and personal care services), or construction on GDP and employment in 7 OECD countries, including Australia and Japan.⁵⁴ According to this study, investment in the care sector in 2011– a total of child care and long-term care – was equivalent to about 1.5 per cent of GDP in Australia and 1.0 per cent of GDP in Japan.

The 2 per cent of GDP investment in the care industry would create 600,000 new jobs in Australia and 3.5 million in Japan and it has the potential to push employment rates by 4.0 and 4.3 per cent respectively. Nearly half of them – 356,000 in Australia and 1.6 million in Japan – were new jobs created in the care industry; others were indirect employment created in related industries through the increased production of supplies and induced employment as a result of the additional household income generated and spent by the additional employment. The rise in employment rates in Japan and Australia is the second and third highest among the seven OECD countries respectively.

The care industry is a woman-dominant industry. In Australia and Japan, women account for nearly 80 per cent of the workers in the care sector. Therefore, women are the main beneficiaries of the jobs creations. The employment rates of women in Australia and Japan would increase by 5.3 and 5.1 per cent respectively, vis-à-vis 2.8 and 3.4 per cent for their male counterparts. As a result, the gender gap in employment would be reduced.

A similar level of investment in construction industries would also generate new jobs, but the positive impacts would be smaller. About 387,000 and 3.1 million new jobs would be created in Australia and Japan respectively. It is mostly men who occupy the construction jobs; therefore, the gender gap in employment is likely to increase with the increase in investment.

As for the impacts of the 2 per cent of GDP investment on the GDP growth, the construction sector would bring higher GDP growth rates than the care sector in the case of Australia and Japan (as well as in Italy). In the case of Australia, the 2 per cent of GDP investment in construction and care sectors would bring about 8 and 6.5 per cent of GDP growth respectively; that is, 6 and 4.5 per cent of indirect and induced GDP growth effects. In Japan, the GDP growth effects would be about 8 and 7 per cent in construction and care sectors respectively; that is, 6 and 5 per cent of indirect and induced GDP growth effects. Macrosimulation indicates that the GDP growth effects are relatively smaller in Australia and Japan due to the relatively low wages of care workers.

⁵¹ Khandker et al., 2012.

⁵² Korkeakoski, 2009.

⁵³ For example, see Korkeakoski, 2009.

⁵⁴ The figures in this section are from De Henau et al. (2016), otherwise other references that are mentioned.

Human care work bear lots of responsibilities as they may encounter fatal incidences that may cause injuries or death, and require both technical knowledge and skills, emotional training, management skills, and inter-personal communication skills among others. However, the care workers often earn relatively low wages. In Australia, in 2014 child care workers and long-term care workers earned only 45 and 57 per cent of the average earnings of all other occupations while nurses and primary school teachers earned a bit more than the all occupations on average. In Japan, both child care and long-term care occupations require national certificates; thus, care workers are highly skilled. Yet, their jobs are not well compensated, remaining one of the lowest paying jobs. In 2014, Japanese pre-school (day care and kindergarten) teachers and residential nursing care workers earned 65-69 per cent of the occupational average while nurses earn around the occupation average.55

In the case of Japan, nearly 40 per cent or 452,000 persons of nationally certified kaigofukushi-shi (long-term care workers) and 60 per cent or 759,000 persons of kindergarten teachers were not working in the respective fields in 2012, and many of them were out of labour force.⁵⁶ Therefore, there is a room to absorb the labour demand in care sector, which will push women's labour force participation rates and bring positive economic impacts, as described above. To make this happen however, working conditions for the care workers have to be improved by increasing salaries and reducing working hours. Nearly 60 per cent of kindergarten teachers and a quarter of long-term care workers perceived their wages as too low. In addition, women's unpaid domestic and care work responsibility is also a factor for leaving the workplace. About one-third of long-term care workers have left their workplace in the past due to marriage, child-birth or child-rearing, and 13 per cent of them did so because of their needs to take care of their own family members who are senior citizens or ill.57

Redistributing unpaid domestic and care work

National accounts such as GDP capture the production and sales of commodities and the provision of various services at the market prices. Labour force (labour power) is an important input for producing more value in the process of production or provision of services. Unlike other production materials that are produced and traded in the market, labour power is 'produced' and 'reproduced' in the households outside of the market. Labour, like any other commodities, is traded in the market, based on the demand and supply, according to the conventional economics model. Businesses negotiate the selling price of the goods based on the costs of production plus profits. On a similar note, do households negotiate for the salary of the household members based on how much they invested in rearing the child? Often, households, businesses and the government don't question about the amount of both financial and time investment made for taking care of a household member.

