CAMBODIA

How the people of Cambodia live with climate change and what media and communication can do

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BBC MEDIA ACTION

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CLIMATE ASIA

CLIMATE CHANGE IS ABOUT PEOPLE

How do people in Cambodia live with climate change now? How will its impacts shape people's future, and how will these people, in turn, shape their environment? What are the most effective ways to support people to adapt to climate change, and how best can the media, governments, organisations and businesses communicate with them around this issue?

These are some of the questions that BBC Media Action's regional research and communication project, Climate Asia, attempts to answer. In 2012 BBC Media Action conducted a large-scale study of people's everyday experience of climate change, funded by the UK Department for International Development (DFID). The project surveyed 33,500 people across seven Asian countries: Bangladesh, China, India, Indonesia, Nepal, Pakistan and Vietnam. In 2015, a similar survey was conducted in Myanmar as part of the Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) project, also funded by DFID.

In 2018, BBC Media Action carried out a similar quantitative survey and qualitative research among people in Cambodia, funded by the Swedish International Development Cooperation Agency (Sida). Researchers interviewed 1,660 people in June 2018 in Cambodia's five main geographic regions: Phnom Penh, Plain, Mountain, Tonle Sap and Coastal. This report is based on these findings.

Using this research, BBC Media Action has built a nationally representative picture of how people in Cambodia live and deal with changes in the weather and environment. Understanding a number of key topics is essential for creating communication that motivates people to act to mitigate the impact of these changes. These include people's concerns in life, their perception of changes in the climate, their ways of adapting to these changes, preparations for extreme weather events, media access and their most trusted sources of information on issues relating to changes in the weather and environment.

PEOPLE'S PERCEPTIONS MATTER

Understanding people's perceptions is crucial in order to craft communication that motivates people to take action to improve their lives. An individual's perception at any given time – for instance of changes in climate or the availability of water in an area – may differ from official records. This research focuses on people's perception of changes in climate, how these changes affect their lives and what they are doing to respond to them. People's perceptions are shaped by a range of factors, including their exposure to media, communication with peers, personal beliefs and values, and education levels.

ABOUT BBC MEDIA ACTION

BBC Media Action, the international development organisation of the British Broadcasting Corporation (BBC), uses the power of media and communication to support people to shape their own lives. Working with broadcasters, governments, other organisations and donors, BBC Media Action provides information and stimulates positive change in developing countries in the areas of governance, health, resilience and humanitarian response. This broad reach helps us to inform, connect and empower people around the world. We are independent from the BBC, but share the BBC's fundamental values and have partnerships with the BBC World Service, and local and national broadcasters that reach millions of people.

WHAT'S THE STORY?

This report presents findings from across Cambodia. It seeks to build a picture of how people live and deal with change, in order to understand their communication needs and help them respond to changes and variations in weather.

Cambodia has undergone a period of significant economic change and development in recent decades, and as a result many people think that life has got better. New opportunities across different employment sectors have led to an increase in income for many. Despite this, much of the economy still relies on land – over half of the labour force in Cambodia continues to work in agriculture.

The World Bank states that Cambodia is experiencing a shorter, more intense wet season and a long, hotter dry season. This makes the country more likely to experience flooding, drought and storms – the frequency and severity of which have increased in recent years. Cambodians are noticing these changes in the weather and their environment – they feel the temperature is getting hotter, the intensity of storms has increased, the number of trees has decreased, and pests and insects have increased.

Cambodians are already experiencing the impacts of changes in the weather and the environment, particularly on their health and income. Eighty-one percent of respondents feel these changes have affected their ability to earn money. With most people's livelihoods dependent on land, it is concerning that half of those surveyed feel that agricultural production has decreased over the last decade and three-quarters think the number of fish has declined.

Cambodian people are particularly worried about how changes in the weather or the availability of key resources such as food, water, fuel or energy are affecting their health. A notable 85% of respondents feel that changes in the weather and environment are having a detrimental health impact. Many report experiencing common illnesses such as colds and fevers more frequently, but some are suffering more serious conditions such as dengue and typhoid fever.

In order to cope with these changes, Cambodians are most likely to change their job or supplement their income – relatively big life changes. Fewer people are adopting smaller coping mechanisms, including raising alternative livestock, changing agricultural techniques or making temporary adjustments to their homes, such as using sandbags. Therefore, there is still scope for people to take smaller and simple individual actions to adapt to environmental changes.

Encouragingly, there is an appetite among Cambodians to adapt to the environmental and weather they are experiencing. Many respondents expect the impact to get worse, and correspondingly three-quarters of them are willing to make more changes to their livelihoods and lifestyle.

Cambodians are motivated to act by keeping healthy and securing a better future for their children. There is also strong support for community action in Cambodia. Over 90% of respondents are confident their communities could work together to tackle problems and prepare for the future, and over half often discuss such action with the people around them.

However, there are barriers to people adapting to the impacts of climate change. The majority of respondents in Cambodia point to the need for greater institutional support from the government and non-governmental organisations (NGOs). Others feel ill-equipped to respond themselves, either because they do not have enough resources or because they feel lacking in relevant information. Social barriers are also at play – some people feel reluctant to discuss possible actions with others or do not want to try anything new.

The most vulnerable people in Cambodia are the very poor, who are particularly struggling to adapt to climate change. Living their lives from day to day, they worry most about immediate needs such as having adequate food and water, and find it hard to plan for the future. As well as feeling they lack the information or resources to act, this group does not feel able to discuss making changes with other community members.

WHAT THIS MEANS FOR COMMUNICATION

Cambodians are aware of the changes in the climate, and many say they are feeling the effects of this on their income and health. Communication that recognises the impacts that people are most aware of, such as increases in common illnesses and chemicals in food, is likely to be the most successful at engaging them.

Many Cambodians are already to starting to act in response to these challenges, but there is still scope for individuals to do more. Showing examples of low-cost and achievable practices, and emphasising the benefits on their health and income, could motivate people to act.

The strong sense of community in Cambodia could be leveraged through communication to increase collective action, encourage local discussion to highlight key issues and build networks to share information.

TV and mobile phones are regularly used by the majority of people in Cambodia, which makes them good channels of communication. However, Cambodians have greater levels of trust in people in their community than the media and so face-to-face discussion is still important – particularly among poorer groups.

Data has been analysed to determine key audiences for communicating these issues and to facilitate action in response to the impacts of climate change. This report summarises this audience segmentation and outlines the communication needs for priority audiences – farmers and fishermen, young people and those who are very poor.

CONTENTS

ABBREVIATIONS AND ACRONYMS

CTN	Cambodian Television Network
NGO	non-governmental organisation
Sida	Swedish International Development Cooperation Agency

METHODOLOGY

QUANTITATIVE RESEARCH

In Cambodia, the Climate Asia research project surveyed 1,660 people across the five geographic regions (Phnom Penh, Plain, Mountain, Tonle Sap and Coastal). To ensure a nationally representative sample within these geographic regions, researchers used a probability proportionate to size (PPS) methodology to randomly select locations for fieldwork within each region. Village-tracts and wards were the smallest administrative units in rural and urban areas, respectively. Households were randomly selected following the right-hand rule of field movement and five households were skipped after every contacted household.

The research was carried out in June 2018 before the national elections took place in July.

QUALITATIVE RESEARCH

BBC Media Action conducted community assessments in Cambodia from April to May 2018 to understand the perception of changes in the climate, its impact and the adaptation strategies that Cambodians were using. The research was conducted in five communities in five different geographical regions – Phnom Penh, Plain, Mountain, Tonle Sap and Coastal.

The study adopted its method from the Climate Asia methodology in terms of its design and tools. Researchers conducted community group discussions, transect walks,[1] and in-depth interviews with key informants from the community such as non-governmental organisation (NGO) leaders, community leaders such as commune council leaders, village chiefs and elders, and religious leaders.

[1] A researcher walks around a community with a person who knows both the community structure and location well. The researcher takes notes and records observations.

STUDY SAMPLE

Table 1 provides an overview of key demographic groups in the weighted sample. The data was weighted by age, gender and location using results from the latest available national level data for Cambodia (National Committee for Sub-National Democratic Development, 2014).

Table 1: Demographics of study sample

Demographics			Survey proportions (weighted) Total sample: 1660
Gender	Female		49%
	Male		51%
Age	16–24		27%
	25–34		23%
	35–44		20%
	45–54		13%
	55–65		17%
Location	Urban		25%
	Rural		75%
	Phnom Penh		10%
	Plain		39%
	Mountain		11%
	Tonle Sap		33%
	Coastal		7%
Income	Very poor	We do not have enough money, even for food	5%
	Poor	We can afford food but purchasing clothes is a serious problem	50%
		We can afford food and clothes, but purchasing durables, such as a TV set or refrigerator, is difficult	
	Comfortable	We can afford main household appliances, but purchasing a car is beyond our means	43%
		What we earn is sufficient to buy anything except expensive purchases such as an apartment or house	
	Well-off	We do not face financial problems. If necessary, we can buy an apartment or a house	2%
Education received	No schooling		1%
	Primary school		43%
	Lower secondary[2]		28%
	Upper secondary[3]		17%
	Higher education		5%
	Other		6%
Occupation	Professionals		28%
	Farmers, fishermen		36%
	Labourers (skilled and unskilled)		11%
	Not working (housewives, students, retired, unemployed)		25%

[2] Grades 7–9
[3] Grades 10–12

LIFE IN CAMBODIA

This section outlines how people in Cambodia live and their main concerns.

STANDARDS OF LIVING ARE IMPROVING

In the last few decades Cambodia has undergone a period of significant economic change and development. A baby boom during the late 1980s and early 1990s has created a large population of adults in their twenties and thirties. The labour force swelled as this cohort of children reached working age and became economically active. Such a pronounced demographic shift has fuelled strong economic growth, and Cambodia has attained lower middle-income status as a result.[4] The vast majority of families have moved out of poverty[5] and there have been improvements across the health and education sectors.

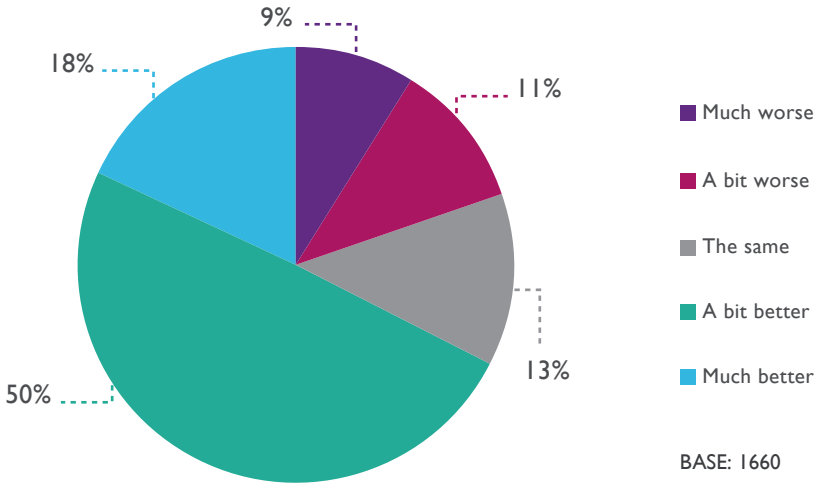
Cambodia's economic growth has created new opportunities across the tourism, construction and garment sectors, and has led to internal migration. However, the majority of the population continues to work in agriculture, which accounts for over half of the labour force,[6] and this sector is highly vulnerable to environmental changes.

THE POOREST AND OLDEST GROUPS FEEL LEAST POSITIVE ABOUT DEVELOPMENT

People in Cambodia can feel the impact of this economic development, and a majority of them sense that life is changing for the better. Just over two-thirds (68%) of Cambodians surveyed by BBC Media Action reported that their life had improved over the previous five years, though this was mostly people who felt it was a bit better (50%) rather than much better (18%).

[4] World Bank (undated). *The World Bank in Cambodia* (online). Available at: http://www.worldbank.org/en/country/cambodia/overview
[5] From 47.8% in 2007 to 13.5% in 2014. See World Bank (undated). *The World Bank in Cambodia* (online). Available at: http://www.worldbank.org/en/country/cambodia/overview
[6] National Climate Change Committee (2013). *Cambodia Climate Change Strategic Plan 2014–2023*.

Figure1: Views on whether life has got better or worse



Q: Compared with five years ago, would you say your life is better, worse or the same now?

However, the poorest[7] groups of people are less likely to feel the benefits: 43% of respondents in this category felt that their life had got worse (compared to 20% overall).

Whether Cambodians feel that life is improving is influenced by a range of factors such as where they live, their occupation and their perception of risks. Those living in the Tonle Sap region were more likely to think life had got worse (23%), as were farmers and fishermen (22%), who are more vulnerable to climate change. Those people who felt they were at high risk from changes in their environment were also more likely to think that life had got worse (33%), not better (25%).

Another factor influencing how Cambodians view recent development is age: 74% of those aged 16–24 felt that things had improved compared to 61% of 55–65-year-olds, with 30% of this older age group reporting that their life had become worse over the previous five years.

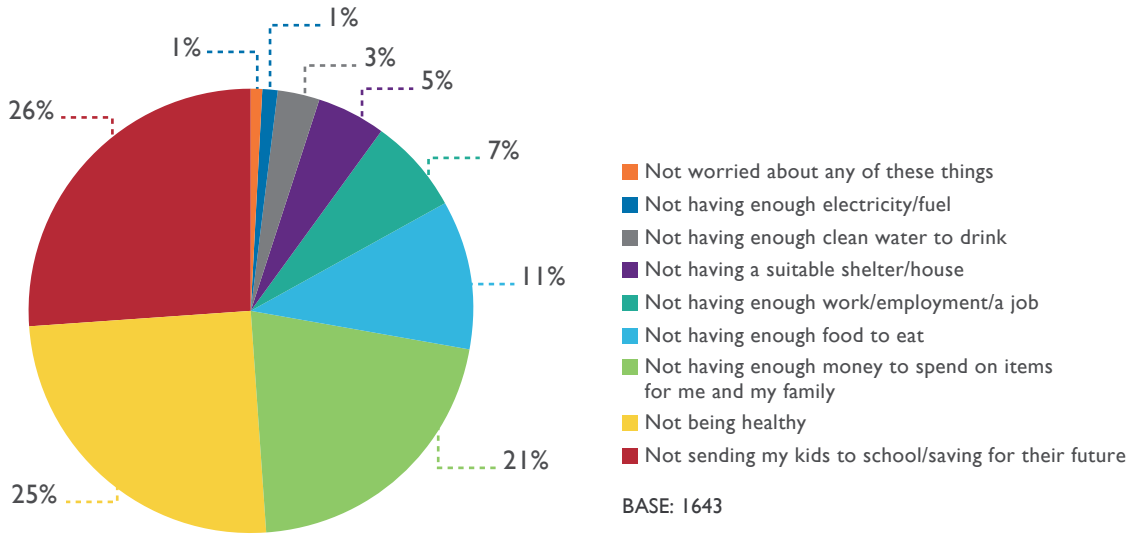
HEALTH AND EDUCATION MATTER MOST TO CAMBODIANS

Reflecting the real and measurable increase in national standards of living, Cambodians' responses to questions around what is important, and what they worry about, indicate that they value future security – for example health and education – over material things. They ranked being healthy very highly (93% said this was very important) and a large proportion of people (82%) felt it was also very important to have an education. Twenty-six per cent said that their children's future was their biggest worry, followed by their health (25%).

[7] Those who have 'very low' resources, defined as those who those who don't even have enough money for food.

However, a sizeable proportion of Cambodian people – around a fifth (19%) – still reported having basic worries such as not having enough food to eat, clean water to drink or suitable housing. These people tend to live in the Coastal region, where 14% said not having enough food was their top concern (compared to 11% overall) and 13% said they worry most about not having suitable housing or shelter (compared to 5% overall).

Figure 2: Biggest worry



Q: Out of the following, which is your biggest worry at the moment?

There are some differences in Cambodians' concerns along gender and income lines. Women saw their children's future as a much bigger worry (30%, compared to 26% overall and 23% of men) and more of a concern than being healthy. Poorer people were most worried about not being able to send their children to school or save money for their future, and not having enough money to spend on items such as clothes and furniture (both 28%). For this group, being healthy and not having enough food to eat ranked as lesser worries (both 17%).

Despite the rapid social and economic change they have experienced, traditional values and religious beliefs were still important to Cambodians (77%, very important), especially in the Coastal region (84%, very important).

