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A photograph of a woman and a young child sitting in a small boat on a flooded area. The woman is wearing a black hijab and a black long-sleeved shirt, smiling warmly. The child is wearing a white patterned shirt with 'Disney Frozen' printed on it and is also smiling. The background shows a flooded area with some buildings and vegetation. The entire image is overlaid with a semi-transparent green filter.

**WOMEN'S HEALTH
AND CLIMATE CHANGE**

WOMEN'S HEALTH AND CLIMATE CHANGE

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ASIAN-PACIFIC RESOURCE & RESEARCH CENTRE FOR WOMEN (ARROW)

1 & 2 Jalan Scott, Brickfields, Kuala Lumpur, Malaysia 50470

Telephone (603) 2273 9913/9914

Fax (603) 2273 9916

E-mail arrow@arrow.org.my

Web www.arrow.org.my

Facebook <http://www.facebook.com/ARROW.Women>

Twitter @ARROW_Women

Youtube youtube.com/user/ARROWWomen

Pinterest [arrowwomen](http://www.pinterest.com/arrowwomen)

PRODUCTION TEAM

Overall Supervision: Sivananthi Thanenthiran

Production Coordinator: Lim Hwei Mian

Author: Lim Hwei Mian

Reviewers: Azra Abdul Cader, Dr. Manivone Thikeo, Maria Melinda Ando, Renu Khanna, Professor Stan Becker, Dr. T.K. Sundari Ravindran, and Dr. Zhang Kaining

Publications Technical

Support: Maria Melinda Ando

Copy Editor: Mary Frances Ratnam

Graphic Designer: Nicolette Mallari

Cover Photo Credit: Laboo Studio/Shutterstock

CONTENTS

4	Preface
5	I. Introduction
8	II. Interlinkages Between Climate Change and Women's Health
9	III. Stories on Interlinkages Between Climate Change and Women's Health
9	– Waterborne Diseases and Health Problems Due to Water Pollution
10	– Menstrual Hygiene Practices
11	– Vector-borne Diseases
12	– Undernutrition
14	– Psychological Stress
14	– Other Health Problems
15	IV. International Commitments Related To Climate Change
17	V. Conclusion and Recommendations
19	Endnotes
21	Bibliography

PREFACE

The Asia-Pacific region will be adversely affected by the impact of climate change, with most impact on the poor who contributes the least to the release of huge quantities of fossil carbon. With 45% of the world's natural disasters occurring in the Asia-Pacific in the last three decades,¹ the region has witnessed consequences of climate change in terms of increased frequency and intensity of climate induced natural disasters. The region is vulnerable to many types of disasters, including floods, cyclones, earthquakes, droughts, storms, and tsunamis. In the past decade, on average, more than 200 million people were affected in the region which represents 90% of world total; more than 70,000 people were killed annually by natural disasters, which represents 65% of world total.² In recent history, floods affected Bangladesh, Burma/Myanmar, Cambodia, China, Pakistan, Philippines, Thailand and Vietnam. Earthquakes affected Burma/Myanmar, China, Indonesia, and Japan. China suffered extreme temperatures, floods, and storms. The 2004 Indian Ocean tsunami affected 14 countries in the region, and left in its wake an estimated 230,000 people dead and 1.69 million people displaced. As natural disasters, some of which occur in a cyclical manner, affect the region's economies and the lives of the people, it is essential to factor them in when planning for people and development.

The inequality dimension of disasters is worth noting. While disasters *per se* do not distinguish between high- and low-income countries and rich and poor people, it is seen that the effect of disasters is lowest in high-income countries.³ More people in the middle- and lower-income countries were affected than people in high-income countries. There is an urgent need for both adaptation and mitigation actions and disaster risk reduction strategies, to build resilient societies in the Asia-Pacific region, and a people-oriented approach and dialogue on climate issues.^{4,5}

Lesser explored is the impact of climate change on women's health which is exacerbated due to existing gender power imbalances, marginalisation, and vulnerability. However, there is a dearth of knowledge on how climate change impacts women's health, and this regional brief serves to provide the limited scientific information and evidence available to begin discourse.

ARROW recognises the contributions of the eight country partners in Asia, namely, Bangladesh (Khan Foundation), Indonesia (*Yayasan Jurnal Perempuan*), Lao PDR (University Health Sciences), Malaysia (Penita Initiative), Maldives (Huvadhoo Aid), Nepal (Women's Rehabilitation Centre (WOREC)), Pakistan (Sindh Community Foundation), and the Philippines (PATH Foundation) who provided evidence and stories on ground realities to help substantiate this regional brief.

We hope that a wider audience and varied stakeholders would come to grasp the multiple, difficult realities faced by women in the era of climate change. This understanding should help us nuance our advocacy on the policy, programme and structural changes we need in order to make our systems and our society more resilient in the face of these challenges.

Sivananthi Thanenthiran
Executive Director

I. INTRODUCTION

Climate change has been a topic of concern since the late 1980s. As a result, the Intergovernmental Panel on Climate Change (IPCC)⁶ was established in 1988 to “prepare, based on available scientific information, assessments on all aspects of climate change and its impacts, with a view of formulating realistic response strategies.”⁷ The focus of the IPCC assessments was mainly on global warming and reduction of greenhouse gas (GHG) emissions.⁸ It was only in the Fifth Assessment report that integration of climate change and sustainable development policies was emphasised. Therefore, this explains why climate change and its impact on human health is still regarded as a new subject matter.