In reality, households provide materials in the form of purchasing food and clothes, educational services as well as time to nurture and raise a child. When child rearing provides the equivalent or more returns to the households. then the investment may pay off. But children may leave the household and may not provide anything in return. However, child rearing provides returns to a society as a whole, as each individual contributes to the economy and society as a worker and by paying taxes, contributing to social security funds, raising the next generations and so on. It is also true that children cannot choose the parents. So why do nations not pay for the kids?⁵⁸ Through public support in child care, education and health care among others, we need to ensure that children born in the low-income households have the same opportunities as other children who come from relatively wealthy family.

The economic contribution of domestic and care work is out of the SNA production boundary

⁵⁵ Ministry of Health, Labour and Welfare, 2015.

⁵⁶ Ministry of Health, Labour and Welfare, 2014; 2015.

⁵⁷ Ministry of Health, Labour and Welfare, 2014; 2015.

⁵⁸ See Folbre, 2008.

as described above. However, that should not mean that it is out of the government's economic interests and polices. The public sector should support those who spent years rearing children unpaid or senior citizens who contributed to the economy and society for decades in order to avoid free-ride on unpaid care workers. Without public support – in both financial and in-kind support, household members with children, senior citizens, or family members with disabilities or long-term illness tend to fall in income and time poverty trap. Therefore, it is important for governments to make sure that there are adequate care facilities and services available to all.

The private sector should also be held responsible for reducing and redistributing women's unpaid domestic and care work burden, by providing paternal leave to men. In the Asia-Pacific region, where data is available, most countries provide 7-26 weeks of maternity leaves and two-thirds to 100 per cent wage coverage by social insurance schemes and/ or employers. However, the minimum length of paternal leave is 0 days in most countries. The longest minimum length of paternal leaves in the region is 14 days in Australia and New Zealand, as compared to Iceland and Slovenia that provide a minimum of 90 days of paternal leave.⁵⁹ It is men's right and duty to equally share child-rearing responsibilities.

As for the elderly care, the 2016 time-use data from Japan indicates that men's participation rates for caring for adults were 1.5 per cent among those aged 50-54 years, 2.6 per cent among those aged 55-59 years, and continued to rise after that age cohort. Men with low child care experiences encounter the caring of his parents, spouse, or siblings for the first time in their late 50s, while they have full-time jobs. On the other hand, women had two peaks of their participation in caring the adults at 30-34 years old and 55-59 years old, which indicates that women first encounter the elderly care of senior household members such as grandparents or parents-in-law and later of their husbands or siblings. This indicates that women are likely to have multiple care responsibilities for children and the adults in addition to their responsibilities at workplace. Unlike child care, elderly care responsibilities may continue for a few decades. Private sector needs to offer flexible working conditions such as flexible work hours, part-time work, and no overtime work to assist the workers to balance their life and work well.

59 UN Women, 2015.

Policy implications and indications to sustainable development

In a number of developing countries, investment in infrastructure for basic services such as electricity, irrigation, water purification, sanitation, modern energy for cooking and heating, care facilities and services would provide higher returns on sustainable development, human development and economy, rather than the typical construction projects of developing ports and highways. The OECD country macroeconomic simulation, as mentioned previously, has a number of indications that are applicable to developing countries. Firstly, investment in the care industry includes the physical construction of the facilities that are in general still lacking in developing countries such as clinics, hospitals, pre-schools, schools, and nursing homes.

Secondly, investment in the care industry would contribute to not only the creation of decent and sustainable jobs particularly among the youth but also human development in the developing countries by providing quality care services. This would in turn have inter-generational positive effects. In 2012, the pre-primary enrolment rates in East Asia and the Pacific, and South and West Asia were about 70 and 55 per cent respectively.⁶⁰ That is, in Asia and the Pacific there is a lot of room to increase the number of pre-primary teachers, and educated youth are qualified for the occupation.