01

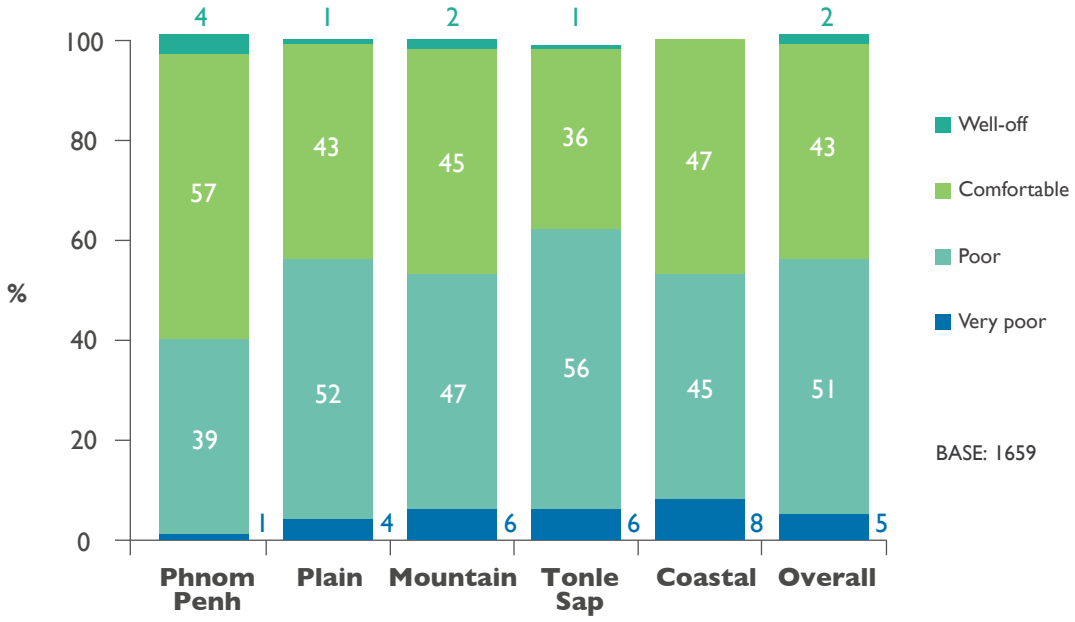
MANY PEOPLE HAVE LOW RESOURCES

Many people in Cambodia do not have enough money and lots of them borrow to sustain their current livelihood in the face of changing environmental conditions. Over half of Cambodians reported having low resources[8] (57%). This was particularly high in the Tonle Sap region, where borrowing money was most common (46%). Overall, just under half of all respondents reported that they had used some form of credit, for example loans or micro credit (43%).

Villagers in the Tonle Sap region reported borrowing money from microfinance institutions because of the decline in fish in the lake and the shortage of other means of sustaining their livelihood. They also borrowed money to repair homes damaged by storms.

The case study in Section 2 demonstrates how climate change is increasing the financial pressure on villagers in Tonle Sap, who are forced to borrow money just to maintain their current position in terms of housing and livelihood. Section 3 will discuss how villagers in this vulnerable region are also borrowing money in order to make agricultural changes in response to climate and environmental changes.

Figure 3: Resources by region



Q: What category does your household income fall within?
Note: Some of the percentages do not equal one hundred due to rounding.

[8] People with 'very low resources' (scored 1) are defined as those who don't have enough money, even for food. Those with 'low resources' (scored 2 or 3) can afford food and clothes, but struggle to afford durables such as a TV or fridge.

CHANGES IN CAMBODIA'S CLIMATE

This section starts by outlining changes in the climate in Cambodia as cited by external resources. It then focuses on Cambodian people's perceptions of changes in temperature, rainfall, extreme weather events and the availability of key resources, using findings from this study. Finally, it considers the geographic, demographic and developmental factors that determine how changes impact people's lives, and also details people's awareness and understanding of climate change.

CHANGES TO SEASONS AFFECT ALL REGIONS

In order to investigate the main impacts of climate change on Cambodia, it is important to understand its climatic context. Cambodia is tropically humid and has two seasons, the rainy season and the dry season. It is one of five countries located along the Mekong River, which consists of rolling plains and lowland. The country is prone to slow-onset natural hazards, such as droughts and prolonged flooding, however rapid-onset natural hazards such as flash flooding also occur.[9]

According to The World Bank, Cambodia is now experiencing a shorter, more intense wet season and a long, hotter dry season than before.[10] This makes the country more likely to experience flooding, drought and storms – the frequency and severity of which have increased.[11] Its climate-sensitive sectors, such as agriculture, fisheries, forestry and tourism, form the foundations of the country's economic growth and support the livelihoods of the majority of the population.[12] As outlined in the Cambodia Climate Change Strategic Plan (2014–2023), 75% of Cambodians live in rural locations and depend on natural resources that are projected to be highly affected by changes in the climate.

Climate forecasts indicate a strong probability of more frequent typhoons, which would damage settlements in the Coastal region. This area is vulnerable to rises in the sea level, which would affect tourism. Changes in water regimes[13] and natural resources are expected to have a profound impact on the agriculture and fishing sectors, and the communities that depend on them. Tonle

[9] Leng Han An (2014). *Country Report of Cambodia Disaster Management* (online). Available at: http://www.adrc.asia/countryreport/KHM/2013/KHM_CR2013B.pdf
[10] The World Bank (2011). *Vulnerability, risk reduction and adaptation to climate change – Cambodia* (online). Available at: http://sdwebx.worldbank.org/climateportal/countryprofile/doc/GFDRRCountryProfiles/wb_gfdrr_climate_change_country_profile_for_KHM.pdf
[11] Kim Sour and Chem Phalla (2014). *Climate change vulnerability and adaptation assessment methods and tools applied in Cambodia* (online). Available at: https://www.cdri.org.kh/publication-page-old/pub/sr/sr14e.pdf
[12] National Climate Change Committee (2013). *Cambodia Climate Change Strategic Plan 2014–2023*.
[13] The duration and timing of flooding resulting from surface water (overland flow), precipitation and ground water inflow.

Sap and other central plain areas are experiencing the most extreme changes in relation to water and natural resources.[14]

Cambodia has five main geographical regions – Phnom Penh, Plain, Mountain, Tonle Sap and the Coastal region – which will be discussed throughout this report. Each region is affected by specific issues, as outlined below. For a map indicating the location of these regions, please see page 18.

Phnom Penh – Flooding is the single biggest hazard, both slow-onset (from the river) and rapid-onset (flash flooding caused by rain). People in this region depend heavily on the industrial and commercial sectors.[15]

Mountain – This region is experiencing increased rainfall during the wet season, but it is much drier during the dry season, affecting rubber and coffee production. Forestry and hunting are significant sources of income in this region.[16]

Tonle Sap – Increased temperatures, late rainfall, intensive flooding and an increase in pests and plant diseases are having a profound effect on both agriculture and water resources in this region. Fishing is the main source of income, although there are also many farmers working its large amount of agricultural land.[17]

Plain – Higher temperatures, flooding and mini dry spells during the rainy season are posing a risk to crops.[18] This is an agriculturally dominated region, which has a large amount of irrigated land.

Coastal – Sea-level rises and typhoons are felt strongly here, and both are projected to increase.[19] Salt water intrusion, higher temperatures, irregular rainfall and an increase in storm intensity are damaging soil and housing, and creating obstacles to fishing. Fishing is common but agriculture is the largest income sector, leading to pressure on the coastal ecosystems through charcoal production, salt mining and aquaculture.[20]

Questions around climate change

Not everyone in Cambodia has heard of climate change, but changes in climate affect everyone in the country. In order to find out how, people were first asked questions about their perception of changes in temperature, rainfall and extreme weather events over a 10-year period. This was followed by a series of questions about changes in the availability of key resources like food, water and energy, and changes to their environments. Finally, they were asked a series of specific questions on 'climate change'.

This report does not include any comparison between respondents' perceptions of weather and climate changes and existing meteorological or developmental records, due to the time and resources needed to do this.

[14] Ministry of Environment (2016). *Climate Change Action Plan 2016–2018*.
[15, 16, 17] National Institute of Statistics (2016). *Cambodia Socio-Economic Survey 2015*. Ministry of Interior.
[18] Nang Phirun, Sam Sreymom, Lonn Pichdara and Ouch Chhuong (2014). *Adaptation Capacity of Rural People in the Main Agro-Ecological Zones in Cambodia*. Cambodia Development Resource Institute. Working Paper Series No. 93.
[19] National Climate Change Committee (2013). *Cambodia Climate Change – Strategic Plan 2014–2023*.
[20] Rizvi, A.R. and Singer, U. (2011). *Cambodia Coastal Situation Analysis*. Gland, Switzerland: International Union for Conservation of Nature (IUCN).

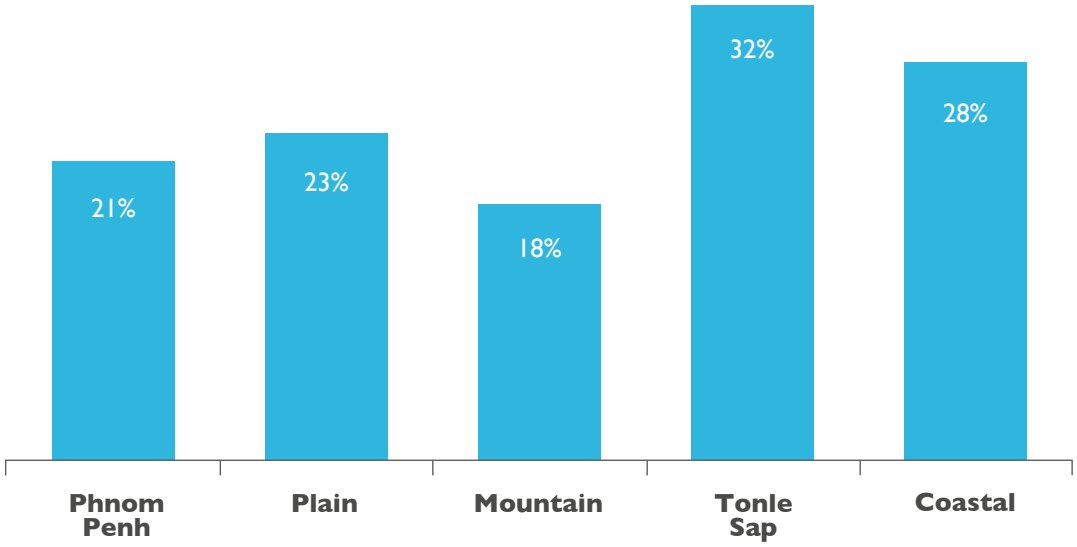
PERCEPTION OF WEATHER: HOTTER DRY SEASON

As outlined above, significant climatic changes are taking place in Cambodia. In line with the fact that Cambodia is experiencing a longer and hotter dry season, 85% of people reported that the temperature in the dry season was getting hotter. Interestingly, despite more intense wet seasons, just under half of people (44%) thought that rainfall had increased, and roughly the same thought it had decreased. Around two-thirds (62%) perceived storms to have increased but this observation was much more prevalent in rural areas (64%) than urban ones (55%).

A third (34%) of Cambodians believed droughts have increased, yet half (46%) thought they had decreased. People in the Coastal region were the only ones who reported any differences in sea level – 21% of people there thought the sea level had risen, and half (52%) said they did not know whether it had or not.

Regional differences are very evident in how likely people thought they would be to experience extreme weather. Overall, people in the Tonle Sap region felt most at risk of extreme weather (32%).[21] In the Coastal region more than a fifth (22%) of people gave a score of 10, indicating the highest risk, yet overall respondents from this region were more likely to perceive a low level of risk compared to people in the Tonle Sap region.

Figure 4: Perception of risk of experiencing extreme weather by region (% reporting high risk (8, 9 or 10 on a 10-point scale)



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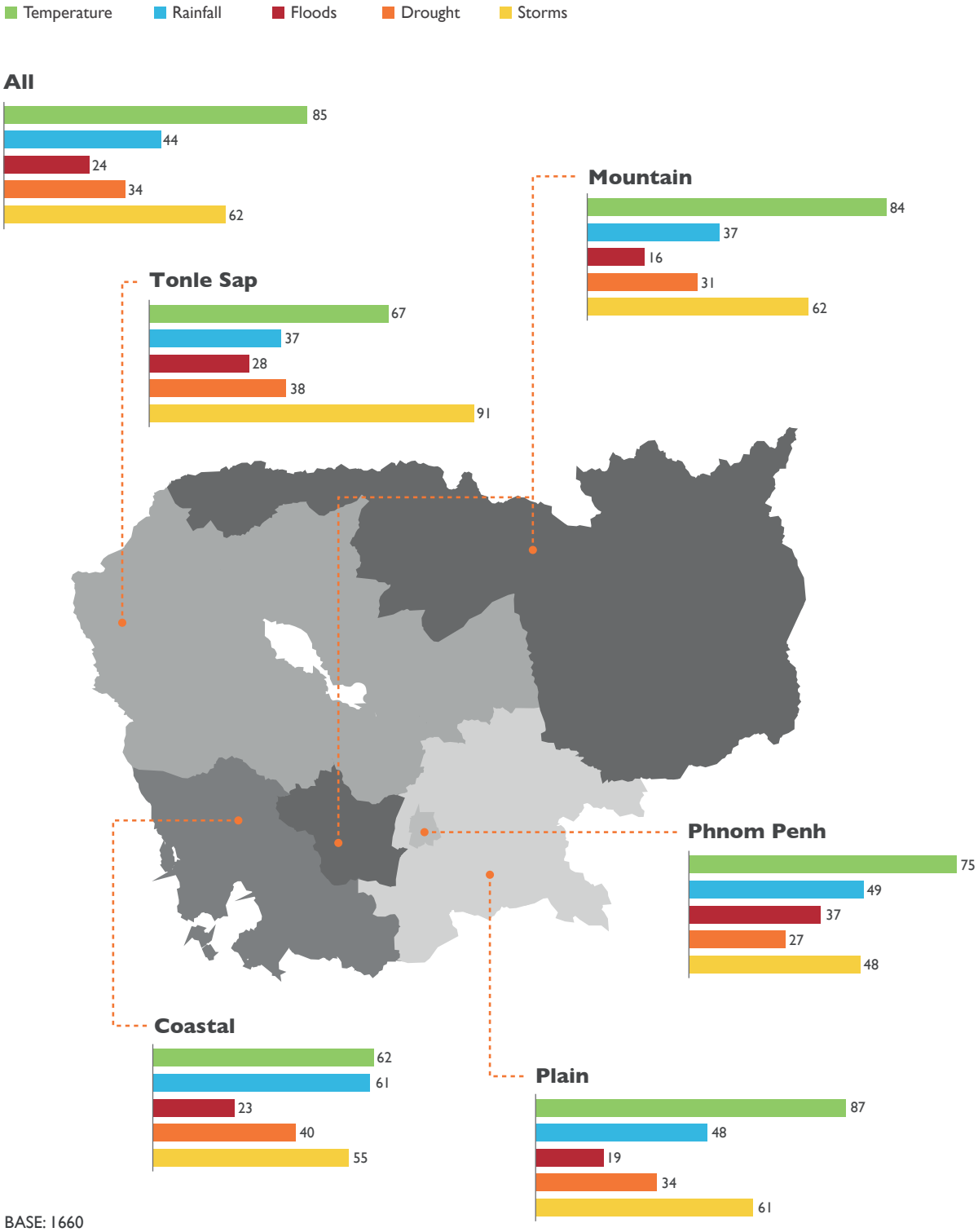
Q: How at risk do you feel your local area is for experiencing an extreme weather event, eg storms/ strong winds, drought, floods/intense rains, extreme temperatures, where 1 is your local area is at no risk and 10 your local area is at high risk?

[21] Either 8, 9 or 10 on a 10-point scale question – 'How much of an impact do you feel these changes (availability of water, food, electricity and fuel and changes in weather) have on your life at present? Scale from 1–10'.

Figure 5: Perception of changes in climate by region (% increases only)



BASE: 1660

Q: In the area that you live, would you say over the past 10 years the following have increased, stayed the same or decreased?

Case study: The menace of storms in Tonle Sap region

The Anlong Rieng community in Tonle Sap felt particularly vulnerable to the impact of storms, due to the number of villagers living in floating houses. Storms were reportedly having a profound impact on the community, primarily through damage to houses, but also impacts on livelihoods as a result of damage to floating fish cages and fishing gear.