The Fifth IPCC Assessment Report underscored that there is still insufficient information and knowledge gap on the observed and projected impact of climate change on health in South-east and South Asia.⁹ However, the little information currently available as well as the evidence found by the World Health Organisation (WHO)^{10,11} unquestionably prove that climate change does impact human health negatively. Unfortunately, the evidence is often gender blind and does not consider how climate change impacts women’s health. The WHO acknowledges that there is a “general lack of research on sex and gender differences in vulnerability to, and impacts of climate change especially health-related impacts.”¹²

Extreme climate change events affect everyone. However, women, regardless of age, are disproportionately affected compared to men. This is true when it comes to their health, including their sexual and reproductive health (SRH). The health of poor and marginalised women and girls are most at threat during climate change. Evidence on how women’s health is affected by climate change is essential for Asian countries to develop gender responsive and gender transformative policies,

strategies, and planning when addressing climate change, and to build a more climate resilient community.

In the attempt to explicate the nuances on the interlinkages between climate change and women’s health, this brief aims to present the limited scientific information available as well as information from ARROW’s partners on how women’s health is affected by climate change.¹³ It will focus on the right to health, particularly for women and girls in Asia in the face of climate change, as well as highlight the interlinkages between climate change and women’s health, including SRH, based on country studies. The brief will end with proposed recommendations to address the impact of climate change on women’s health.

Glossary of Terms

CLIMATE CHANGE

Adaptation: Actions by individuals or systems to avoid, withstand, alleviate adverse impacts, or take advantage of current and projected climate changes and impacts. Adaptation decreases vulnerability or increases resilience to impacts. It includes building the adaptive capacity of people and communities to climate change, including communicating climate change information, building awareness of potential impacts, maintaining well-being, protecting property or land, among others. Adaptation planning at the local, state, and national levels can limit the damage caused by climate change, as well as the long-term costs of responding to climate-related impacts that are expected to grow in number and intensity in the decades to come.

Climate Change: The Intergovernmental Panel on Climate Change (IPCC) defines climate change as any change in climate over time, whether due to natural variability or as a result of human activity. Climate change results in temperature increases that is attributed to the rise of greenhouse gas (GHG) emissions and is causing severe instabilities in the earth's biosphere. The effects include higher global temperatures, and increase in frequency and intensity of extreme weather events and related natural disasters, and severe impacts to the sustainability of ecosystems.

Climate Impacts: These are effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate change or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system. Impacts are also referred to as "consequences" and "outcomes."

Extreme (Weather or Climate) Event: Is also referred to as 'climate extreme' and is defined by the IPCC as the "occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends ('tails') of the range observed values of the variable.

Some climate extremes (for example, droughts, floods) may be the result of an accumulation of weather or climate events that are, individually, not extreme themselves (though their accumulation is extreme). As well, weather or climate events, even if not extreme in a statistical sense, can still lead to extreme conditions or impacts, either by crossing a critical threshold in a social, ecological, or physical system, or by occurring simultaneously with other events. A weather system such as tropical cyclone can have an extreme impact, depending on where and when it approaches landfall, even if the specific cyclone is not extreme relative to other tropical cyclones. Conversely, not all extremes necessarily lead to serious impacts."

Mitigation: Mitigation refers to actions to reduce or prevent GHG emissions. Mitigation efforts range from the use of new and renewable technologies, developing energy efficient technologies, or changing management practices or consumer behaviour. Mitigation actions can take place at many levels, from costly to less expensive interventions and include the protection of coastal areas, developing better urban infrastructure, protection of forests and ecosystems, and to improving cook stove design.

Resilience: The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding, or reorganising in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.

Vulnerability: The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and limited capacity to cope and adapt. It is determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. It is also a human condition or process resulting from physical, social, economic factors which determine the likelihood and scale of damage from the impact of a given hazard.

Glossary of Terms

SEXUAL AND REPRODUCTIVE HEALTH RELATED

Reproductive Health: Reproductive health implies that people are able to have a responsible, satisfying and safe sex life, and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so. Implicit in this are the rights of men and women to be informed of and have access to safe, effective, affordable, and acceptable methods of fertility regulation of their choice, and to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

Reproductive Rights: Reproductive rights embrace certain human rights that are already recognised in national laws, international human rights documents, and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing, and timing of their children and to have the information and means to do so, and the right to attain the highest standard of SRH. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents.

Sexual Health: Sexual health implies a positive approach to human sexuality. The purpose of sexual healthcare is the enhancement of life and personal relations as well as counselling and care related to reproduction and sexually transmitted diseases (adapted, UN).

Universal Access: Despite its wide acceptance as an objective of health systems, the term universal access lacks a clear definition. A commonly used definition of universal access in relation to reproductive health is that information and services are “available, accessible, and acceptable” to meet the different needs of all individuals. The limitation of this definition is the tautological inclusion of the word “access” in the definition of access, which renders it logically untenable. In its broadest sense, universal access implies the ability of those who need healthcare to obtain it. It has also been defined as “the absence of geographic, financial, organisational, socio-cultural and gender-based barriers to care.”