Finally, care work is one of the least vulnerable occupations to the development of robotics and AI because the occupation requires social interaction and emotional intelligence – skills that robots are unlikely to replace.⁶¹ Frey and Osborne (2013) reviewed and ranked nearly 700 occupations from the US database and found that the "assisting and caring for others" variables exhibit relatively high values in the

The achievement of full human potential and of sustainable development is not possible if one half of humanity continues to be denied its full human rights and opportunities. – United Nations, 2015 (para. 20).

category of low risk of being replaced by computers and robots. Among their list of the least computerisable occupations, "mental health and substance abuse social workers" and "healthcare social workers" ranked 4th and 8th, higher than "physicians and surgeons (15th). "Elementary school teachers (20th)," "preschool teachers (37th)," and "registered nurses (46th)" ranked higher than "engineers (63th)."

At the same time, the development of robots and other machines can reduce drudgery work of care workers, and thus improve their productivity. The survey among kindergarten teachers in Japan found that 35 per cent of surveyed individuals complained about the heavy load of administrative work. ⁶² Recent technological development such as Internet of Things (IOT) may help reduce the administrative work load of teachers who need to record children's health conditions, academic reports and other daily information. As for the nurses and elderly care workers, robotic machines that can help lift patients or clients would reduce possible health problems of workers, such as

⁶⁰ UNRISD, 2016.

⁶¹ Brynjolfsson and McAfee, 2015; Frey and Osborne, 2013.

⁶² Ministry of Health, Labour and Welfare, 2015.

back pain. IOT and small sensors on patients or clients can reduce nurses' and care workers' time to frequently visit and monitor the body temperatures, blood pressure, urination among other physiological phenomenon, particularly in the evenings.

Furthermore, the development of online services - from mobile banking to online shopping and delivery - reduces people's time traveling for household management. Innovations such as automated cars can reduce people's time to run errands for the households, and can accompany family members to places like schools, afterschool programs, and nursing care services. A simulation of valuing unpaid work based on the 2011 time use data in Japan indicated that women's and men's traveling time for accompanying children to schools, after-school programs, or others, value 2.9 trillion yen or US\$25.6 billion a year. There are many business opportunities that are good for women and the economy.63

Lastly, demographic changes are adding new dimensions to the issue of unpaid care work in the region. Most countries in Asia presently have a relatively young population, yet the majority of the elderly in the world will be living in Asia by 2035.⁶⁴ Increasing age-dependency ratio, especially in East and Southeast Asia, places a greater burden on the working population to finance social security and healthcare systems for the elderly.⁶⁵The current system of the adult care relies on women's unpaid care work. However, the same system is less responsive to who takes care of older women, particularly as women tend to live longer than men. In addition, a review of 13 Asian countries found that 60 to 90 per cent of the elderly who were living with children during the 1990s no longer do so, which calls into question whether the family still provides a safety net for the elderly.⁶⁶ Nations will need to fully utilize all potential options to support not only the care economy but financing for development.

Besides SDG 5 (particularly SDG 5.4), the social investment in care sector would help countries to achieve the following SDGs directly:

- **SDG 1** No poverty (with new jobs creation)
- **SDG 2** Better nutrition with improved sanitation and water
- **SDG 3** Healthy lives
- **SDG 4** Inclusive and equitable education (4.2 universal access to early childhood development)
- SDG 5 Gender equality
- SDG 6 Water and sanitation
- **SDG 7** Better access to affordable, reliable, sustainable and modern energy for all
- **SDG 8** Full and productive employment and decent work for all
- **SDG 9** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- **SDG 10** Reducing inequalities

As for the redistribution of unpaid domestic and care work, in addition to increased public expenditure in social investment, nations ought to:

- Provide paternal leave to all workers with small children for an adequate number of days. Like maternity leave, the worker's wages should be compensated up to 100 per cent through social insurance, taxes, or employer' contributions.
- Companies and public institutions ought also to be encouraged to reduce the number of working hours and introduce flexible work schedules to all workers

 particularly for those who have care
 responsibilities – to assist them to balance
 life and work, and to discourage experienced
 workers from leaving.
- Review and redesign the social welfare program and tax system from perspective of women's unpaid domestic and care issues.
 - For example, the governments often provide tax breaks for married couples when one of them (often the wife) earns no income or low income. This encourages the gender norms and

⁶³ ESRI, 2013.