Photo by research team: Floating fish cages on the Tonle Sap lake

> "Now there are hundreds of storms. Storms hit frequently and nearly destroy houses suddenly."
>
> (Male, Tonle Sap region)

To villagers, the storms were becoming unpredictable and they found it frightening.

Villagers had to spend money rebuilding what they had lost, with many turning to local lenders or microfinance institutes to pay for this. However, many reported being concerned about their debts because of the dependence on fishing, and fish stock decline in the Tonle Sap lake was a major cause for concern.

Case study: Drought causing hardship in Coastal region

Koh Kong in the Coastal region has experienced drought, when villagers found the hot weather and water scarcity very difficult.

Sources of fresh water were sparse, and wells were often poor quality. Streams had become shallow and, when asked, villagers attributed this to new road construction and deforestation.

Since an extreme drought in 2015 the Ministry of Environment and the Global Environment Fund (GEF) had built a community pond for drinking water and household consumption.

> "Now most of us use the water from the big pond when there is a drought in the village."
>
> (Female, Toul Korki Leu commune, Coastal region)

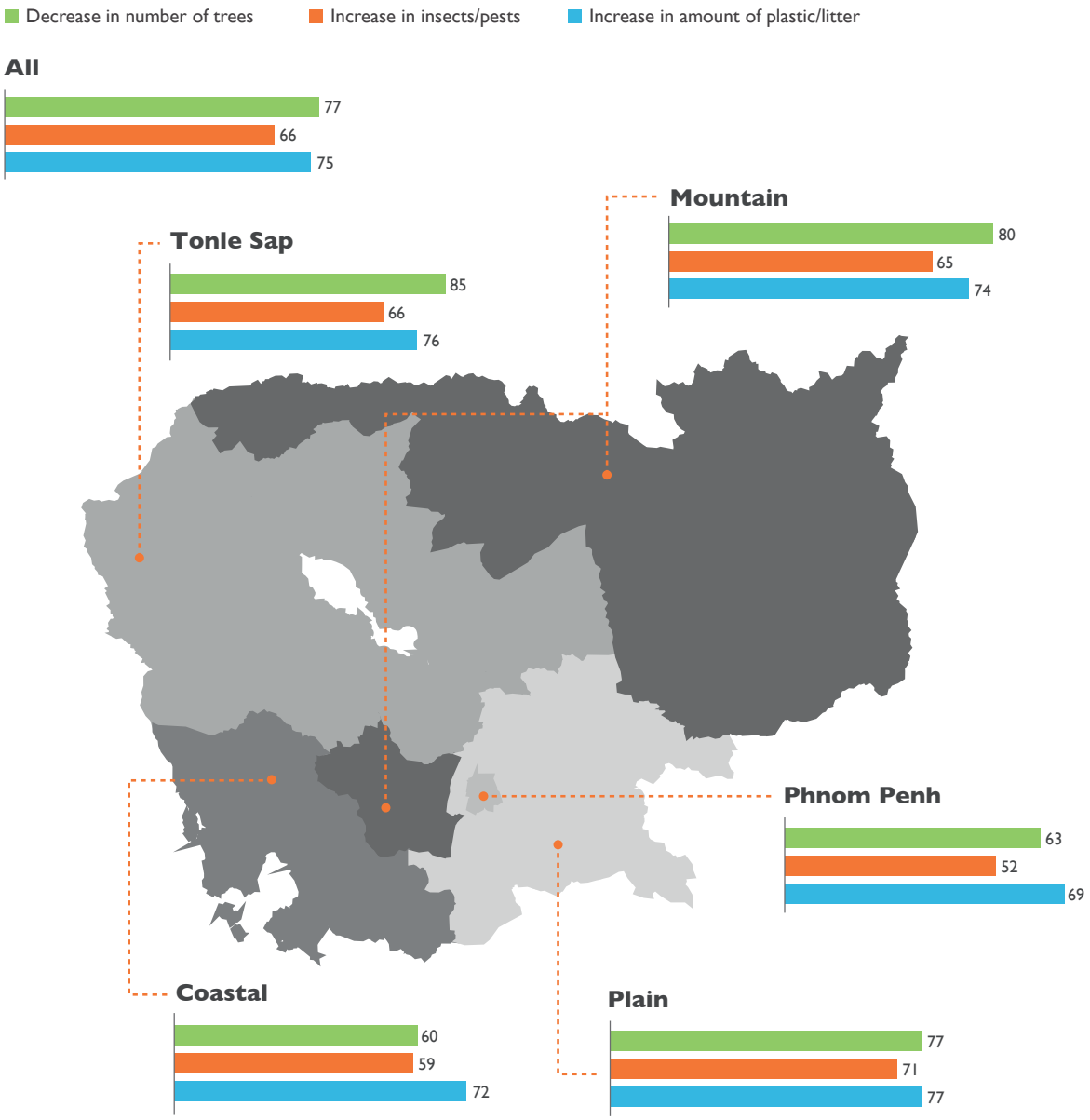
However, to irrigate crops villagers had to dig their own wells or small ponds, which was only possible for households who could afford to do so. Villagers who could not do this bought plastic water tanks to store water.

02

HIGH AWARENESS OF ENVIRONMENTAL CHANGES

Alongside changes in the weather, people in Cambodia also perceive wider changes that have taken place in their environment over the past 10 years.

Figure 6: Perceived changes in the environment (%)



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Q: Over the last 10 years, do you think the following have increased, stayed the same or decreased?

Two-thirds (66%) of people in Cambodia thought that the number of insects and pests had increased, which is significantly higher than the Climate Asia average finding of 47%.[22] People living in the Plain region were more likely to perceive this increase (71%), and findings from the community assessments there indicated that this was attributed to an increase in temperature. Agriculture is a major source of income in this region, and farmers overall were more likely to report an increase in insects and pests (72%) and the impact this had on growing crops.

> "A mini dry season always occurred while rice crops were growing, and it led to low yield and sometimes a delay in harvesting."
>
> (Male, Tonle Sap region)

Three-quarters of people (75%) thought the amount of litter and plastic had increased. In the Tonle Sap region, villagers cited the abundance of litter:

> "Villagers throw all litter into the water, except aluminium cans that can be sold for… money."
>
> (Community member, Tonle Sap region)

Current forest cover in Cambodia is still reasonably high but the country has a high deforestation rate, which has accelerated.[23] In line with this, 77% of respondents felt that the number of trees had decreased over the previous 10 years. People living in the Tonle Sap region reported this more than anywhere else (85% of people living here reported this).

[22] Mean average across the seven countries included in the 2012 Climate Asia study.
[23] Nation of Cambodia (2016). *Cambodia Forest Cover 2016* (online). Available at: https://redd.unfccc.int/uploads/54_3_cambodia_forest_cover_resource__2016_english.pdf

02

Photo: © Ridan Sun

RESOURCES ARE INCREASING BUT FISHING AND AGRICULTURE CAUSE CONCERN

Given that the standard of living in Cambodia has increased significantly over the last few decades, it is not surprising that Cambodians generally feel that their access to key resources such as electricity, water and food has increased.

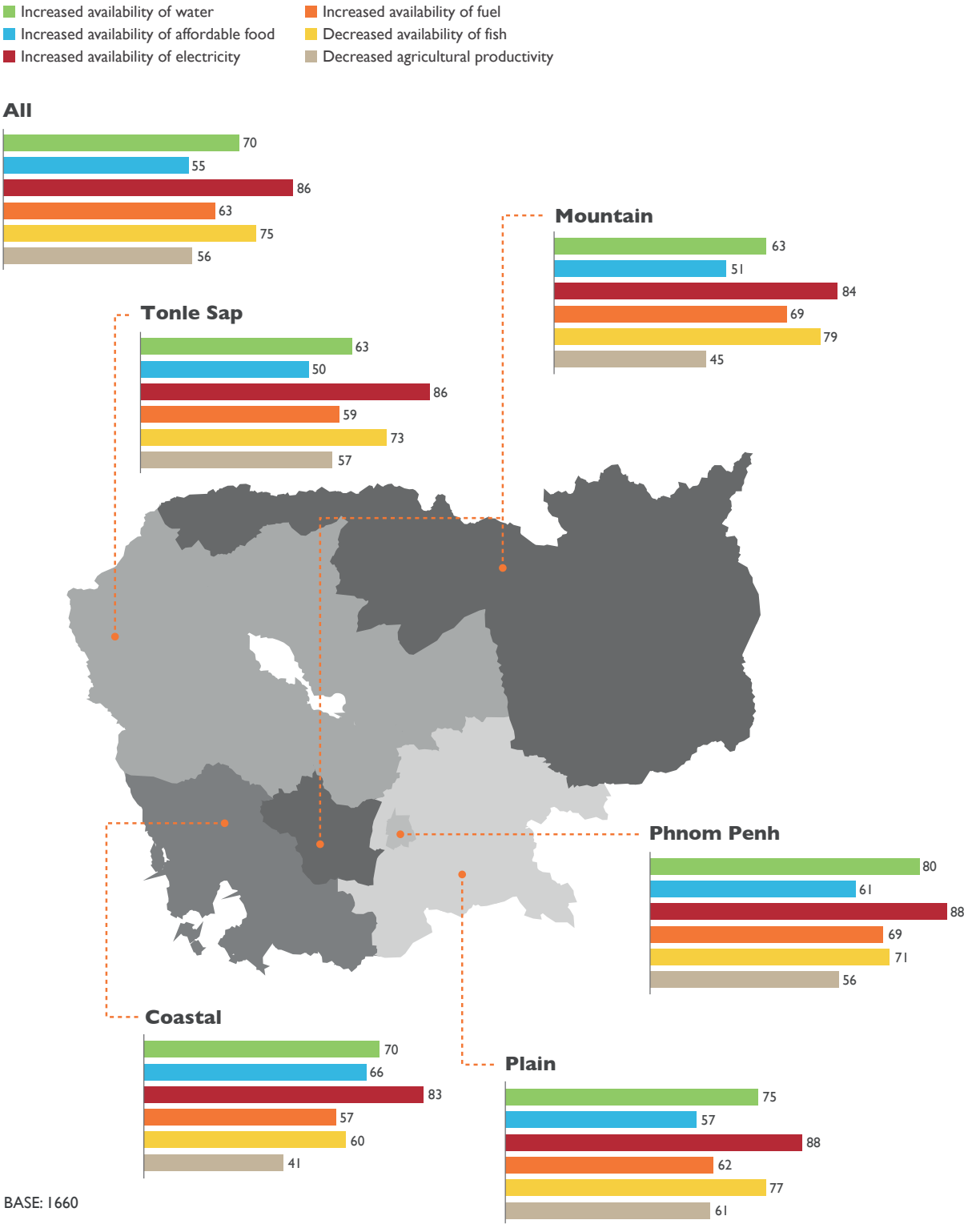
A large majority of respondents (86%) felt that the availability of electricity had increased, and this was slightly higher in urban areas than rural ones. This was also higher in Phnom Penh and the Plain regions compared to the Mountain and Coastal regions.

Overall, 70% of respondents perceived the availability of water to have increased, although this was felt more in urban areas (78% of urban dwellers reported this). In rural areas, 18% of people thought water availability had decreased. This was particularly pronounced in the Mountain region, where almost a third of respondents (29%) thought it had decreased.

While most Cambodians (76%) felt that the variety of food and vegetables had increased over the previous 10 years, there were some (15%) who felt that it had decreased – particularly in the Coastal region (where 24% felt this). Very poor people were significantly more likely to think that the variety of food had decreased (31%) and were more likely to cite having no food as a concern. Men were also more likely to think this than women (17% compared to 13%).

While people felt that the availability of most resources had increased, fish stocks and agricultural productivity, which are paramount to most people's livelihoods, were thought to be declining.

Figure 7: Perceived changes in resources by region (%)



BASE: 1660

Q: In the area that you live, would you say over the past 10 years the following have increased, stayed the same or decreased?

02

Thirty per cent of people reported a big decrease in agricultural productivity in the previous decade, which is reflected by the third who thought that the availability of affordable food had decreased. People in rural regions were more likely to feel this impact: 14% of them said the availability of affordable food had decreased 'a lot', compared to 6% of urban residents.

People in the Plain region were the most likely to think that agricultural productivity had decreased (61%). Here, villagers said that their ability to produce a high yield from rice and vegetables had declined due to prolonged drought.

Case study: Drought affecting agriculture in Choam village, Plain region

In Choam village in the Plain region, where the majority of the villagers are rice farmers, low agricultural production was attributed to the prolonged dry season. Farmers had planted seeds later in the hope of more rain, but often this did not come.

> "After I plant rice seedlings, they have all died because of no rainfall."
>
> (Female, Choam village, Plain region)

Villagers were worried about their food security and livelihoods. They felt that changes in the climate could lead to illegal logging and force people to migrate to find non-farming jobs.

Three-quarters of people (75%) perceived the number of fish to have declined in the previous decade. This was particularly pronounced for the Mountain region, where 79% of respondents believed this, although this was also felt strongly in Phnom Penh through market prices. Although a lower number of people in the Coastal region perceived fish stocks to have declined compared to inland regions, this was still reported by a high proportion of respondents (60%). Many people (70%) thought that the variety of available fish species had decreased, with almost half (46%) reporting that this had decreased 'a lot'. Respondents in the Mountain region were more likely than any other region to report this overall decrease (79%).

> "Ten years ago we [community members] could find seafood like crab and fish near to the community and now it is very difficult even if we go far out to sea."
>
> (Male, Coastal region)

Case study: Declining fish stocks in the Se San River, Mountain region

Communities in Ratanakiri said that fish stocks had declined significantly over the previous five years. In the past, villagers went fishing in the Se San River both for income and household consumption, but recently some fishermen had not been able to depend on fishing as their main source of income.

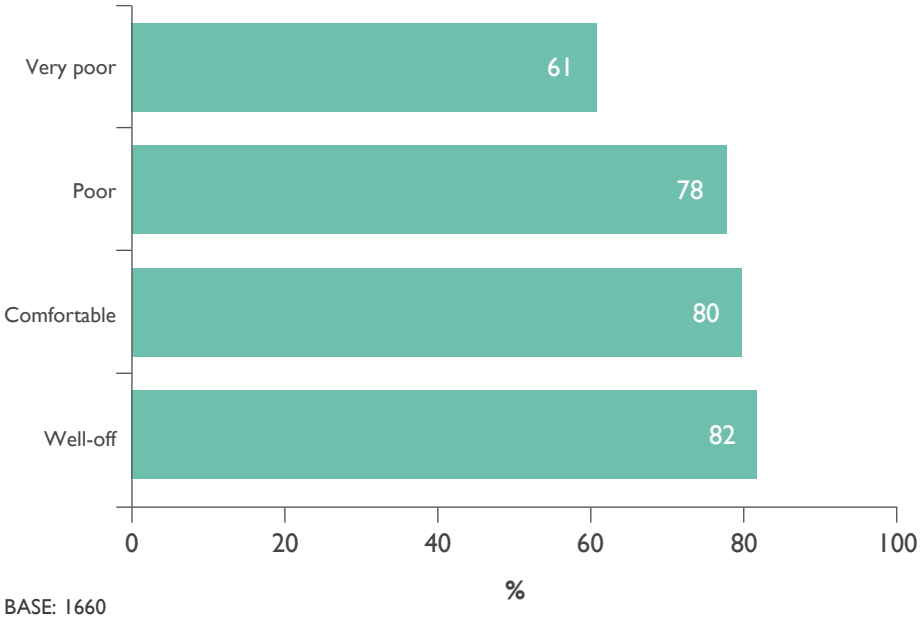
> "Ten years ago the number of fish was very high. My father went fishing… and got more than 5kg on average. Now fish is scarce, and the size of the fish is smaller."
>
> (Female, Ratanakiri, Mountain region)

FEELING INFORMED ENABLES ACTION

Three-quarters (78%) of Cambodians felt informed about things they could do to help cope with these changes in the availability of resources. People who felt informed were making a lot of changes to their livelihoods (86%). However very poor people, who were facing the greatest impact from resource constraints, felt much less informed about this (61% of this group felt informed on this issue, compared to 78% of overall respondents).

These findings show that a key area for communication to address is supporting poor people to adapt to changes in climate, to increase their agricultural productivity and to diversify their livelihoods in the face of declining fish stocks.

Figure 8: Feeling informed about ways to respond to changes in resources, by income group (% very or fairly well informed)



BASE: 1660

Q: How well informed do you feel about the things you could do to cope with the changes in water, food and energy supplies you might be facing?