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II. INTERLINKAGES BETWEEN CLIMATE CHANGE AND WOMEN'S HEALTH

During climate change women are more vulnerable than men as a result of gender inequality. The WHO report indicates that in South Asia, women and girls are discouraged from learning to swim due to notions of 'modesty' and this puts them at high risk of drowning during floods.¹⁴ Added to that, women and girls lack decision-making power within families.¹⁵ In Pakistan, due to this lack of decision-making power, women and girls tend to remain in their homes during flood until a male relative gives them the authorisation to leave or assists them in leaving, which puts them at great risk of being injured or dying.¹⁶ These are reasons why extreme weather events such as droughts, floods, and storms are known to claim the lives of more women compared to men.¹⁷

Despite being at a disadvantage due to gender inequality and often labelled as “victims,” women have the capacity and resourcefulness to address climate change problems to build resilient communities.

Among the poorest in poor countries in Asia, women—including girls, the disabled, and the elderly—are recognised as among the most vulnerable populations to experience climate extreme events.^{18,19} The degree of vulnerability among women varies and is determined by factors such as their age, ethnicity, marital status, socioeconomic status, educational level, and other factors.²⁰ For instance, in Maldives, it is the women who manage the family when their husbands are away for long periods for livelihood activities such as fishing or tourism. Hence, women are the first to be affected by any disaster and are most at risk as they have to face hardship and challenges alone without their husband's support.²¹ This applies to women-headed households as well.

Evidence also shows that strategies women and men adopt to cope during disasters are gendered, and

normally with a heavier burden on women and girls as they have to take care of young or sick family members as well as look for food and water for the household.²² This will be elaborated in the following section.

For women, climate change exacerbates the existing inequalities and vulnerabilities faced by them. As mentioned above, they face added hardships and responsibilities in managing their household chores and taking care of family members. Like men they, especially women who head households, also risk losing their homes and farms as well as their jobs and income during climate extreme events. However, as an example, women farmers involved in rain-fed agriculture and who do not have access to land and capital due to gender inequality often have the least to fall back on during climate change.²³ These setbacks pull them deeper into poverty as well as putting their health and lives at risk.

The WHO has also cautioned that in long-term “human health is profoundly affected by weather and climate”²⁴ because climate extreme events would destabilise the health systems, social protection systems and infrastructure as well as food and water supplies. This is already happening and women and girls are experiencing the brunt of climate change which particularly affects their health, including SRH. In the next section, the impact of climate change on women's and girls' health will be further discussed.

Despite being at a disadvantage due to gender inequality and often labelled as “victims,” women have the capacity and resourcefulness to address climate change problems to build resilient communities. For women, resilience is a collective response and outcome.²⁵ They are committed to taking care of themselves and their families, their natural resources, and the environment. To achieve all that they need to be healthy and empowered.

III. STORIES ON INTERLINKAGES BETWEEN CLIMATE CHANGE AND WOMEN'S HEALTH

This section will present stories and experiences of women and girls living in Asia whose health, including SRH, are negatively impacted by climate change. The narratives are from the scoping studies developed by ARROW's partners as part of the project on climate change and sexual and reproductive health and rights (SRHR).²⁶ Eight partners from eight countries in Asia were involved in this project, namely, Khan Foundation (Bangladesh), Yayasan Jurnal Perempuan (Indonesia), University Health Sciences (Lao PDR), Penita Initiative (Malaysia), Huvadhoo Aid (Maldives), Women's Rehabilitation Centre (WOREC) (Nepal), Sindh Community Foundation (Pakistan), and PATH Foundation (Philippines).

Some of the health problems experienced by women and girls described in this section may be similar to those experienced by men and boys (for example, waterborne and vector-borne diseases). Nevertheless, as mentioned in the previous section, when addressing women's health issues, they should be approached from a gender lens. Other health problems described, particularly SRH, pertain only to women and girls. For example, menstruation hygiene problem, urinary tract infections, reproductive tract infections, premature delivery, and miscarriage.

WATERBORNE DISEASES AND HEALTH PROBLEMS DUE TO WATER POLLUTION

According to the WHO, cholera is one of the "most severe forms of waterborne diarrhoeal disease"²⁷ and a public health concern in developing countries. Seasonal outbreaks are associated with poverty, poor sanitation and use of unsafe water.²⁸ Extreme weather events—such as heavy rainfall, flooding, and cyclone—tend to cause disruption to water systems. This results in the mixing of drinking and waste water, contributing to an oral-faecal

contamination pathway thus increasing the risk of contracting cholera, which could end in fatalities.²⁹

It was discovered that the cholera epidemics in coastal Bangladesh were due to the change in rainfall patterns, warmer air, and a rise in water temperatures.³⁰ Research by Khan Foundation indicates that flooding and cyclones have become more frequent and harsher. As a result, safe and clean water have become scarcer. Women have to consume and use polluted water and this causes them to be more susceptible to SRH problems, especially for pregnant women (see Box 1). Of Bangladesh's population of 160 million population, 21 million lack access to safe and clean water.³¹ Similar cases of the lack of access to safe and clean water are also documented by Huvadhoo Aid in the outlying islands of Maldives where miscarriage, disabilities, and severe malnutrition were reported (Box 1).