⁶⁴ Tsuno and Homma, 2009.

⁶⁵ Mujahid, 2006.

⁶⁶ Thirteen countries are Bangladesh, China, Hong Kong, Special Administrative Region, Indonesia, Japan, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan and Thailand (Hermalin, 1995).

a family model of breadwinner and homemaker. It also discourages the sharing of unpaid domestic and care work within the household, as well as between the households and the government. Tax breaks should be given to individuals regardless of their marital status, based on the low-level of their income.

Review and redesign the pension system in a holistic manner, through valuing unpaid domestic and care work. Or, provide stipends to those who are homemakers through social transfers, which will be counted and contributed to the pension system (see Box 1). Many countries are already guaranteeing the basic income for women during maternity leave through taxes. The proposed system is an extension of such existing mechanisms. For example, provision of care for new born babies at public or private day care systems is costlier than that of toddlers. Extending the length of parental leaves, particularly extending

paternal leave, could require less investment than increasing the number of day care facilities and teachers for 0-1 years old.

- SDG 17.1 states the need of strengthening domestic resource mobilization and improve domestic capacity for tax and other revenue collection. Estimated annual cost of implementation the SDGs in Asia and the Pacific is \$800 billion - \$1 trillion per year.⁶⁷ The same report has estimated that broadening the tax base and emphasizing progressive income taxation could increase annual revenue by over \$300 billion for 16 Asia-Pacific countries. Oxfam (2017) reports that corporate tax dodging costs poor countries at least\$100 billion every year. Gender-responsive budgeting, which has been practiced in many countries, should extend the discussion to include tax policies at home and international levels.

Box 1:

The Chile's 2008 pension reforms introduced a number of gender-responsive policy measures to close the gender gap for the receipt of pensions. One of these is a child credit, which aimed to improve women's pension benefits. By recognizing employment interruptions due to childbearing, the credit consists of a contribution of 10 per cent of the minimum wage for 18 months per child (plus interest), financed by the state, which was deposited in women's accounts. Certainly, this is insufficient to balance the negative income gap between women and men and between women with and without the interruptions due to childbearing. However, it has been estimated to increase women's average pensions by as much as 20 per cent.

Similarly, in Uruguay and the Plurinational State of Bolivia, women are credited with one year of contributions per child up to a maximum of five children in the former and up to a maximum of three children in the latter, which results in improving pension benefits for those women.

Source: UN Women (2015); UNRISD (2016).

References

ActionAid Viet Nam. 2016. Make a House Become a Home. Policy Brief.

Ambler, Pamela. 2017. "Asia is Now Home to the Most Billionaires, With China Leading the Pack, Report Says." *Forbes*, October 30, 2017, forbes.com.

Asian Development Bank (ADB). 2009. *Impact Evaluation Study: Impact of Rural Water Supply and Sanitation in Punjab, Pakistan.* Manila: ADB.

ADB. 2010. Asian Development Bank's Assistance for Rural Electrification in Bhutan—Does Electrification Improve the Quality of Rural Life? Asian Development Bank. Impact Evaluation Study. Independent Evaluation Department. Manila: ADB.

ADB. 2011. Validation Report. Sri Lanka: Third Water Supply and Sanitation Project. Manila: ADB.

Australian Bureau of Statistics. 2008. *How Australians Use Their Time, 2006.* https://www.abs.gov.au/ausstats/abs(q.nsf/Latestproducts/4153.0Main%20 Features22006?opendocument&tabname=Summary&prodno=4153.0&issue=2006&num=&view=

Bangladesh Bureau of Statistics. 2013. Time Use Pilot Survey 2012. Dhaka: Ministry of Planning.

Brown, Gillian. 2015. *Balancing the Burden?: Desk Review of Women's Time Poverty and Infrastructure in Asia and the Pacific.* Manila: Asian Development Bank.

Brynjolfsson, Erik and Andrew McAfee. 2015. "The jobs that AI can't replace." BBC News, 1 3 September 2015, http://www.bbc.com/news/technology-34175290

Budlender, Debbie, 2009. Valuation of unpaid care work in Pakistan. Islamabad: The Government of Pakistan.