02

HIGH AWARENESS BUT LIMITED UNDERSTANDING OF WEATHER CHANGES

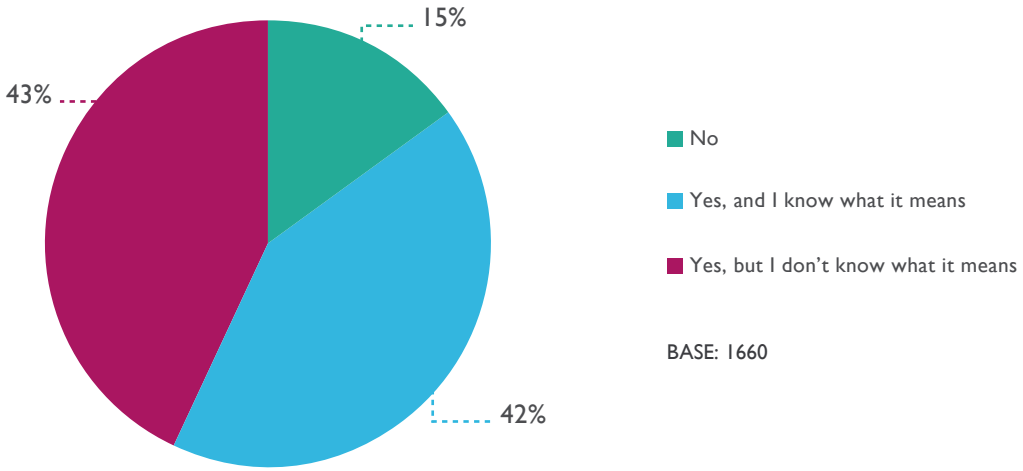
In terms of Cambodians' understanding of why the weather might be changing, there were many theories rather than a consensus. Many respondents (56%) attributed the shifts to a loss of trees, but around a third (29%) said they did not know why the weather was changing. Most Cambodians did not associate these changes with human activity and greenhouse gas emissions (only 14% reported this), nor did they mention climate change as a cause of changing weather patterns.

People's views about how unpredictable these changes were underline the sense that weather changes are out of their control and hard to manage. Just over a third (38%) of Cambodians thought that changes in the weather over the previous 10 years had been predictable, but only 1% said these were 'very' predictable. The remaining two-thirds of respondents either said they were not able to predict weather conditions (47%) or did not know whether such conditions were predictable (15%).

At the end of the study, respondents were asked if they were aware of the term 'climate change' and its causes. The next part of this section focuses on those questions specifically.

In Cambodia, awareness of the term 'climate change' was very high at 85%. However, awareness of the term did not reflect understanding. Only 42% of people felt confident that they knew what it meant, compared to 51% across the other Climate Asia studies.[24] Men, more educated people and younger respondents were more likely to be knowledgeable about this term.

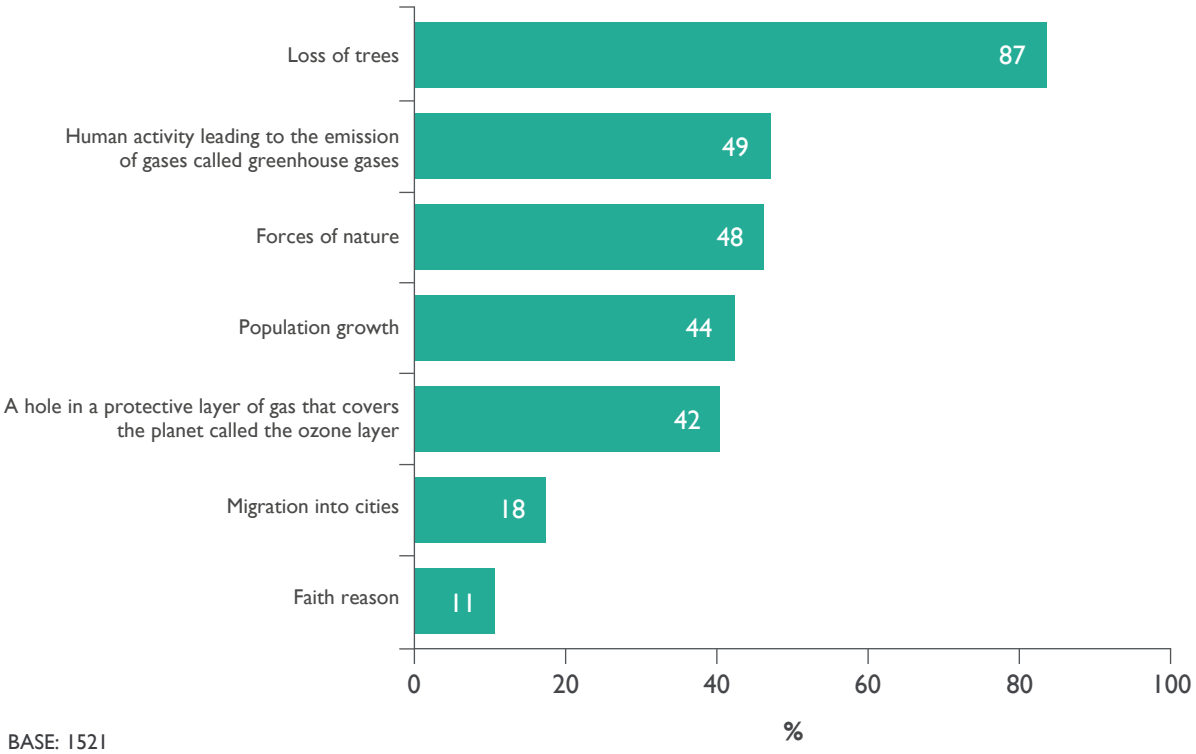
Figure 9: Heard of the term 'climate change'



Q: Have you heard of the term 'climate change'?

[24] Respondents were read the definition of climate change, 'a change in climate that persists for decades or longer', and asked if they thought it was happening in Cambodia.

Figure 10: Perceptions of the causes of climate change



BASE: 1521

Q: Which of the following do you think are the main causes of climate change?
(Asked only among those who believed climate change was happening. Multiple responses permitted.)

When asked about the causes of climate change in Cambodia, most respondents pointed to the loss of trees (87%), which links to the high levels of deforestation noted above. Those with who had received more formal education were more likely to think climate change was caused by loss of trees or the emission of greenhouse gases. Around half (48%) of Cambodians thought that climate change was due to forces of nature – something out of their control.

When taken as a whole, these findings paint a picture of a population that can describe climatic and other environmental changes in detail but struggles to explain and respond to these changes.

03

IMPACT AND RESPONSES

Survey respondents described the impact of changes in climate and the availability of key resources in their lives. This section describes these impacts and people's responses to them in more detail.

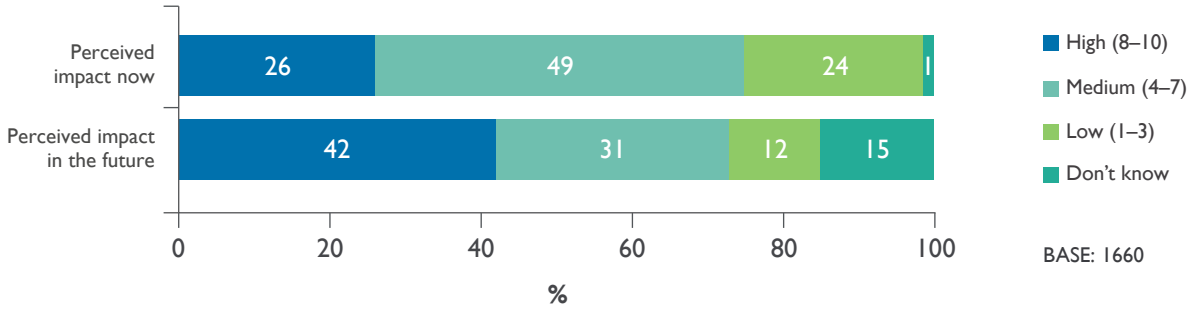
Difficulty differentiating between resource and climate impacts

People in Cambodia found it difficult to distinguish between impacts associated with the availability of key resources – such as food, water and energy – and those associated with changes in climate. Taking this into account, questions on impact in the survey were worded: *"You have just answered some questions on availability of water, food, electricity and fuel and changes in weather. The next series of questions will be asking you about the impacts that these have had on your life."*

EXISTING IMPACT IS EXPECTED TO WORSEN

The majority of Cambodians are already feeling significant impact from fluctuating environmental conditions, such as the rising temperature and the increasing severity of storms. Beyond just perceiving these climatic changes, Cambodians feel that they are being affected by them. Researchers asked people how much impact the changes in weather and resources they were experiencing had on them, using a score from 1–10, with 1 being the lowest impact and 10 being the highest. While a quarter of people (24%) said they were feeling low-level impact, the remainder said they were feeling a medium (49%) or high level of impact (26%).

Figure 11: Perception of present and future impact of changes in the weather and resources



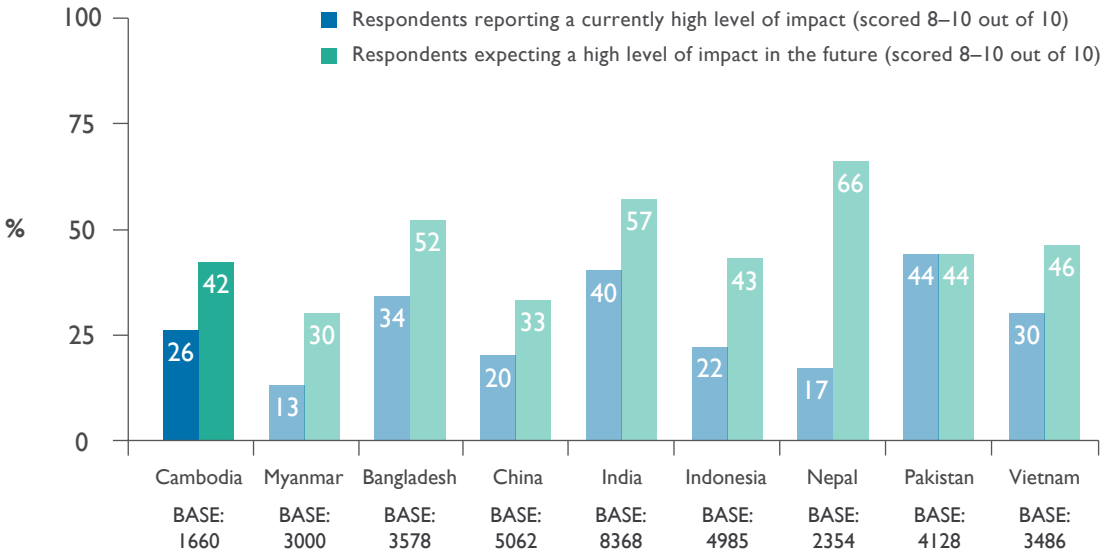
Q: How much of an impact do you feel these changes (access to food/water and changes in weather) have on your life at present?; Q: How much of an impact do you feel these changes (access to food/water and changes in weather) will have on your life in the future?
Score 1–10, with 1 being the lowest level impact and 10 being the highest.

The people who reported feeling medium-level impact tended to be either comfortably or well-off. Poorer people were more likely to indicate that they were already highly affected by changes in weather and key resources,[25] which is not surprising given their higher concern about their immediate basic needs such as food and clothing.

Although only 26% of respondents felt that the impact of weather and resource changes were high at the time of the study, Cambodians believed this would have an increasing impact on their lives in future. When considering how they might be affected in the future by environmental change, far more (42%) felt they were going to be greatly affected. This trend was similar in other countries in the Climate Asia study – Pakistan was the only country that did not follow this trend (see Figure 12).

People in Cambodia, like many of their Asian neighbours, feel a sense of impending and increasing threat from environmental disruption. Those in the Tonle Sap region were most likely to feel high impact at the time of the survey (29% felt this) and to anticipate it for the future (49% felt this). Interestingly, 15% of people in Cambodia answered 'don't know' when asked about future risk, indicating a level of uncertainty about their future.

Figure 12: Perception of present and future impact of changes in the weather and resources (Cambodia versus other Climate Asia countries)



Q: How much of an impact do you feel these changes (access to food/water and changes in weather) have on your life at present?; Q: How much of an impact do you feel these changes (access to food/water and changes in weather) will have on your life in the future?
Score 1–10, with 1 being the lowest level impact and 10 being the highest.

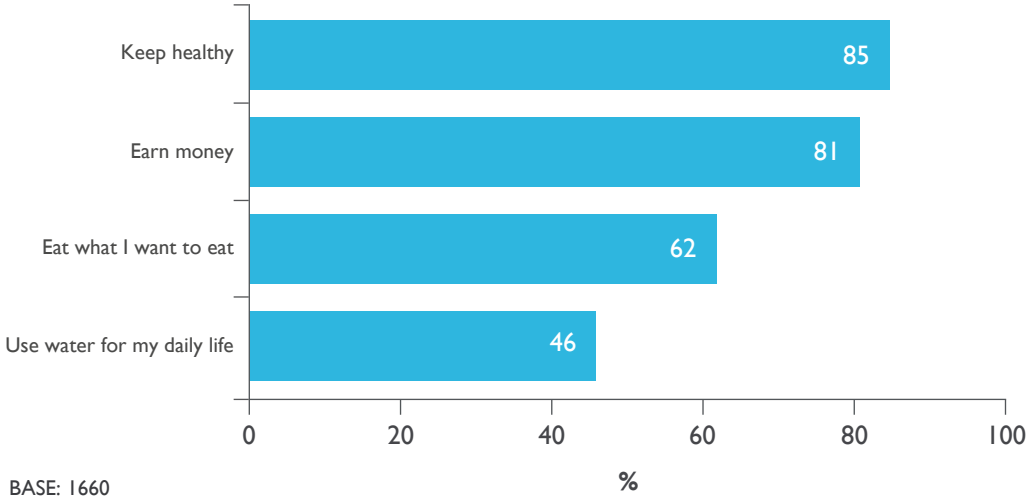
[25] A score of 8, 9 or 10 on a scale-based question – 'How much of an impact do you feel these changes (availability of water, food, electricity and fuel and changes in the weather) have on your life at present?'.

03

ENVIRONMENTAL CHANGES AFFECT LIVELIHOODS AND HEALTH

When asked about how weather and resource changes were affecting their lives, Cambodian respondents were most likely to point to concerns about their health, followed by their ability to earn money. Given the high proportion of Cambodians who rely on the land and natural resources for their livelihood, such as farmers and fishermen, it is unsurprising that many of them (80%) had already felt the impact of these changes on their income.

Figure 13: Perceived impact of changes in the weather and environment (% very or fairly affected)



BASE: 1660

Q: In your opinion, overall, how have these changes (availability of water, food, electricity and fuel and changes in weather) affected your ability to…?

When asked about the impacts of weather and resource changes on their lives, respondents were most likely to point to the effects on their health (85% reported being very or fairly affected), which echoes what people said was their key concern and what they most valued.

Of those who said their health was affected by changes in the climate and resource availability, the majority of respondents (90%) reported experiencing a 'common illness' as a result, such as a fever, headache, sickness or diarrhoea. This was highest in Tonle Sap (where 94% reported experiencing a health impact), the region where people perceived the increase in temperature the most. Findings from the qualitative research supported this, with villagers in Pursat province of Tonle Sap reporting that they were taking baths more frequently to cope with the hot temperatures and to reduce health problems.

Around a fifth of respondents (19%) reported experiencing 'serious' health conditions as a result of climate-related changes, including dengue, typhoid and malaria. This finding was most prominent in

the Mountain region (where 26% of respondents reported having experienced this). It is supported by data from qualitative research in Ratanakiri in that region, where villagers acknowledged an increase in health issues. They needed to spend much more money and time on treatment, and found that traditional medicines no longer worked. People in this commune attributed these health changes to the hotter weather, flooding and changes in food consumption.