As droughts and floods cause water shortage due to the disruption to the water systems or sources, the responsibility to fetch water for household use and consumption usually falls on the women and girls in the household. In terms of health, women and girls would suffer from exhaustion and bone injuries due to having to walk long distances to fetch heavy pots of water as well as lack of sleep because the first water fetching task of the day normally happens before dawn.³² As most of the time the water is from sources such as streams and ponds that are contaminated, women and girls and their families would also suffer from diarrhoeal diseases.³³

In Lao PDR, UHS reported that the country is experiencing unusually prolonged and devastating periods of drought due to climate change. Women, due to their female role, have to bear the brunt of added hardship. As a result, one woman had a miscarriage (refer to Box 2). In the Asian context, owing to their gender ascribed roles, women and girls are required to do all

Box 1: Case Studies on Waterborne Diseases in Bangladesh and Maldives

In Bangladesh, almost all the rural women surveyed highlighted problems of water and food security in relation to climate change and SRHR. These communities and households are negatively impacted by climate change related events. Flooding and cyclones have not only become more frequent but have also increased in their intensity levels. As a result of flooding, there is a shortage of safe and clean water both for consumption and use. Since the majority of household burdens fall on women, they are more susceptible to illnesses and diseases that may arise from the consumption and use of polluted water. For women of reproductive age, especially pregnant women, the exposure to polluted water and high salinity water negatively affects their health.

Excerpt from: Khan Foundation. Bangladesh Scoping Study—Building New Constituencies for Women's SRHR: Climate Change and SRHR. Women's SRHR and Climate Change: What is the Connection? 2015. http://arrow.org.my/wp-content/uploads/2016/05/Climate-Change-and-SRHR-Scoping-Study_Bangladesh.pdf.

Maldives is experiencing increased precipitation and flooding due to climate change which has brought a multitude of difficulties, especially around issues of water contamination for the local population. Outlying islands do not have access to adequate health facilities which puts vulnerable groups such as women and children at added risk, especially when compounded with unsafe drinking water which can cause miscarriage, disabilities, and severe malnutrition. Forty-year old Faiza Murushid who lives on a small outlying island, has witnessed how the lack of health services in particular has put the lives of women and children at risk as there is no specialist care to treat increasing waterborne diseases.

Excerpt from postcard produced by ARROW and Huvadhoo Aid as part of a regional partnership working together on building the interlinkages of climate change and SRHR.

household chores such as taking care of the very young and old, and infirm members of the family. During climate change events, this hardship is multiplied when women and girls have to travel longer distances to fetch water and look for food or firewood. This further deprives them of the time which they need to take care of their own personal health and hygiene, and also the time required to access health care services. This added hardship can also affect women's mental and physical health.

MENSTRUAL HYGIENE PRACTICES

Disruption to water systems or sources due to climate extreme events have resulted in either the water being polluted, the toilets or bathrooms not having running water, or damage to sanitation facilities. This causes women and girls to forgo their daily hygiene practices due to either shortage of water, or the absence of nearby toilets or bathrooms which are safe and clean for women and girls to use. Disruption to sanitation systems makes it extremely difficult for women and girls to manage during their menstruation. Apart from that, it also results in women and girls refraining from drinking water to avoid having to go to the toilet during the day, hence exacerbating urinary tract infections and reproductive tract infections.^{34, 35, 36}

In Nepal, WOREC documented that during climate extreme events the burden of work on women and girls generally increases, affecting their hygiene and health.³⁷ This is attributed to the fact that particularly during times of disasters and environmental stress, women and girls have to take care of the sick in their homes and ended up neglecting their own health and well-being. The increase in workload encroaches upon their time to pay attention to their sanitation which consequently affected their health. Also, when clean water supply is scarce women are inclined to save water for household needs rather than use it for their own personal needs.

VECTOR-BORNE DISEASES

Insects and other carriers of disease are highly sensitive to changes in temperature, humidity, and rainfall.³⁸ Mosquitoes that transmit vector-borne diseases—such as dengue by the *Aedes* mosquitoes and malaria by female *Anopheles* mosquitoes—thrive during rainfall as stagnant pools of water create more mosquito breeding sites, while the humidity and the temperature are ideal for mosquito survival and parasite development.^{39, 40, 41} Studies have shown that malaria outbreaks in India and Nepal are associated with rainfall.⁴² Due to climate change, dengue incidences have expanded geographically and similar forecasts are likely for incidences of malaria.⁴³

Heavy rainfall causes water to stagnate and prolonged periods of drought require the storage of water in tanks or containers. These present ideal breeding sites for the *Aedes* mosquitoes.⁴⁴ According to the WHO, dengue is the “most rapidly spreading mosquito-borne viral disease in the world,”⁴⁵ with disease severity ranging from a mild-flu fever to fatal severe dengue. Most worrying is that about three-quarters of the people exposed to dengue live in the Asia-Pacific region.⁴⁶ This vector-borne disease is widespread in tropical and subtropical cities which have plenty of mosquito breeding grounds and promote high rates of infection owing to the high population density.⁴⁷ In Maldives, Huvadhoo Aid reported that due to frequent rainfall throughout all seasons, instead of the June to July period as in the past, cases of dengue have increased. Water collected in vegetation areas have led to an increase in mosquito breeding sites which have led to an increase in dengue fever cases. As medical tests to detect dengue fever are not available on all the islands, those affected have to travel to other islands where adequate facilities are available.⁴⁸

Studies have shown that women and girls have lower risk of dengue infection compared to men and boys.^{49, 50} However, when a woman has dengue the whole household will be affected, particularly if it is a female-headed household. A woman is responsible for taking care of the young and old, for preparing meals, and

Box 2: Case Study on Ahan Community Women in Lao PDR

Lao PDR is experiencing unusually prolonged and devastating drought seasons as a result of climate change. Chanpin, a 38-year old mother of eight from the Ahan community in Thateng, lost her ninth child from the prolonged stress of walking long distances to collect water for her family. Women like Chanpin do not have access to SRH services such as contraception and yet bear the brunt of the added hardships that climate change bring due to their ascribed gender roles, which ultimately compounds the vulnerabilities they face. Chanpin’s story demonstrates the need for women to have access to SRH services so they are better able to look after themselves and their families. Empowered women contribute to building climate resilient communities!