De Henau, Jerome, Susan Himmelweit, Zofia Łapniewska and Diane Perrons. 2016. *Investing in the Care Economy: A gender analysis of employment stimulus in seven OECD countries.* Brussels: International Trade Union Confederation.

Dong, Xiao-Yuan and Xinli An. 2012. *Gender Patterns and Value of Unpaid Work: Findings from China's First Large-Scale Time Use Survey.* UNRISD Research Paper 2012-6. Geneva: UNRISD.

Economic and Social Research Institute (ESRI), Cabinet Office, 2013. "Valuing Unpaid work – Reestimation by incorporating the 2011 data (available in Japanese)." Tokyo: ESRI.

Elson, Diane. 1991. "Male Bias in Macro-economics: The Case of Structural Adjustment," in D. Elson (ed.) Male Bias in the Development Process. Manchester: Manchester University Press, p.7.

Fengdan, Shi, Pan Xuhua, Caryn Bruyere and Maria S. Floro 2016. "Bargaining Power and the Household Division of Labour: Evidence from 2008 China Time-Use Survey" *Asia-Pacific Population Journal* 13(1).

Folbre, Nancy. 2008. *Valuing Children: Rethinking the Economics of the Family.* Cambridge, MA: Harvard University Press.

Frey, Carl Benedikt and Michael A. Osborne. 2013. "The Future of Employment: How Susceptible are Jobs to Computerisation?"

https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

Government of Pakistan. 2009. Time Use Survey 2007. Islamabad: Government of Pakistan.

Heckman, James J. and Dimitriy V. Masterov. 2007. "The Productivity Argument for Investing in Young Children"

http://jenni.uchicago.edu/human-inequality/papers/Heckman_final_all_wp_2007-03-22c_jsb.pdf

Hermalin, Arthur 1995. "Aging in Asia: Setting the Research Foundation, Asia-Pacific Population Research Reports", 4. Honolulu: East–West Center.

Hirway, Indira and Sunny Jose. 2011. "Understanding Women's Work Using Time-Use Statistics: The Case of India," *Feminist Economics*, 17:4, 67-92.

Hirway, Indira, Mishra Rudranarayan and Atanu Chatterjee. 2017a. "Analyzing and Addressing Gender Inequalities in Time Use: The Case of Bangladesh," paper prepare for UNDP Bangkok Regional Hub.

Hirway, Indira, Mishra Rudranarayan and Atanu Chatterjee. 2017b. "Analyzing and Addressing Gender Inequalities in Time Use: The Case of Pakistan," paper prepared for UNDP Bangkok Regional Hub.

ILO. 2013. "Resolution I: Resolution concerning statistics of work, employment and labour underutilization", available from http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms 230304.pdf.

Japan Statistics Bureau. 2016. *Survey on Time Use and Leisure Activities.* http://www.stat.go.jp/english/data/shakai/index.htm

Kanika, Mahajan. 2014. "Blame it on the Rain?: Gender differentiated impacts of drought on agricultural wage and work in India". Bangkok: UNDP. Available from http://www.asia-pacific.undp.org/content/rbap/en/home/library/sustainable-development/blame-it-on-the-rain.html

Khandker, Shahindur R., Hussain A. Samad, Rubaba Ali and Douglas F. Barnes. 2012. *Who Benefits Most from Rural Electrification? Evidence in India.* Policy Research Working Paper. No. 6095. World Bank: Washington DC: World Bank.

Koolwal, Gayatri and Dominique van de Walle. 2010. *Access to Water, Women's Work, and Child Outcomes.* Policy Research Working Paper no. 5302. Washington DC: World Bank.

Korkeakoski, Mika. 2009. *Impact of Micro-Hydropower (MHP) Based Electrification on Rural Livelihoods: Case Study Nam Mong in Luang Prabang Province, Lao PDR*. University of Jyvaskyla Master's Thesis p. 34., cited in ADB).