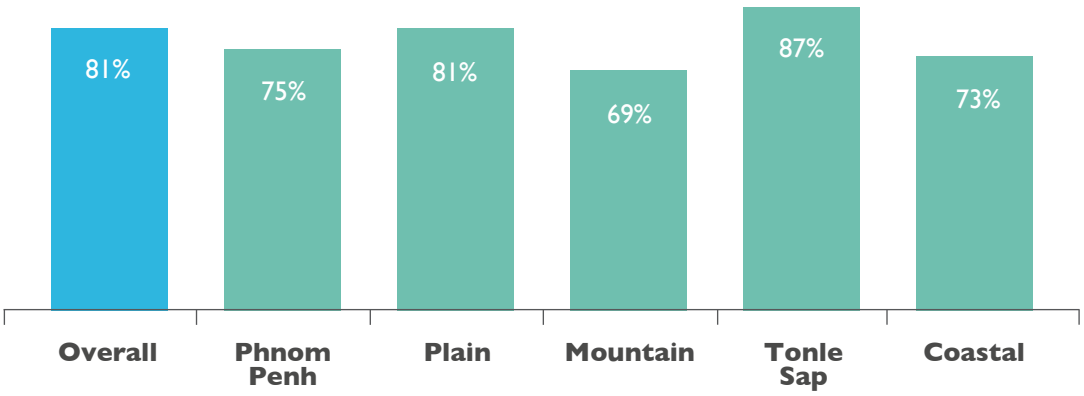
In urban areas, people reported experiencing fewer health issues compared to rural areas. One exception was the impact of climate-related changes on their 'everyday wellbeing', which included the effects of stress and fatigue (14% of urban respondents reported experiencing this, compared to 10% in rural locations). The qualitative research in Phnom Penh found that increased flooding was linked to emerging skin diseases, characterised by dry, itchy and red skin.

Case study: Less diverse livelihoods in Tonle Sap region

People in the Tonle Sap region – who felt more affected by changes to weather patterns and resource availability than Cambodians from other regions – were particularly concerned about their income. A large majority of respondents from Tonle Sap (87%) said their ability to earn money had been affected by these changes.

Findings from the qualitative research supported this – people from Tonle Sap felt that fish stocks had declined and storms were damaging equipment used for fishing, such as floating cages. As their options for alternative livelihoods were limited, they were facing the impacts of changes more acutely, and they reported migrating temporarily for work more than people from any other region (28% compared to 21% overall). Over a third of people in Tonle Sap (35%) reported that their income had decreased over the previous five years (compared to 28% overall).

Figure 14: Existing impact of changes on earning money, by region (% very or fairly)



BASE: 1660

Q: In your opinion, overall, how have these changes (availability of water, food, electricity and fuel and changes in weather) affected your ability to… earn money?

In Phnom Penh and the Coastal region, a lower perception of current and future risk arising from changes to the weather and availability of resources was mirrored by people feeling less impact on their ability to earn money. People in the Coastal region have many ways to support their livelihood – such as fishing, crab farming, rice farming and fruit plantations – which generate good income. This is also true for urban areas – qualitative data from Phnom Penh found that people had a plethora of options for work that could help support their livelihood, such as being taxi drivers, market sellers and construction workers.

It is evident then that economic security and earning potential plays a large role in shaping Cambodians' perception of how at risk they are from climate change.

> "Health is another concern for communities. More and more villagers are getting sick, especially children. I think the weather and environmental changes are among the causes."
>
> (Community member, Tonle Sap region)

PERCEIVED CHANGES TO FOOD AND WATER

Cambodia has been found to have a high level of pesticide residue in some of its food, particularly vegetables found in markets.[26] Cambodians are aware of this as just under two-thirds (62%) of respondents said that changes in the environment had affected their ability to eat what they want, and 38% of these people cited chemical substances in their food as the main concern in this respect. People in the Plain region, who were more likely to use pesticides to increase their crop yield (61% compared to 52% overall), were also most likely to report that their food contained chemical substances (50% of respondents from this region reported this).

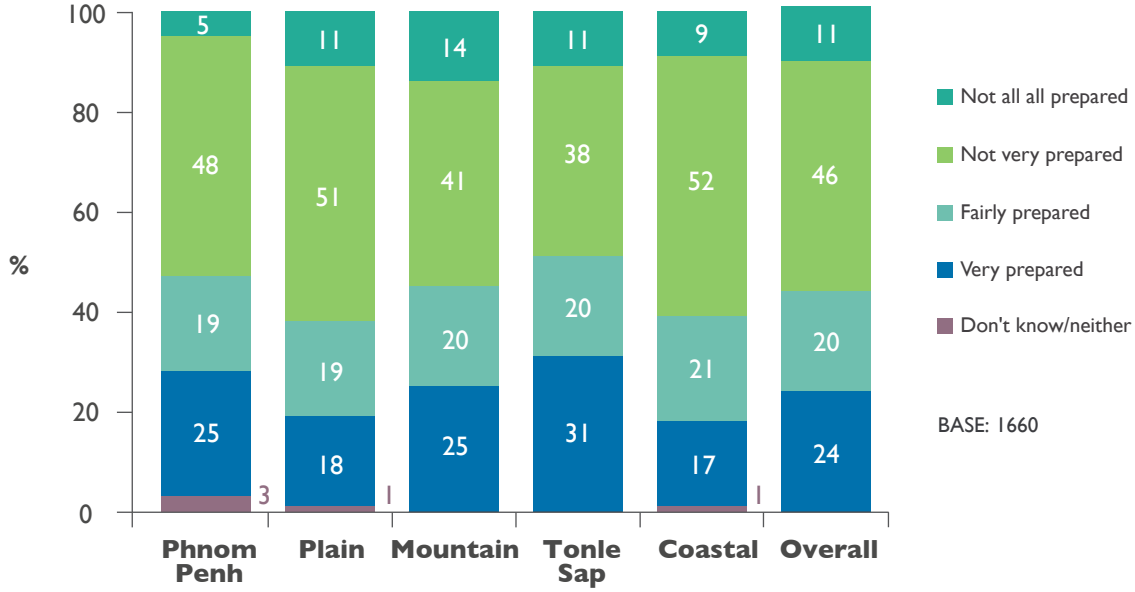
Some people also reported changes to their food consumption, based on its cost and availability. Around a fifth (18%) of people whose ability to eat what they wanted to was reportedly affected said that they have reduced their daily consumption. These were poorer people, and the impact was felt most in Phnom Penh (where 24% had reduced their food intake) and the Tonle Sap region (where 23% had done so). In Tonle Sap, around a quarter (27%) of people said they had limited access to food (compared to 16% overall). This figure was noticeably smaller for people in the Coastal region (5%), yet they reported feeling a greater impact on their ability to eat what they wanted through the cost of food (18% reported experiencing this, compared to 9% overall).

[26] José Manuel Ramos-Sánchez (2015). *Effects of pesticides on Cambodia farming and food production: alternatives to regulatory policies.*

Cambodians are experiencing changes to their water supplies as well as the cost and availability of food. Forty-six per cent of respondents said climate-related changes had an impact on their ability to use water in daily life (for drinking, washing and keeping cool in hot temperatures). However, this was significantly lower for those in urban areas (40%) compared to those from rural communities (48%). A large majority (81%) of those who reported that their water consumption was affected by changes in the climate said they now had to buy bottled water, particularly in the Coastal region (where 87% reported needing to do this).

EXTREME WEATHER: TAKING ACTION BUT FEELING UNPREPARED

Figure 15: Preparedness for an extreme weather event



Q: If extreme weather were to happen in your local area, how prepared do you think you would be? Prepared or not prepared?
Note: Some of the percentages do not equal one hundred due to rounding.

In Cambodia, over half of respondents (57%) felt under-prepared for an extreme weather event. Preparedness varied by region, with respondents in the Plain and Coastal regions most likely to say they felt unprepared (62% and 61% respectively).

03

Photo by research team: Rope used to connect houses to anchor, Pursat, Tonle Sap region

Case study: Anticipating storms in Pursat Province, Tonle Sap region

Villagers in Pursat in the Tonle Sap region felt the intensity of storms was increasing, but were gradually learning how to cope with the impacts.

They described how storms had destroyed their homes through lightning strikes and falling trees. However, they found that previous natural warning signals were no longer as useful.

"Storms are felt to come on much more suddenly now, so previous warning signs such as the sky changing colour aren't as effective. In previous years the sky was black, and there was lightning so we started to prepare. Now there is no lightning and the storm comes suddenly."

(Male, Ou Akol community, Tonle Sap region)

Villagers were taking action to prepare for storms by using ropes to connect their houses to wooden anchors. In Anlong Rieng community, villagers moved their floating houses and tied them to the flooded forest during the rainy season to protect themselves from storms. In Ou Akol community this technique was not adopted because villagers were afraid of lightning striking their houses during a storm so they settled away from the forest instead.

"Sometimes there are snakes, lightning and fallen [trees in] flooded forests. Fallen flooded forest is not so bad, we are mostly afraid of the lightning."

(Male, Ou Akol community, Tonle Sap region)

When asked what they could do to prepare for extreme weather events, people were most likely to point to planting trees (15%) and taking actions to ensure people's safety, such as making shelters (15%).

While respondents were most likely to take individual actions such as listening to weather forecasts (66%), saving money (64%), learning a new skill such as how to swim (62%) or storing food (48%), 38% reported making permanent adjustments to their homes in response to extreme weather, rather than temporary actions such as using sandbags to prevent flooding.

In Cambodia, Village Disaster Group are run voluntarily, and the regularity with which they meet varies. Despite many projects working to reactivate these community groups, their performance

Photo: © Ridan Sun

is thought to be limited. It is therefore unsurprising that less than a fifth (18%) of respondents have joined a local disaster committee.

As outlined in Section 2, over a third (39%) of respondents thought the severity of storms had increased 'a lot'. People in Cambodia were much less likely to have signed up for early weather warning alerts than those in other Climate Asia research countries (7% of respondents in Cambodia had done this, compared to 55% in Myanmar). This could be explained by the fact that early warning weather systems in Cambodia tend to be focused on flooding and drought (such as the placing of poles in rivers to assess water levels) and are not used to give an early indication of impending storms.

Table 2: Actions taken/being taken to prepare for extreme weather events

Action	Overall	Residence		Gender		Resources			
		Rural	Urban	Males	Females	Very poor	Poor	Comfortable	Well-off
Listen to weather forecasts	**66%**	71%	64%	70%	62%	54%	63%	71%	88%
Save money	**64%**	71%	61%	68%	60%	30%	60%	72%	88%
Learn a skill (eg how to swim)	**62%**	62%	62%	82%	42%	60%	63%	62%	61%
Store food	**48%**	55%	46%	44%	53%	31%	51%	47%	57%
Make permanent adjustments to my home (eg using stilts to raise the home)	**38%**	31%	41%	41%	36%	29%	38%	41%	40%
Have disaster preparedness plan (for family or local neighbourhood)	**24%**	19%	26%	26%	23%	23%	25%	25%	0%
Make temporary adjustments to my home (eg using sandbags to prevent flooding)	**19%**	24%	18%	22%	17%	15%	18%	21%	16%
Learn first aid	**19%**	23%	18%	22%	16%	17%	18%	20%	52%
Join a local/village/ community disaster committee	**18%**	19%	17%	18%	17%	17%	18%	18%	24%
Sign up for early warning alerts	**7%**	7%	7%	7%	6%	11%	6%	6%	12%
Take out insurance in case of a disaster	**6%**	10%	5%	6%	7%	4%	5%	8%	11%
BASE	**832**	209	623	413	419	45	421	354	11

Q: Please tell me which of these actions you are currently doing.

WOMEN FEEL BETTER ABLE TO COPE WITH EXTREME WEATHER

Overall, men in Cambodia reported being more likely to take actions to prepare for extreme weather, with the exception of storing food (53% of women said they did this, compared to 44% of men). However, when asked how well they felt they could cope with the changes in weather and resource availability, women felt more positive than men. Three-quarters of women (76%) felt they could cope with an extreme weather event, compared to 68% of men (and 72% of respondents overall). This was consistent with women's greater feeling of preparedness (46% felt prepared for an extreme weather event, compared to 40% of men).

Very poor people were the most likely to think they were at risk of an extreme weather event. However, they had taken or were taking the least action to respond to this risk. Consistent with this, only half (50%) of very poor respondents said they felt able to cope with an extreme weather event and a quarter (26%) felt they could not cope at all well with such an experience.

TAKING ACTION TO COPE WITH CHANGES

Changes discussed in this report
Researchers asked respondents whether they had made any adjustments because of issues related to changes in (or more extreme) weather, or a lack of food, water or energy.

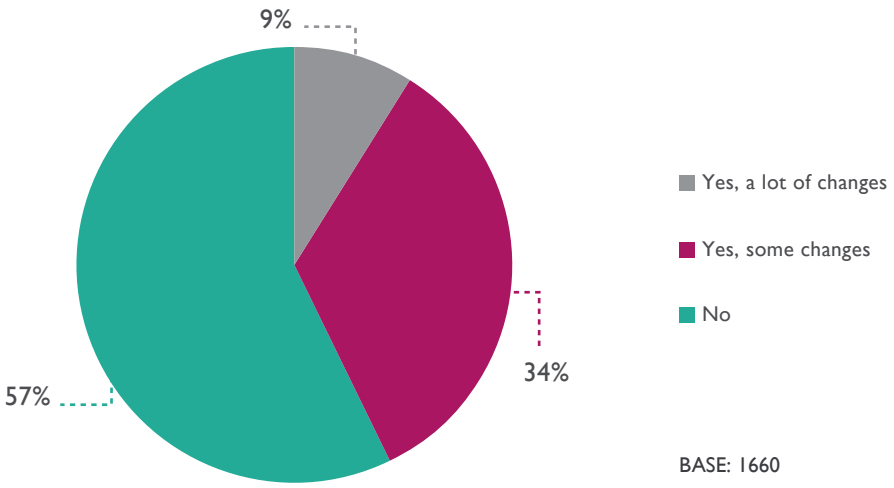
Climate Asia's use of the terms 'adapting', 'making changes' or 'changing livelihoods' refers to people's responses to the impacts of these changes in the environment. Climate Asia's analysis does not include a reflection on how far these changes or responses might be positive or negative in the short or long term, or how effective they might be.

Cambodians' perceptions of the existing impact of climate change on their lives is resulting in significant behavioural change across areas including employment, agricultural productivity and water sourcing.

ALTERNATIVE SOURCES OF INCOME

Forty-three per cent of Cambodian respondents said they had made some level of change to their livelihoods or jobs as a result of changes in the weather and the availability of resources. This was notably higher than the other Climate Asia countries – with the exception of Bangladesh, which had similar levels. However, there is a lot of regional variation in climate-related livelihoods changes within Cambodia. For example, respondents in the Coastal region were much more likely to report having made 'a lot' of changes to their livelihoods (17% of people from the Coastal region reported this, compared to 9% overall).

Figure 16: Changes to current livelihood



Q: Have you, or your family, made changes to your current livelihood/job to help cope/deal with changes in the availability of water, food, electricity and fuel and changes in weather you might be facing?

Table 3: Changes made to jobs or livelihood (Cambodia versus other Climate Asia countries)

	Base	Yes, a lot of changes	Yes, some changes
Cambodia	**1660**	**9**	**34**
Bangladesh	3600	6	30
Nepal	2400	1	18
India	8779	3	16
Myanmar	3000	3	16
Vietnam	3500	1	15
Indonesia	4994	2	13
Pakistan	4495	12	12
China	5728	0	3

Researchers asked Cambodians who said they had made changes to explain, **unprompted**, what actions they had been taking in response to changes in weather patterns or resource availability. Around two-thirds (61%) of these people had changed their job, which is higher than any other reported action. People in Phnom Penh and the Tonle Sap region were more likely to cite having done this (71% and 69%, respectively), while those in the Coastal region were less so (42% reported having changed job as a result of these changes), perhaps because of the greater variety of opportunities they had to earn money (a case study in Section 4 explores this in more detail). Changing jobs is a potentially major life change, with impacts on a whole household, so it is significant that people are opting for this rather than making smaller scale, less disruptive changes.

Regardless of whether people had changed their job as a result of climate-related changes, just under two-thirds of Cambodian respondents (59%) said they had supplemented their income in other ways. This finding was particularly high in rural areas (where 60% reported having done this) compared to urban ones (53%), with men reporting doing this much more than women (64% compared with 53%).

It has been reported that people in Cambodia who work in the agricultural sector face particular economic hardship caused by changes in the weather. These workers often have larger debts and fewer skills than others, and are migrating to alleviate these struggles and meet their financial needs.[27] Consistent with this, a fifth (21%) of respondents in Cambodia said they had migrated temporarily for work in order to earn more money.

These findings indicate that environmental changes are leading to economic changes in Cambodia. Increased debt and temporary migration all place huge stresses on individuals and their families. Findings from qualitative research in Pursat in the Tonle Sap region support this – people said they were concerned about their debts owed to local lenders or microfinance institutions.