Excerpt from postcard produced by ARROW and University of Health Sciences (UHS) as part of a regional partnership working together on building the interlinkages of climate change and SRHR.

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Excerpt from: University of Health Sciences. Lao PDR Scoping Study. Building New Constituencies for Women’s SRHR: Climate Change and SRHR. Linking Climate Change and SRHR for Public Health Policy Approach in Lao PDR. 2015. http://arrow.org.my/wp-content/uploads/2016/05/Climate-Change-and-SRHR-Scoping-Study_Lao-PDR-1.pdf.

managing the household. The burden of responsibility is also upon her to earn income for the family from either working in the field or other paid job.

There is lack of studies and data available regarding the effect of malaria on reproductive age women in Asia. Nonetheless, a review on the effect of malaria in pregnancy in the Asia-Pacific region indicated that a pregnant woman with a history of malaria in pregnancy has an increased risk of another episode of malaria during a subsequent pregnancy.⁵¹ The review also found that a pregnant woman infected with malaria has three to four times higher risk of miscarriage compared to a non-infected pregnant woman. Compared with a woman who is not pregnant, a pregnant woman has a three times higher risk of being infected with severe malaria. Malaria is also found to worsen any underlying nutritional anaemia thus causing the woman or girl to be at risk of severe anaemia.

In recent years, climate change has also influenced the emergence of new diseases as well as re-emerging diseases.⁵² One example is the outbreak of the Zika virus disease—a mosquito-borne disease transmitted by the *Aedes* mosquito found in Africa, the Americas, Asia and the Pacific—which is very much influenced by the El Niño weather pattern and has caused international alarm.^{53, 54} In early 2016, the WHO declared Zika a Public Health Emergency of International Concern and have “identified gaps in knowledge about Zika virus, potentially related complications, effective interventions and areas of needed research and technologies,”⁵⁵ hence rigorous investigations are still on-going.⁵⁶ Nevertheless, the WHO has confirmed that this virus could be transmitted sexually and from a pregnant woman to her foetus resulting in microcephaly and neonatal complications.^{57, 58, 59} This shows that women’s SRH is affected by the re-emergence of diseases.

UNDERNUTRITION⁶⁰

Rising temperature and drought threatens crop production in terms of the decline in quality and

quantity of food crops, resulting in food insecurity and undernutrition.⁶¹ This is important in Asia’s context because more than half of its population is living in rural areas (58%), and majority of this rural population (81%) are agrarian communities.⁶² According to the 2014 Food and Agriculture Organisation (FAO) report, the agriculture sector in Asia generally hires more women than men.⁶³ Female employment in agriculture⁶⁴ is about 75% in Pakistan, about 65% in Bangladesh, and 40% in Indonesia.⁶⁵ Crop failure would cause a hike in food prices and indirectly an increase in the cost of living. This would ultimately affect women’s food consumption, resulting in undernutrition and its related health problems.⁶⁶ Also, it is projected that rising sea levels will result in shrinking of total arable areas which would also have a negative impact on crop production.⁶⁷

Studies on the impact of climate change on undernutrition have shown that it would result in increased disability-adjusted life year (DALY)⁶⁸ lost in developing countries.⁶⁹ Women are more susceptible to nutritional deficiencies compared to men because of their distinct nutritional requirements, particularly when pregnant or breastfeeding, and their nutritional needs are also affected by the multiple roles and tasks they engage in daily.^{70, 71} For example, women need more iron intake compared to men as they are more prone to anaemia, and they also need more protein when they are pregnant or breastfeeding.⁷² Undernourished pregnant women are at high risk of having pregnancy and delivery problems such as intrauterine growth retardation, premature labour, stillbirth, low birth weight babies, and perinatal mortality.⁷³ Undernourished women may suffer from amenorrhoea and infertility, and undernourished pre-puberty girls may experience delayed menarche.⁷⁴

In Bangladesh, Lao PDR, Malaysia, and Pakistan, our partners’ research revealed that due to cyclone, flood, and drought, food crops were destroyed; either withered, blown off, washed away, or submerged in water (see Box 3). Moreover, due to rising sea levels which affect changes in tides, the amount of fishes caught has decreased. This results in food supply being scarce and more expensive for the poor. Women farmers and those

working in the fishery sector risk losing their livelihood. This would have a major impact on their household income thus pushing them deeper into poverty.

In rural areas, undernutrition is a major problem, especially amongst pregnant women and children. Pregnant women's SRHR are most affected; women give birth prematurely or give birth to low birth weight babies (see Box 4). In a remote valley in the southern province of Lao PDR, drought and irregular rain destroyed crops

planted by the villagers resulting in them having rice shortage for six months annually. The villagers received 20kg rice support per household from the World Food Programme but this is not enough. One woman who was part of the study reported that she has to walk at least two kilometres to get water every day during the dry season. She also has to go into the forest to collect fuel and look for food every day while her husband is working in the rice field.