Ministry of Health, Labour and Welfare. 2015. *Hoikushi-tou ni kansuru kankeishiryo* (Materials on nursery teachers), available in Japanese, https://www.mhlw.go.jp/file/05-Shingikai-11901000-Koyoukintoujidoukateikyoku-Soumuka/s.1_3. pdf

Ministry of Health, Labour and Welfare. 2014. *Kaigojinzai no kakuho ni tsuite* (Materials on securing longterm care staffs), available in Japanese, http://www.mhlw.go.jp/file/05-Shingikai-12601000-Seisakutoukatsukan-Sanjikanshitsu Shakaihoshoutantou/0000062879.pdf

Mujahid, G. 2006. "Population ageing in East and South-east Asia, 1950–2050: implications for elderly care'. *Asia-Pacific Population Journal*, 21(2) (August): pp. 25–44.

Nepal Central Bureau of Statistics. 2016. *Annual Household Survey 2014/15* (major findings). Kathmandu: Central Bureau of Statistics.

Nguyen Thi Lan Huong, Pham Minh Thu and Pham Ngoc Toan. 2017. *Counting Women's Work in Viet Nam* Report No. 3.

Oxfam. 2017. An Economy for the 99 percent. London: Oxfam.

Statistics Korea. 2015. 2014 *Time Use Survey*. http://kostat.go.kr/portal/eng/pressReleases/11/6/index. board?bmode=read&bSeq=&aSeq=347182&pageNo=1&rowNum=10&navCount=10&currPg=&sTarget=title&sTxt=

Statistics New Zealand. 2010. *Time Use Survey 2009/10.* http://www.stats.govt.nz/browse_for_stats/people_and_communities/time_use/TimeUseSurvey_ HOTP2009-10.aspx

Thai National Statistics Office. 2016. The Time Use Survey 2015. Bangkok: National Statistics Office.

Terbish, Mungunsuvd and Maria S. Floro 2016. "How Does Public Infrastructure (or Lack Thereof) Affect Time Use in Mongolia?" *Asia-Pacific Population Journal* 13(1).

United Nations. 2016. International Classification of Activities for Time Use Statistics 2016 (ICATUS 2016).

United Nations. 2015. Transforming our world: the 2030 Agenda for Sustainable Development, A/RES/70/1.

UNDP. 2016. Shaping the Future; How Changing Demographics Can Power Human Development. NY: UNDP.

UNDP. 2015. Human Development Report 2015: Work for human development. NY: UNDP.

UNDP. 2013. *Overview of linkages between gender and climate change*. Gender and climate Change Capacity development series Asia and the Pacific Training module 1. NY: UNDP.

UNDP. 2010. Intellectual Property, Agrobiodiversity and Gender Considerations: Issues and Case Studies from the Andean and South Asian Regions. NY: UNDP.

UNDP. n.d. "Scaling Up Decentralized Energy Services in Nepal." Kathmandu: UNDP Nepal.

UNESCAP. 2017. Sustainable Social Development in Asia and the Pacific. Bangkok: UNESCAP.

UNESCAP. 2016. Statistical Yearbook for Asia and the Pacific 2016: SDG Baseline Report. Bangkok: UNESCAP.

UNESCO. 2016. "The World Needs Almost 69 Million New Teachers to Reach the 2030 Education Goals," UIS Fact sheet, October 2016, No. 39. Paris: UNESCO.

UNIFEM. 2000. Progress of the World's Women 2000. NY: UNIFEM.

UNRISD. 2016. Policy Innovations for Transformative Change: Implementing the 2030 Agenda for Sustainable Development. Geneva: UNRISD.

UN Women. 2015. Progress of the World's Women 2015. NY: UN Women.

Tsuno, Norifumi and Homma, Akira. 2009. "Ageing in Asia—The Japan Experience," Ageing International, 34: pp. 1–14.

WaterAid. 2006. Water for All? Review of Asian Development Bank's Water Policy Implementation in Nepal's Context— Main Report. Kathmandu: WaterAid.

Willetts, Juliet, Gabrielle Halcrow, Naomi Carrard, Claire Rowland and Joanne Crawford. 2010. Addressing Two Critical MDGs Together: Gender in Water, Sanitation and Hygiene Initiatives. *Pacific Economic Bulletin.* 25 (1). pp. 162–176.

Yokying, Phanwin, Budsara Sangaroon, Tassanee Sushevagul and Maria S. Floro 2016. "Work-life balance and time use: lessons from Thailand," *Asia-Pacific Population Journal* 13(1).

For more information, please contact:

Koh Miyaoi, Regional Gender Advisor UNDP Bangkok Regional Hub koh.miyaoi@undp.org