[27] United States Agency for International Development (USAID) (2016). *Economic Targeting for Employment: A Study on the Drivers Behind International Migration from Cambodia and the Domestic Labor Market – Final Report* (online). Available at: https://pdf.usaid.gov/pdf_docs/PA00MB44.pdf

REGIONAL RESPONSES TO WATER SHORTAGES

As discussed above, Cambodians believe that the availability and safety of water supplies is being affected by environmental changes. When asked what they do to cope with a lack of water, people were most likely to say they make water safe to drink (83%) or store water (82%). Rural respondents were significantly more likely to report storing water (86% compared to 69% in urban locations), particularly in the Coastal region where 93% of respondents reported doing this. People who live in urban areas were more likely to buy bottled water (83%, compared to 68% of rural respondents).

Women were more likely to report taking action in response to water shortages with 87% of them saying that they made water safe to drink (for example by boiling it or using a filter), compared to 79% of men. The exception was finding new water sources, where there were no significant differences by gender.

Table 4: Actions taken in response to a lack of water

Action	Overall	Residence		Region				
		Urban	Rural	Phnom Penh	Plain	Mountain	Tonle Sap	Coastal
Making water safe to drink	**83%**	85%	83%	90%	85%	74%	82%	86%
Storing/saving water	**82%**	69%	86%	59%	83%	86%	83%	93%
Buying water	**72%**	83%	68%	86%	70%	74%	70%	71%
Finding a new water supply	**50%**	30%	56%	32%	55%	33%	55%	47%
Recycling water/re-using waste water	**23%**	18%	24%	21%	24%	18%	22%	32%

Q: Please tell me which of these actions you are currently doing.

AGRICULTURAL PRODUCTIVITY IN RURAL AREAS

When asked what they are doing in response to changes in food availability and prices, the majority of Cambodians pointed to making dietary changes such as reducing food waste (94%) and changing their diet (86%).

Table 5: Actions in response to changes in food availability and price, by location and region

Action		Overall	Residence		Region				
			Urban	Rural	Phnom Penh	Plain	Mountain	Tonle Sap	Coastal
Dietary changes	Reducing food waste	**94%**	96%	93%	97%	93%	96%	94%	93%
	Changing diet	**86%**	91%	85%	92%	86%	82%	88%	79%
	Keeping food for longer	**71%**	68%	72%	67%	77%	59%	74%	55%
Agricultural change	Growing different types of crops/ having different livestock	**80%**	57%	88%	47%	85%	87%	83%	78%
	Using pesticides to increase crop yields	**52%**	26%	60%	20%	61%	45%	55%	35%
	Rotating crops	**46%**	30%	51%	16%	52%	43%	50%	40%
	Using technologies to improve soil fertility (eg fertiliser)	**39%**	11%	48%	8%	35%	49%	48%	46%
External support	Borrowing money	**57%**	47%	60%	49%	56%	57%	61%	58%
	Borrowing food items from other community members	**19%**	11%	22%	10%	17%	16%	28%	16%
	Seeking technical support from government services or NGOs	**14%**	7%	17%	5%	14%	15%	17%	14%

Q: Below is a list of actions people can take to help them deal with changes in food availability/food prices. Please tell me which of these actions you are currently doing.

In rural areas of Cambodia, people were very likely to be making agricultural changes in responses to climatic shifts. These included growing different types of crops or keeping different livestock (88% of rural respondents reported doing this), rotating crops (51%) and using pesticides to increase agricultural productivity (60%). Rural respondents were also more reliant on external support. For example, rural respondents reported borrowing food items from other community members (22% compared to 11% of urban respondents). In some urban areas there is some land available for agriculture. This land is used in a similar way to rural areas, which can explain the figures highlighted in Table 5.

Urban respondents were more likely to report making changes to their diets in response to changes in the weather and resource availability (91% compared to 85% in rural areas) and reducing food waste (96% compared to 93% in rural areas).

MORE EFFICIENT FUEL USE

Almost all Cambodians (98%) have access to at least one source of electricity according to a report by The World Bank,[28] yet around 10% admitted that they cannot afford the electricity tariff. In line with this, around two-thirds (64%) of Cambodians surveyed as part of the Climate Asia study said they had started using electricity and fuel more efficiently. This was notably higher in Phnom Penh (where 70% of respondents said this) than in other areas such as the Coastal region (54%).

However, rural respondents were more likely to report using renewable energy sources, for example solar panels and lanterns (21% compared to 4% in urban locations). This was significantly higher in the Tonle Sap region overall (26%).

WILLINGNESS TO MAKE FURTHER CHANGES

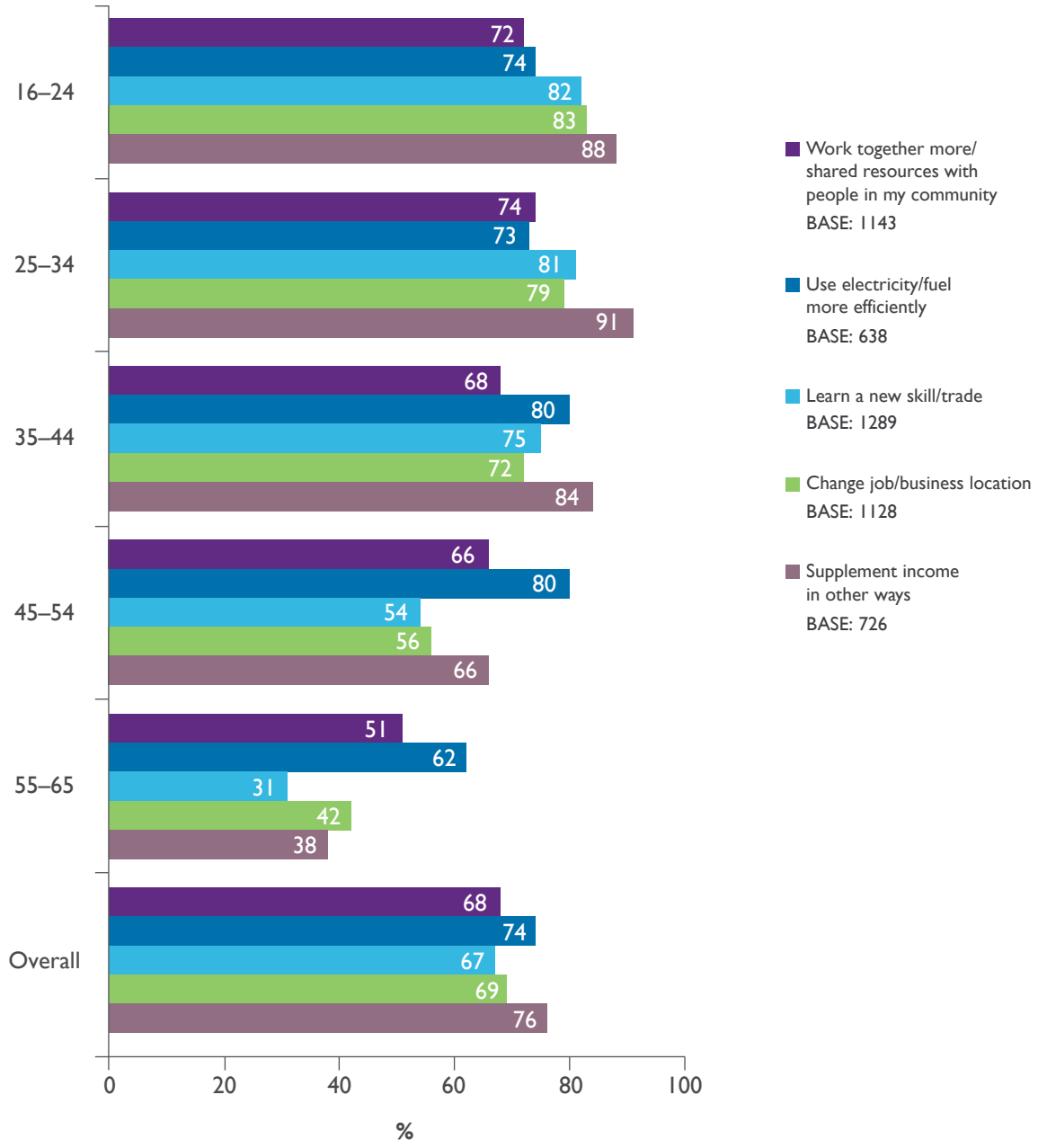
Not only are Cambodians already making changes in response to the impacts of climate change, but they are also prepared to continue to adapt to keep pace with climate change. Three-quarters of people (77%) said they were willing to make more changes to their job or livelihood to cope with future fluctuations in the climate and the availability of key resources. Their readiness was high compared with other countries in the Climate Asia study. In Cambodia, 69% of respondents said they were willing to make changes to their livelihood, compared with an average of 48% across the six Climate Asia countries surveyed in 2012, and Myanmar. This finding was highest in Nepal (85%) and lowest in India (30%).

Certain groups of Cambodians showed even more appetite for change than the general population. For example, people in the Tonle Sap region were more likely to feel that the future impact of climate

[28] Dave et al (2018). *Cambodia – Beyond connections: energy access diagnostic report based on multi-tier framework* (online). Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/29512/124490.pdf?sequence=5&isAllowed=y.

change would be high and, despite already taking action in response to this challenge, they were the most willing to make further adjustments. Over a third (36%) of people in Tonle Sap said they were 'very' willing to make more changes, compared to a quarter (26%) of Cambodians overall. Younger people were also significantly more likely to say they would take action in the future than older people. Sections 7 and 8 will consider how communication can build on this appetite for adaptation.

Figure 17: Likelihood of taking actions in the future by age (% very or fairly)



Q: How likely are you to do these actions in the future?

04

ENABLERS AND BARRIERS TO ACTION

Barriers to action were grouped into three categories – social, structural and resource. Figure 18 shows how these barriers were grouped based on a series of statements.

While many people in Cambodia are responding to climate-related changes, others are not. A big factor in designing effective communication is understanding what drives people to act and what prevents them from doing so. This section will discuss key factors that enable or prevent action in response to changes in the climate and a perceived decrease in the availability of key resources.

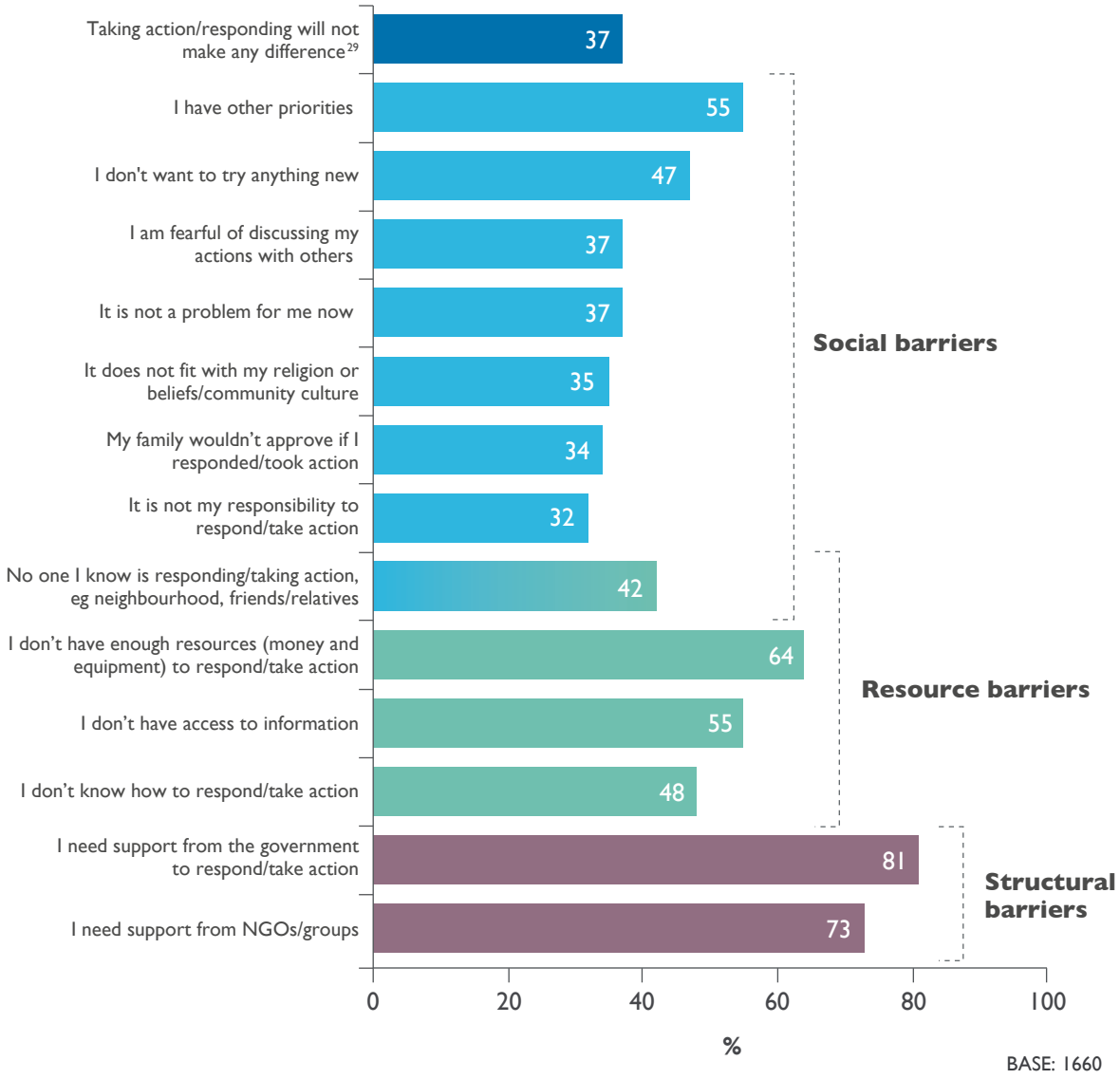
People in Cambodia felt that a lack of institutional support was the biggest barrier to them responding to these changes. Their children's future and their health were the most common reasons people gave for taking action. Other factors that influence levels of activity include being able to access information, the perceived risk of climate-related impacts and levels of community engagement.

INSTITUTIONAL SUPPORT

When asked what they felt were the biggest barriers to taking action in response to climate change, the majority of Cambodians pointed to the need for greater support from the government (81%) and NGOs (73%). This emphasis on institutional responses is underpinned by people's overall confidence in the ability of the government and NGOs to take necessary action (86% and 75%, respectively), but also indicates that they are looking to others to address the issue of climate change.

When people have taken individual actions to mitigate the impacts of climate change they have encountered significant barriers. These include not having enough resources (64%) or information (55%) to act. Almost half of respondents in Cambodia (48%) said they did not know how to respond to climate change. There were no significant differences across demographics and geographical locations in relation to this – Cambodians are united in feeling that they are not adequately equipped to act in response to the challenges of climate change.

Figure 18: Perceived barriers to taking action (% agree)



Q: There have been some ways that people can respond/take action to respond to changes in the availability of water, food, electricity and fuel and changes in weather. I am now going to read some statements. They are reasons why some people do not respond/take action. Multiple responses permitted.

[29] This option did not fall into any of the three barrier clusters.

Photo by research team: water gate in Koh Kong

Case study: Salt water undermining yields in the Coastal region

In Koh Kong in the Coastal region, residents have noticed the rise in the sea level. Rice fields near the sea have become increasingly salinated due to the inflow of salty water. Villagers tried to solve this by constructing a blockade canal, but poor-quality water gates meant this did not work effectively. They tried to use rocks or sandbags as a blockade, but this also proved ineffective.

"When sea water is flowing into the paddy field, the rice yield decreases and kills the biodiversity in the surrounding fresh water lake. We have proposed to the commune council a solution, but the budget has been diverted to build a road to the Koh Chak waterfall site instead."

(Female, Koh Kong, Coastal region)

Villagers stated that they have not seen any government response to this issue despite it being something they needed.