Also, since women are more at risk of nutrition deficiencies compared to men, their conditions are more severe in households vulnerable to food insecurity, particularly during climate extreme events. Household food hierarchies are still practiced in some cultures in Asia where women and girls are allowed to eat only after the men and boys have eaten.^{75,76} In Nepal, WOREC found that women and girls suffer from hunger and undernutrition because of this practice; women and girls are expected to feed all family members and eat only the leftovers. Their undernutrition is exacerbated during climate extreme events.

Box 3: Case Studies on Undernutrition in Malaysia and Pakistan

One of the observable change is unpredictable weather patterns such as longer drought, intense rain, and stronger winds. The indigenous women leaders [in Sarawak] relate that these changes affected their health and quality of life. Their comments are: *Before we were free to plant. Now our planting days are limited and we have no place to find food; the forest is our supermarket; our crops are eaten by insects; and without proper nutrition, how can one enjoy their sexual and reproductive health and rights?*

Excerpt from: Penita Initiative. Malaysia Scoping Study—Building New Constituencies for Women's SRHR: Climate Change and SRHR. A Focus on Indigenous Communities, Malaysia. 2015. http://arrow.org.my/wp-content/uploads/2016/05/Climate-Change-and-SRHR-Scoping-Study_Malaysia.pdf.

Sindh province in Pakistan had the highest level of malnutrition even before the floods. Due to floods, women who were involved in agriculture lost their livelihood because the water took a long time to recede. This resulted in a poor crop yield the next year. Flood affected districts have increased food insecurity, impacting upon women's and girls' health.

Excerpt from: Sindh Foundation. Pakistan Scoping Study—Building New Constituencies for Women's SRHR: Climate Change and SRHR. Understanding Climate Change Impact on Women's Reproductive Health: Post-Disaster Interventions in Sindh Province, Pakistan. 2015. http://arrow.org.my/wp-content/uploads/2016/05/Climate-Change-and-SRHR-Scoping-Study_Pakistan.pdf.

Box 4: Case Study on Undernutrition in Lao PDR

Climate change might have some impact on the SRHR of women during pregnancy. For example, newborns to mothers affected by disasters might register low birth weight and slow growth development. In addition, the mothers' inability to eat and sleep has an impact on their pregnancy such as premature delivery before 36 weeks.

Female staff from the provincial department of maternal and child health, 57 years old

Excerpt from: Penita Initiative. Malaysia Scoping Study—Building New Constituencies for Women's SRHR: Climate Change and SRHR. A Focus on Indigenous Communities, Malaysia. 2015. http://arrow.org.my/wp-content/uploads/2016/05/Climate-Change-and-SRHR-Scoping-Study_Malaysia.pdf.

PSYCHOLOGICAL STRESS

Women and girls also experience heightened psychological stress during extreme events as they may be either separated from their families, lose their family members or their home, and have to live in temporary camps or shelters with limited access to basic needs.⁷⁷ The lack of privacy due to overcrowding, the collapse of daily life routines as well as the loss of property and jobs among those living in temporary shelters could trigger feelings of anger and frustration, and women and children are the most vulnerable targets for violence.⁷⁸ Older women, especially those responsible for their household and caring for younger or sick family members during extreme events, also tend to suffer from stress and fatigue.⁷⁹ Extreme climate events such as floods, which is considered a stressful and traumatic life event, may also result in women who has given birth suffering from postpartum depression.⁸⁰

In Pakistan, Sindh Foundation found that in the Sindh province, a few women who were affected by floods and staying in camps experienced sexual harassment or violence. However, they did not report the incidents due to the strict gender norms and tribal notions of honour. Instead, they ended up feeling insecure and fearful while staying in camps. They also lack privacy and are at risk of experiencing violence as there are no camps and toilets designated for women and girls only. In Nepal, WOREC reported that women who were displaced during the flood in Dang district in 2014 experienced trauma and this resulted in them suffering from irregular menstrual cycles and abdominal pain.

OTHER HEALTH PROBLEMS

Apart from the health problems experienced by women and girls as documented by our eight partners, there are also other health problems related to climate change not reported here but found in other studies. For instance, heat stress due to rising temperature^{81, 82} and health problems due to indoor air pollution. Even though women and men are at equal risk of heat stress, when a

...climate change affects women's and girls' health, both short-term and long-term. It exacerbates their health problems, both mentally and physically.

woman falls sick as mentioned earlier, it affects her whole family since she is the main caregiver, childminder, cook, and the designated person to fetch water and fuel for the family. The impact is worse if she is the head of the household. On the other hand, the use of solid biomass fuels for cooking—such as wood, charcoal, coal, dung, and crop wastes—highly exposes women and girls to “health damaging pollutants including small soot particles that penetrate deep into the lungs.”⁸³ This would cause premature lung cancer and premature deaths due to stroke.⁸⁴ The mentioned health problems will be exacerbated by climate change as it would force women and girls from poor households to continue using biomass fuels for cooking.

In summary, climate change affects women's and girls' health, both short-term and long-term. It exacerbates their health problems, both mentally and physically. The impact would be felt more severely by those who are either poor, marginalised, disabled, or old. Girls who are already experiencing gender inequality in their communities and now being affected by climate change would be at a double disadvantage. Having poor health and being undernourished would stunt their growth and development. Their SRH might be affected when they reach puberty. This will put them at risk of pregnancy and delivery complications as well as other SRH problems in the future. For reproductive age women, the added burden faced by them during climate change and the deterioration of their health resulting from it would also have long-term consequences on them, especially if they have suffered from fatigue, trauma due to violence and climate change events, physical injury, and postpartum depression. Elderly women would also suffer long-term health consequences similar to those experienced by women of reproductive age, excluding postpartum depression. This would require for her to be intensively cared for by younger women.