SOCIAL BARRIERS

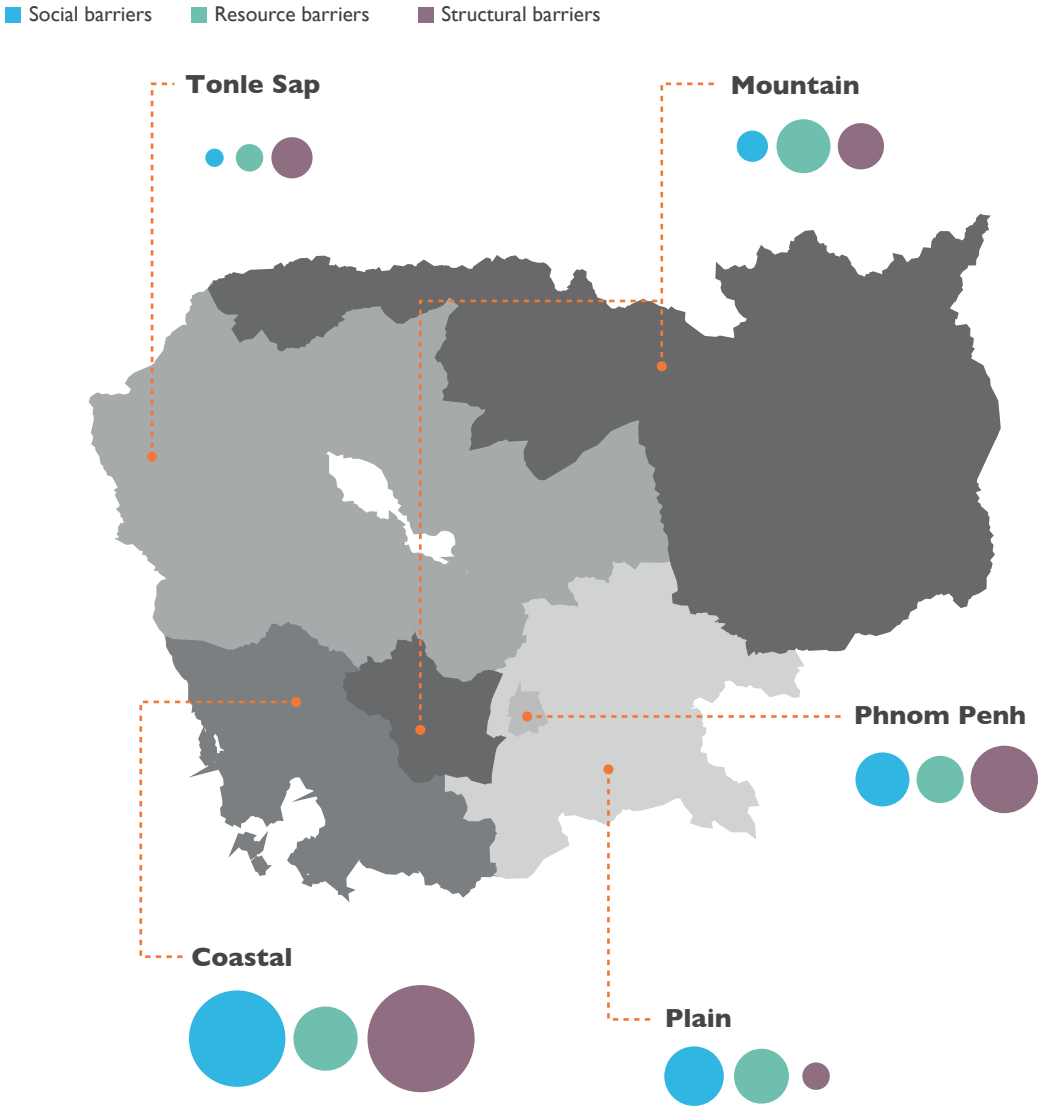
Beyond the most widely cited barriers outlined above, Cambodians' responses demonstrate that there are complex and diverse reasons why they might not be taking action to reduce the impacts of climate change. People said they were not responding to this challenge because of social factors such as being fearful of discussing actions with others (37%), or because it did not fit with their religious beliefs or community culture (35%). Those who were very poor were more likely to cite these barriers as reasons for not taking action (53% and 44%, respectively). For farmers and fishermen, who are also more likely to be very poor, these factors were relatively pronounced (42%).

A third (32%) of people did not think that it was their responsibility to take action in response to the impacts of climate change, but this finding was notably higher in the Coastal region, where 42% cited this. Interestingly, more than half (53%) of the people surveyed in this region also said that they were not responding because climate change was not a problem for them at the

time, compared to 37% of the overall population, yet Coastal residents were more likely than Cambodians in other regions to have observed changes in the climate, such as an increase in rainfall and a rise in sea level (as reported in Section 2).

Statistical analysis conducted on the data from Cambodia found three types of barriers, which have been interpreted as 'social', 'resource' and 'structural' barriers. People varied most in the extent to which they reported experiencing social barriers. There is therefore an opportunity to address social barriers among people who experience these the most, using people with lower social barriers as role models or influencers.

Figure 19: Relative barrier scores by region



BASE: 1660

Note: The size of the circle denotes the barrier score. Refer to figure 18 for the breakdown of social, resource and structural barriers.

04

VERY POOR PEOPLE'S PRIORITY: IMMEDIATE NEEDS

The group with the strongest social and resource barriers to acting in response to the impacts of climate change were the very poor. These people were more inclined to think that climate change was not an issue for them at the time of the survey (45% of very poor respondents compared to 37% of the overall sample), and were more likely to say they had other priorities (59% of this group, compared to 55% overall). More than two-thirds (67%) of very poor respondents thought that their income had decreased over the previous five years, with 40% saying it had decreased 'a lot'.

Very poor people in Cambodia reported feeling less impact from changes in the climate and were less likely to think that the impact of these changes would be high in the future (see Sections 2 and 3). Unsurprisingly, these people were more worried about meeting their immediate needs. Communication around climate change could therefore benefit this group by connecting climate and environmental issues to their daily lives. Providing information on how to take action using the limited resources they have might help to engage and motivate this vulnerable group in relation to climate change. Section 8 will consider in more detail how the very poor can be supported by effective communication plans.

The Climate Asia study demonstrates that communities living in the Coastal and Tonle Sap regions had significantly different experiences of, and attitudes towards, living with changes in the climate and environment compared to each other and people in other regions of Cambodia.

Case study: Diverse barriers to action for Coastal region residents

People living in the Coastal region of Cambodia, makes up 7% of the population. It is at risk from extreme weather conditions, such as intense storms, irregular rainfall and higher temperatures. People living here have noticed these changes – almost two-thirds (61%) felt that rainfall had increased over the previous 10 years and a fifth (21%) felt that the sea level had risen.

Despite being acutely aware of changes in the climate, Coastal residents reported feeling less of a resulting impact compared to people in other regions, and were also more inclined to think this impact would be low in the future. In line with this belief, many had taken less action than other Cambodians. There is an apparent disconnect between what Coastal residents perceive to be happening and the actions they need to take – over half (53%) of respondents from this region felt that taking action in response to changes in the weather and resource availability would not make any difference.

The most common action that people in the Coastal region reported having taken was supplementing their income in other ways, which is perhaps unsurprising given their varied earning opportunities – including fishing, rice farming and fruit plantations.

A large proportion of Coastal residents (61%) felt unprepared for extreme weather (compared to 56% overall), perhaps linked to the large number of **social** and **structural** barriers reported in this region. Coastal residents did not feel it was their role to respond to the impacts of environmental and climate change (42%, compared to 32% of Cambodian respondents overall). Consequently, they placed more emphasis on the need for government and NGO support. In addition, half (49%) of the respondents in this region said that taking action would not fit with their religion or community beliefs (compared to 35% overall), and they were also more fearful than other Cambodians of discussing their actions with others (43% compared to 37% overall). This is consistent with the high value that inhabitants of the Coastal region place on their religion and following traditional beliefs (84% said it was 'very important' to them compared to 77% of the overall sample).

A greater number of people from this region than elsewhere in Cambodia preferred to work alone to solve problems (42% compared to 25% overall). However, they had high confidence in the likelihood of community action – 87% of people in this region felt confident that their local neighbourhood would take necessary action (compared to 81% overall), with over a third (35%) feeling 'very' confident about this.

Targeted communication could build knowledge and highlight Coastal people's exposure to risks relating to extreme weather. It could also help people to connect the changes they are experiencing with the actions they need to take, perhaps by demonstrating how and why to prepare for such events. Given the low levels of resources available to people in this region, solutions need to be low-cost and achievable to maximise take-up.

Case study: Vulnerable but keen to adapt in Tonle Sap region

Residents of the Tonle Sap region make up around a third of the population of Cambodia. People here are very attuned to changes in the environment and had some of the highest levels of concern around this issue. Three-quarters of respondents from this region felt that the temperature in the dry season had increased 'a lot', and around two-thirds (67%) felt the intensity of storms had increased. They were more likely to perceive a high level of impacts from these changes, both now (29%) and in the future (49%). In turn, people from Tone Sap were the most likely to think that their life had got worse over the preceding five years.

Tonle Sap communities were feeling the impact of climate-related changes on their basic needs – over a quarter (27%) said they had limited access to food as a result of these changes. People from this region have few opportunities to diversify their livelihoods, which makes them very vulnerable. They were more likely than people from other regions of Cambodia to report borrowing money from others in order to cope and were taking other, bigger actions such as changing their jobs or migrating for work. Consistent with their feelings of vulnerability, many people in Tonle Sap were willing to make further changes if needed.

In this region, people felt they had **fewer barriers** to taking action in response to changes in weather patterns and the availability of key resources compared to other regions in Cambodia, particularly when it came to social barriers. They were more inclined to think that changes in the environment were already a problem for them and they felt a responsibility to act. Although they still experienced some social barriers, such as thinking their family would not approve, they were taking action regardless. Nonetheless, almost two-thirds (62%) of respondents in this region felt they did not have enough resources to respond to these challenges and half (53%) said they did not have enough information to do so.

FAITH IN COMMUNITY ACTION

There is strong support for community action in Cambodia. In the qualitative research, people spoke positively about taking action as a community and believed that communities could play an important role in helping to improve preparations for extreme weather events. The majority of survey respondents (93%) felt confident that their communities could work together to tackle problems and a similar proportion (89%) believed they could help their community be better prepared for extreme weather.

Table 6: Perceptions of community and individual ability to take action

Action		% agree
Community action	My community can work together to solve problems	93
	I believe I can help my community be better prepared for disaster/ extreme weather	89
Individual action	I prefer to work alone to solve problems	25

Q: Please say whether you agree or disagree with the following statements.

Just over half of Cambodians (57%) said that they often discuss taking action to cope with environmental and weather changes with others in their community. This was higher among the middle age groups (35–44-year-olds, 67%) and in the Coastal region (65%). However, very poor people were less likely to discuss actions with others.

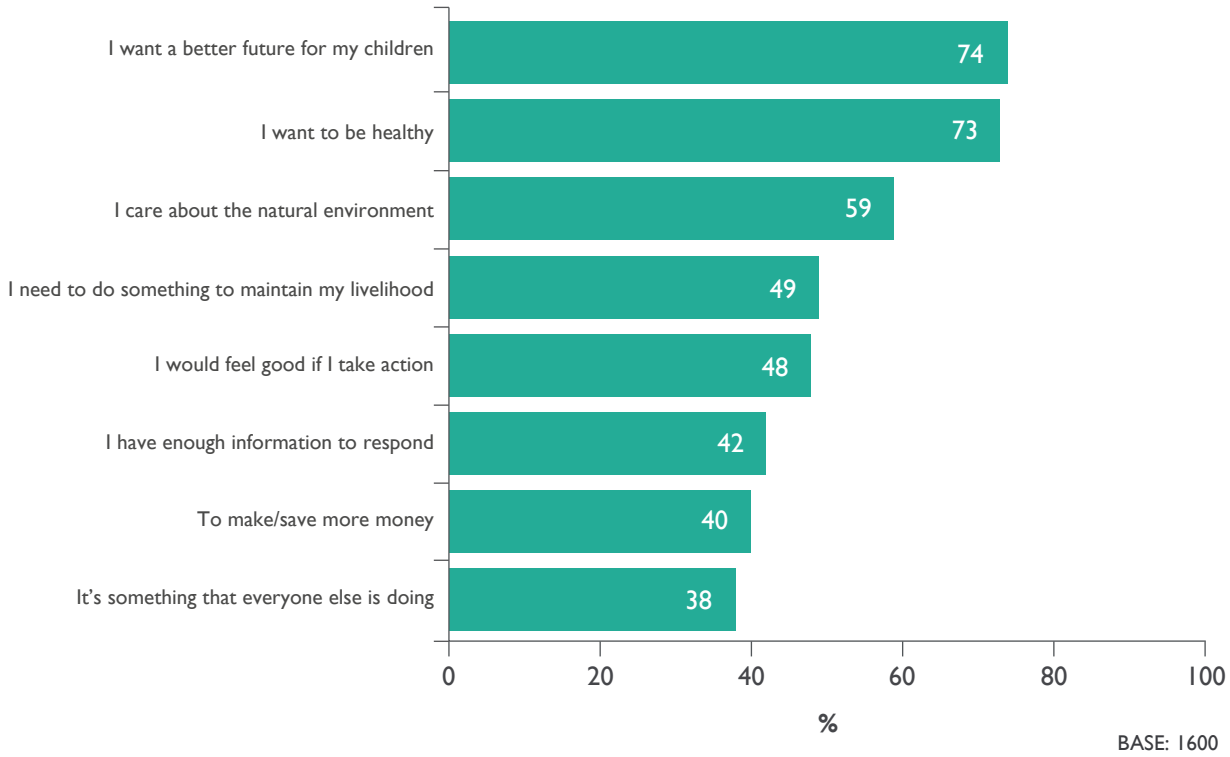
APATHY

Just over a third (37%) of Cambodians felt that taking action in response to the impacts of climate change would not make any difference. This feeling increased with age (45% of 55–65-year-olds felt this, compared to 32% of 16–24-year-olds). While some people are taking action and there are concrete reasons why others are not doing so, there are sentiments of apathy and fatalism that need to be recognised. Sixty-four per cent of the overall sample did not think they could do much to change what happened in their lives and over half (55%) had other priorities.

DRIVERS: HEALTH AND CHILDREN'S FUTURE

When asked their top reasons for responding to climate changes, a large majority of people in Cambodia strongly agreed that they acted because they wanted a better future for their children (74%) and because they wanted to be healthy (73%), which is consistent with their values and biggest concerns (as highlighted in Section 2).

Figure 20: Motivators for taking action in response to changes in the weather and environment (% strongly agree)



Q: Some people have given reasons for why they have responded to impacts felt. For each statement I read out, please say whether you agree or disagree with it as a reason for why you would respond/take action

Economic factors such as making or saving more money were less likely to drive people to act (40% of the overall sample strongly agreed with this). This finding was significantly higher in the Coastal region, where just under two-thirds of respondents (60%) strongly agreed this would be a reason to respond. Communication that highlights the financial benefits of adapting to climate-related changes could therefore be beneficial for people who have not yet taken action in response to these challenges but are feeling their impact.

USING THESE FINDINGS

An understanding of people's perceptions of barriers and enablers to action is essential to ensure that communication around climate-related changes meets their needs. With this in mind, the data was segmented based on the impact felt by respondents, how they have already responded and their key barriers to action. Further details about the composition of these segments in Cambodia and their implications for communication are in Section 7.

THE MEDIA AND COMMUNICATION LANDSCAPE

In order to reach people it is important to understand what they want to know, the media they use, who they talk to and trust, and how they would like information delivered to them. This section analyses media and communication use in Cambodia to inform this process.

INTERNET ACCESS

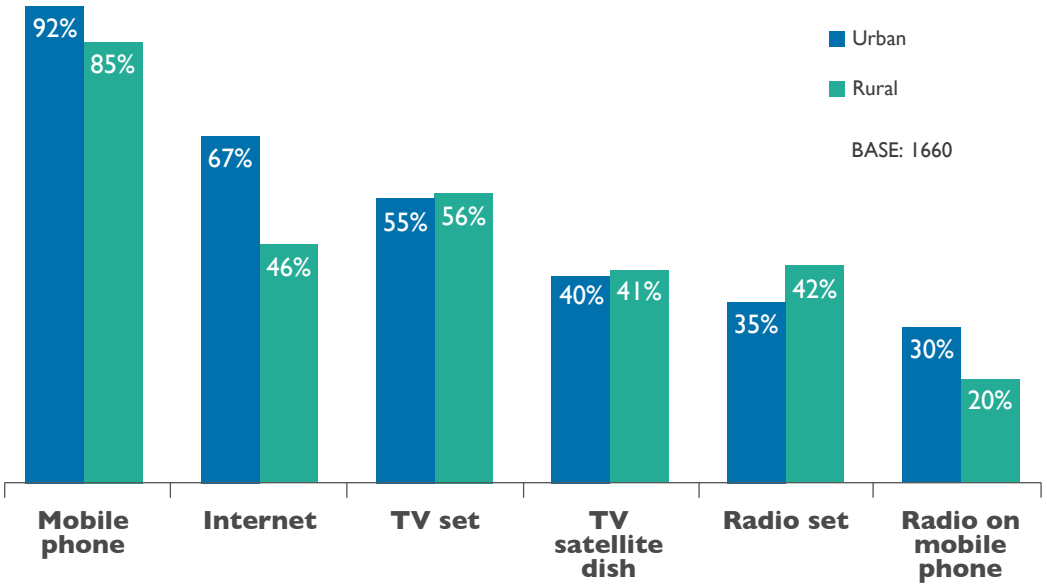
Given the growth of mobile technology across Cambodia, it is unsurprising that mobile phones are the most commonly accessed media platform. Eighty-eight per cent of people reported regularly using their mobile (at least once per day).