IV. INTERNATIONAL COMMITMENTS RELATED TO CLIMATE CHANGE

The Paris Agreement 2015 is considered a landmark document as it is not merely an environment treaty but also a health treaty.⁸⁵ The Agreement mentions that States must be committed to “respect, promote and consider...the right to health, in their respective climate actions.”⁸⁶ This is crucial as highlighted by Dr. Margaret Chan, former Director-General of the WHO:⁸⁷

...without a strong agenda for action on climate change, most of the 17 goals [SDGs] will be utopia. The hard-work gains for health since the start of this century can easily be swept away by the tidal wave of health threats unleashed by climate change.”

The right to health for women and girls also includes their SRHR. It is timely that the Fifth Assessment Report of the IPCC has recognised access to reproductive health services as one of the co-benefits.⁸⁸ In the report, it endorses greater access to reproductive health services and states the benefits for health, namely, “lower child and maternal mortality from increased birth intervals and shifts in maternal age,”⁸⁹ especially for very young and more mature women.

In the 2030 Agenda, the Sustainable Development Goal (SDG) for climate change is Goal 13: Take urgent action to combat climate change and its impacts.⁹⁰ The targets for Goal 13 are shown in Box 5 for reference.⁹¹ Women are specifically mentioned in Target 13.b and the progressive language used is very reassuring because women are not negatively stereotyped as “victims” of climate change but as contributors and having the capacity and resourcefulness to address climate change problems—in the areas of mitigation, adaptation, impact reduction, and early warning—to build resilient communities. Unfortunately, the targets of this goal do not mention the interlinkages between climate change and health. Nevertheless, when countries strengthen resilience and adaptive capacity as stated in Target 13.1, and integrate

climate change measures into national policies, strategies and planning as stated in Target 13.2 they are urged to take into account the health of women and girls. Similarly, UN agencies, donors and the least developing countries and small island developing States should include women’s and girls’ health in climate change-related planning and management as indicated in Target 13.b.

Box 5: SDG Targets Related to Goal 13

- **13.1** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- **13.2** Integrate climate change measures into national policies, strategies and planning
- **13.3** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- **13.a** Implement the commitment undertaken by developed country parties to the UNFCCC to a goal of mobilising jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalise the Green Climate Fund through its capitalisation as soon as possible.
- **13.b** Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalised communities.

ARROW's findings in 2012 have shown that despite the progress achieved in SRHR after nearly two decades, challenges remain in terms of availability, accessibility and affordability of contraception and other SRH services by women who are marginalised, from a lower socio-economic status, have low levels of education, and from rural areas.⁹² Unmet need for contraception, unsafe abortion as well as maternal mortality among young girls remain high. With climate change, the pursuit for universal access to health, including SRHR, for women and girls will become more challenging. Not only does climate change directly causes health issues, as described in earlier sections, climate change exacerbates their existing situation—in terms of gender inequality, unequal bargaining power, poverty, household workload, and access to education and job opportunities—which would eventually affect their health. Without good health, women and girls are unable to participate effectively in their society whether economically, socially, politically, and culturally to address climate change and build resilient communities.⁹³

In order to safeguard women's and girls' health and empowerment, it is essential that the NAP/NAPA strategies, programmes, and activities as well as the national policies on climate change are gender responsive.

Therefore, there is a need for coherence between the Paris Agreement and the 2030 Agenda for Sustainable Development.⁹⁴ These two international commitments are interlinked and should not be looked at in isolation. Moreover, both these agreements reaffirm human rights and the right to health as well as gender equality and empowerment of women.^{95, 96} As such, in the context of this brief, the Paris Agreement will contribute not only to SDG Goal 13, but also to Goal 1 (No Poverty), Goal 2 (Zero Hunger), Goal 3 (Good Health and Well-being), Goal 4 (Quality Education), Goal 5 (Gender Equality), and Goal 6 (Clean Water and Sanitation). Likewise, the mentioned Goals will contribute to the objectives of the Paris Agreement to reduce global greenhouse gas emissions and to build resilient communities, which could be

achieved through the participation of healthy and resourceful women and girls. To ignore or downplay the interlinkages at operational level would certainly hinder the achievement of the SDG goals and the objectives of the Paris Agreement.

In addition, to achieve the objectives of the Paris Agreement, States are required to develop and implement either the National Adaptation Plan (NAP)⁹⁷ and/or National Adaptation Programmes of Action (NAPA).⁹⁸ The NAP concerns the implementation of strategies and programmes to address the identified medium- and long-term adaptation needs, while the NAPA concerns the implementation of activities to address the urgent and immediate adaptation needs identified. In order to safeguard women's and girls' health and empowerment, it is essential that the above strategies, programmes and activities as well as the national policies on climate change are gender responsive.

V. CONCLUSION AND RECOMMENDATIONS

This brief has presented evidence and ground realities that women are most vulnerable to climate change. Since climate change will continue to afflict Asia, there is an urgent need to advocate that women's health, including SRH, is placed as one of the top priorities by Asian countries when addressing climate change in order to build more climate resilient communities.

The following are recommendations for a more gender responsive solution in addressing the nuances between climate change and women's health.

- For a gendered solution on how climate change impacts women's health, the involvement and participation of women and girls—especially those who are either the poorest, marginalised, or most vulnerable—are essential at all levels as they have the capacity and resourcefulness to be change-makers for issues that affect them. There must be a shift from tokenism to allow full participation by women and girls. Their participation should not be limited to a one-time consultation, instead it should encompass the whole process, including planning, implementation, and monitoring. Women and girls should be empowered and their capacity strengthened for this purpose.
- Funding to support future research, including action research, on the interlinkages of climate change and women's health as very little data and information are available in most countries in Asia. There is a need to conduct research on women's health and climate change, especially among marginalised and vulnerable women populations, and this should be in line with the SDGs goals and principle of leaving no one behind. Also, there is a need to conduct comprehensive studies on gender-differentiated impacts of climate change with particular focus on gender differences in capabilities to cope with climate change adaptation and mitigation strategies, and to provide evidence on the nuances between climate change and women's health to convince policy-makers to incorporate the area into the national policy on climate change or NAP/NAPA.
- Emphasise women's and girls' health, including SRH, through a gendered and rights-based policy framework and support CSOs to create awareness among the public and local authorities on the importance of strengthening access, availability and affordability of health care services for women and girls, particularly those who are most vulnerable, during non-disaster times as well as providing services prior, during and after climate extreme events. CSOs and the public should hold the government central bodies/provincial/district authorities accountable on the above.
- Local and international women's NGOs and CSOs to intensify their advocacy and campaigns against gender inequality resulting from cultural norms and practices which aggravates women's and girls' conditions during extreme climate events. Practices such as gender ascribed roles, household food hierarchy systems, and lacking decision-making power prevent women and girls from accessing and utilising health care services.
- There is an urgent need for the various ministries (such as Ministry of Women's Welfare, Ministry of Labour, Ministry of Education, Ministry of Environment and Natural Resources, Ministry of Agriculture, Ministry of Water Supply and Sanitation, etc) to integrate gender sensitive climate change intervention strategies into the National Climate Change Policy or NAP/NAPA to reduce the existing gender inequality and vulnerabilities related to women's health, including SRHR, during climate extreme events. Priorities should focus on food security, nutrition, water and sanitation, livelihood strengthening, poverty reduction, infrastructure, and gender equity. In addition, safe segregated temporary

shelters and camps, including bathrooms and toilets, should be provided for women and girls who are displaced.

- UN and development partners to collaborate with local NGOs and CBOs. The latter could be mobilised for advocacy and massive awareness on the impact of climate change on women's and girls' health, ways of mitigating them, and adaptation strategies to address them. These advocacy and awareness campaigns can complement the government's effort.
- All UN agencies (such as UNFCCC, UNFPA, UN Women, WHO, UNISDR, UNDP, UNEP) to work together, instead of working in silos, to provide technical and financial assistance to countries to revise their NAP/NAPAs to include women's health, including SRH, as a priority area as well as to ensure the implementation and involvement of women as key stakeholders. Focus should also be on engendering national adaptation projects to build climate resilient communities. UNFCCC with the assistance of UN Women to monitor and hold States accountable for developing and implementing gender sensitive NAP/NAPAs.
- The Financial Mechanism of the UNFCCC, including its operating entities—such as the Global Environment Facility (GEF) and the Green Climate Fund (GCF)—should prioritise funding adaptation projects submitted by Direct Access entities which are gender sensitive and responsive as well as emphasising on women's and girls' health and empowerment.

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ARROW is a regional non-profit women's NGO based in Kuala Lumpur, Malaysia, and has consultative status with the Economic and Social Council of the United Nations. Since it was established in 1993, it has been working to advance women's health, affirmative sexuality and rights, and to empower women through information and knowledge, engagement, advocacy, and mobilisation.

ARROW envisions an equal, just and equitable world, where every woman enjoys her full sexual and reproductive rights. ARROW promotes and defends women's rights and needs, particularly in the areas of health and sexuality, and to reaffirm their agency to claim these rights.

This publication is a three-part series publication on climate change and women, namely (i) climate change and women's health, (ii) climate change and women's sexual and reproductive rights, and (iii) women in the face of disasters. This publication is produced as part of ARROW's project on "Building New Constituencies for Women's Sexual and Reproductive Health and Rights (SRHR): Working with Rights-based Climate Change/Environment Groups and Faith-based Groups to Build Momentum for SRHR in the Lead-Up to the New Development Framework." One of the objectives of the project is to generate evidence for interlinkages in climate change and SRHR issues/solutions in the Asian region beyond the current discourse of population dynamics and to identify areas of policy and programme interventions in climate change adaptation and advocacy work specifically related to improving women's health, including SRHR. Eight partners from eight countries in Asia were involved in this project, namely, Khan Foundation (Bangladesh), Yayasan Jurnal Perempuan (Indonesia), University Health Sciences (Lao PDR), Penita Initiative (Malaysia), Huvadhoo Aid (Maldives), Women's Rehabilitation Centre (WOREC) (Nepal), Sindh Community Foundation (Pakistan), and PATH Foundation (Philippines).

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Asian-Pacific Resource & Research Centre for Women (ARROW)

1 & 2 Jalan Scott, Brickfields, Kuala Lumpur, Malaysia 50470

Telephone (603) 2273 9913/9914/9915
Fax (603) 2273 9916
E-mail arrow@arrow.org.my
Web www.arrow.org.my
Facebook <https://www.facebook.com/ARROW.Women>
Twitter @ARROW_Women
Youtube ARROWomen
Pinterest arrowomen

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