The research highlighted some key differences in media access between urban and rural populations, which has implications for any communication strategy on climate change in Cambodia. Just under two-thirds (59%) of people reported having access to the internet, but this was significantly higher for people living in urban areas (67%) compared to those in rural areas, where just under half (46%) had internet access. Those Cambodians who did have internet access used it regularly – 84% of them were online at least once a day.

TV access was generally higher than radio access, and while both urban and rural respondents had widespread radio access, for rural respondents this was more likely to be through a radio set than a phone, in contrast to urban respondents.

While communication using mobile phones, and TV and radio access could reach an equal proportion of rural and urban Cambodians, the internet is likely to be much more accessible to urban populations.

Figure 21: Access to media platforms (at home or elsewhere)



Q: In the last 12 months, which of the following items have you been able to access (at home or elsewhere)?

MOBILE PHONE USE

Although mobile phone access in Cambodia was high (87% reported having this), it was inversely related to age. The greatest access to mobile phones was among those aged 25–34 (94%), compared with 79% of 55–65-year-olds.

The most common reason for using a mobile phone was for making and receiving calls, but younger people under the age of 25 – who spend more time on their phones – were using them for a wider range of activities, such as social media and the internet.

Fifty-nine per cent of the population aged 16 or over reported having a smartphone but there were important differences based on demographics. Men (65%), people aged 16–34 (75%), those who are educated to university level or higher (99%) and those who are well-off (86%) were more likely to say they had a smartphone. These demographic differences also translate into the amount of time people spend on their smartphones. Those in urban locations, men and younger people reported using smartphones more per day than the average.

INTERNET AS AN ENGAGEMENT TOOL

Internet use among young people in Cambodia is notably high and has continued to increase in recent years. Three-quarters (74%) of 16–24-year-olds reported having internet access in this 2018 study, compared to 34% of respondents in this age group[30] in a 2013 BBC Media Action study in Cambodia. This age group was much more likely to have internet access than older people – only 15% of 55–65-year-olds reported having internet access. In line with smartphone usage, people who had received more education were more likely to report having internet access (77% of those with upper secondary education, compared to 35% of those with primary education).

> "Young people like me own a smartphone. We can access the internet to watch drama series, movies and music videos on Facebook and YouTube, which is easier than TV… TV programmes generally broadcast with advertisements, so I prefer using the internet on my smartphone to access Facebook or YouTube as it is very easy to watch what I want."
>
> (Young female, Mountain region)

SOCIAL MEDIA

There is a clear digital gap when it comes to active social media presence in Cambodia. Young, male, urban and well-off respondents were more likely than older, female, rural and poorer populations to have an active social media profile, as follows:

- 55% of men versus 40% of women
- 67% of 15–34-year-olds versus 15% of those aged 45 or above
- 63% of those who lived in urban areas versus 42% in rural areas
- 72% of those who had university level education or higher versus 31% of those with primary education had a social media profile

Among people who said they had an active social media profile, Facebook and YouTube were the most popular platforms, with the majority (90%) of those using Facebook doing so at least once per day, and two-thirds (64%) using YouTube daily. Use of these platforms was significantly higher for men than women.

[30] The age group for the survey conducted in 2013 was 15–24.

05

TV AND RADIO ACCESS

After mobile phones and the internet, TV was the next most commonly used platform across Cambodia for urban respondents. Overall, rural respondents used mobile phones more than TV but the internet less than TV. Among TV viewers, Hang Meas is the most popular channel with 51% of those who had access to TV having watched it in the previous 12 months. This was followed by CTN (48%) and MyTV (42%).[31] TV viewers were more likely to watch TV in the evening, particularly from 7–10pm.

Access to radio in Cambodia has dropped in the period between the 2013 study by BBC Media Action and this study, particularly among younger audiences. In 2013, radio was the second most popular media platform for younger people (92% of 15–24-year-olds reported having radio access in 2013, compared to 42% of 16–24-year-olds in this 2018 study). In line with this, radio listeners in this study were more likely to be older – 50% of 55–65-year-olds reported listening to the radio. Two-thirds (66%) of radio listeners reported doing so at least once a day, but this finding was much higher for older people (78% of 55–65-year-olds reported listening at least daily). Radio might be particularly useful for reaching farmers and fishermen (48% of whom had access in the last 12 months), compared to 40% of the overall population.

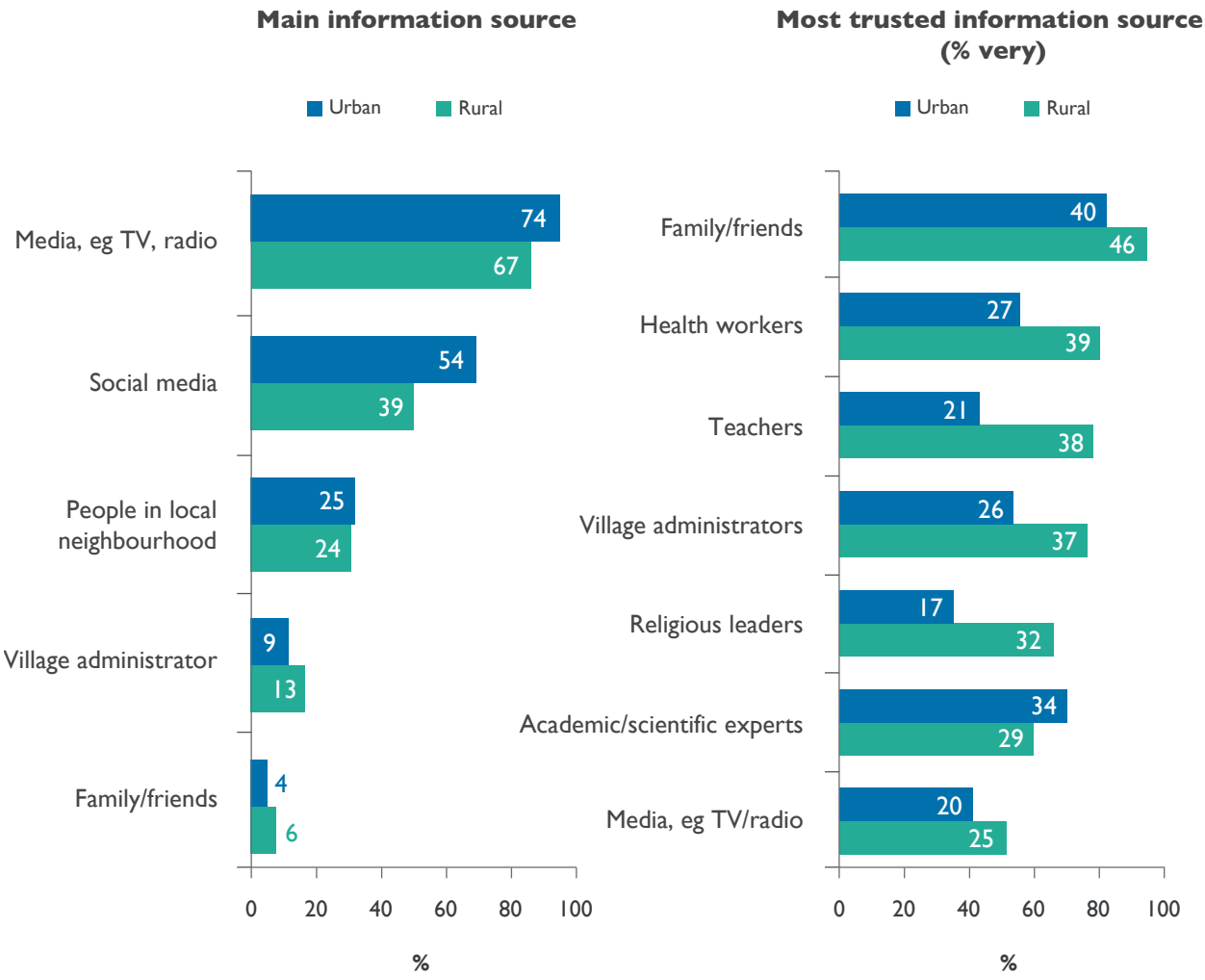
Around a third (31%) of listeners said they could not remember which radio stations they had listened to. Among those who could remember, ABC Radio[32] was the most popular (cited by 17% of respondents in this group) followed by Radio Free Asia[33] (12%) and Bayon Radio[34] (10%). Radio listeners were more likely to listen during the evening (7–10pm), followed by early in the morning (before 8am).

OVERVIEW OF MEDIA ACCESS AND USE

With regard to overall sources of information, people in Cambodia were much more likely to turn to the media, such as TV and radio, than to other people in their community. Although people felt that the media covered social and environmental issues well, their trust in these sources was much lower than their trust in family members and friends. Friends and relatives were cited as the most trusted sources of general information, despite not being people's main information source.

[31] All three channels listed are commercial broadcasters.
[32] Commercial radio station.
[33] Private, non-profit cooperation.
[34] Commercial radio station.

Figure 22: General sources of information



BASE: 1660

Q: Thinking about information generally, where do you get it from?
Q: How trustworthy do you find these sources, as a general source of information? Very, fairly, not very much or not at all?

Cambodians generally, and rural respondents in particular, were more likely to trust others in their community, such as family members and friends, and professionals such as teachers and health workers. This is unsurprising given that people in Cambodia have a strong sense of belief in their community's ability to work together (as explored in Section 4).

Village administrators were also cited by respondents as trusted, which links to the qualitative research indicating that village chiefs were responsible for disseminating information in some communities. Therefore, communication that engages village leaders in these areas would be beneficial.

05

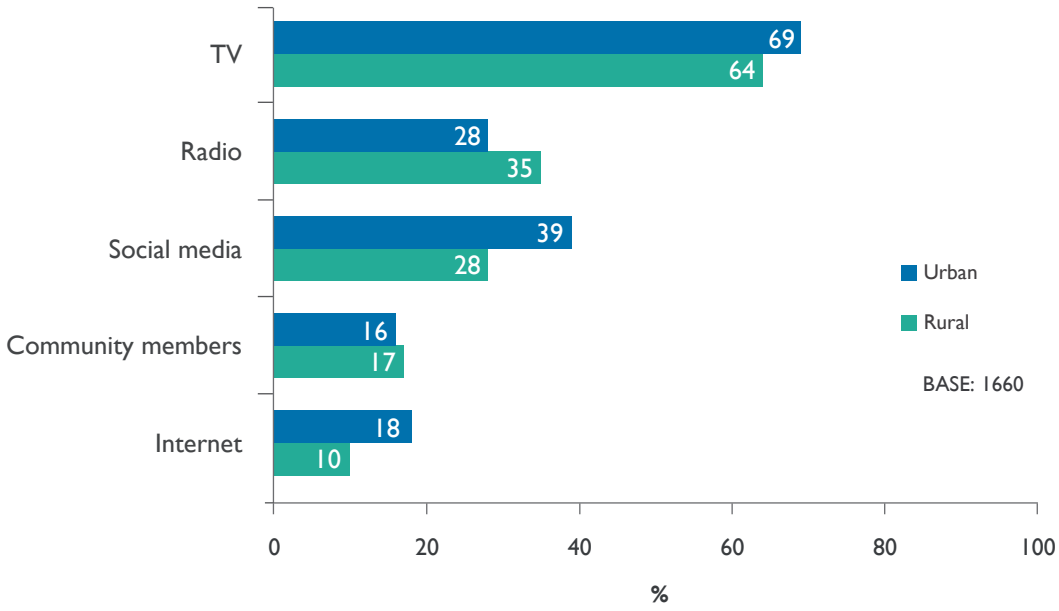
Photo by research team: Community meeting hall constructed by NGOs in Ou Akol commune, Tonle Sap region

Giving all of these community figures, a greater platform in the media could turn up the volume on environmental communication by establishing other trusted sources of information on these issues.

As explored in Section 4, many respondents in Cambodia (78%) felt informed about the things they could do to cope with the changes in resource availability and weather patterns that they were facing. However, only 9% felt 'very' well informed on this. Younger people, who had greater access to the internet and social media, were more inclined to feel well informed.

Just as for general information, the majority of Cambodians said they got information on social and environmental issues from the media. TV was the most popular information source on this

Figure 23: Sources of information on environmental changes



Q: What are your main sources of information for the social and environmental issues discussed today?

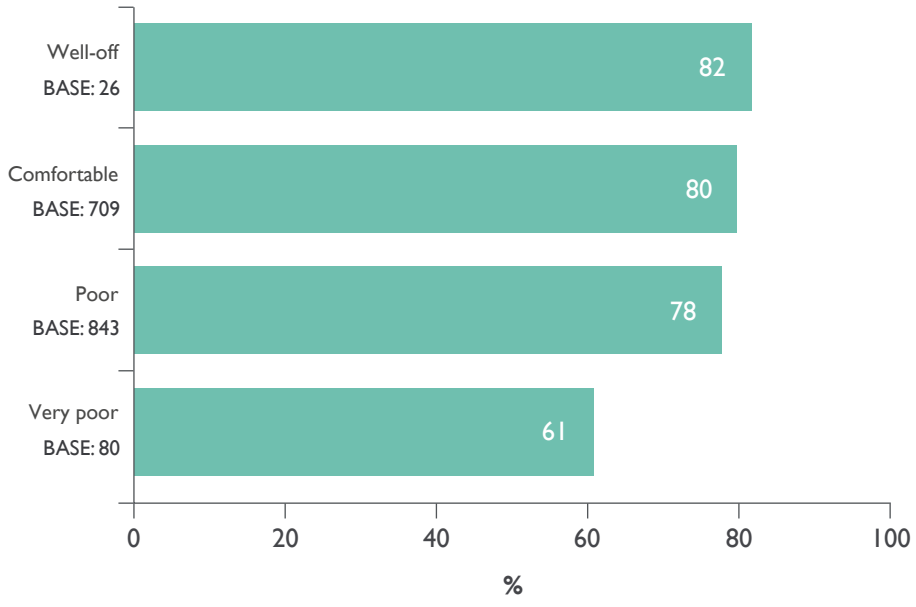
issue (cited by 65% of respondents), followed by the radio (35%) and social media (31%). However, just under a fifth (17%) of people said they got information from other people in their community, perhaps the professional workers and village administrators who are so well trusted.

THE VERY POOR DO NOT FEEL WELL SERVED BY THE MEDIA

Very poor people make up a small proportion (5%) of the population of Cambodia, but they were less inclined to think that the media adequately covers information about changes in the weather and resources (32% of very poor people said this was 'not well' covered by the media, compared to 21% of the overall sample), and over a third of very poor people said they did not feel informed about these issues (compared to 20% of respondents overall).

Very poor people were less inclined to think that there was good media coverage of issues relating to changes in the environment. While they were still more likely to turn to the media than other sources for information (TV was cited by 43% of this group and radio by 26%), a small proportion of the poorest people (but still higher than the average in the overall sample) got information on these issues from NGOs. In all, over a third of this income group felt they had limited knowledge on things they could do to cope with changes in the weather and the availability of key resources.

Figure 24: Felt informed about how to respond to changes in essential resources (% agree)



Q: How well informed do you feel about the things you could do to cope with changes in water, food, energy supplies that you might be facing?

06

UNDERSTANDING PEOPLE IN CAMBODIA

The previous sections paint a detailed picture of how Cambodians perceive and respond to climate change. A segmentation analysis conducted on the data highlights some underlying patterns that build on the main research findings. Insights from this analysis can be used to identify opportunities for communication, and thereby encourage effective action in response to changes in climate.

Sections 3 and 4 highlighted how people in Cambodia are taking action and responding differently to these changes they face for a variety of reasons, including:

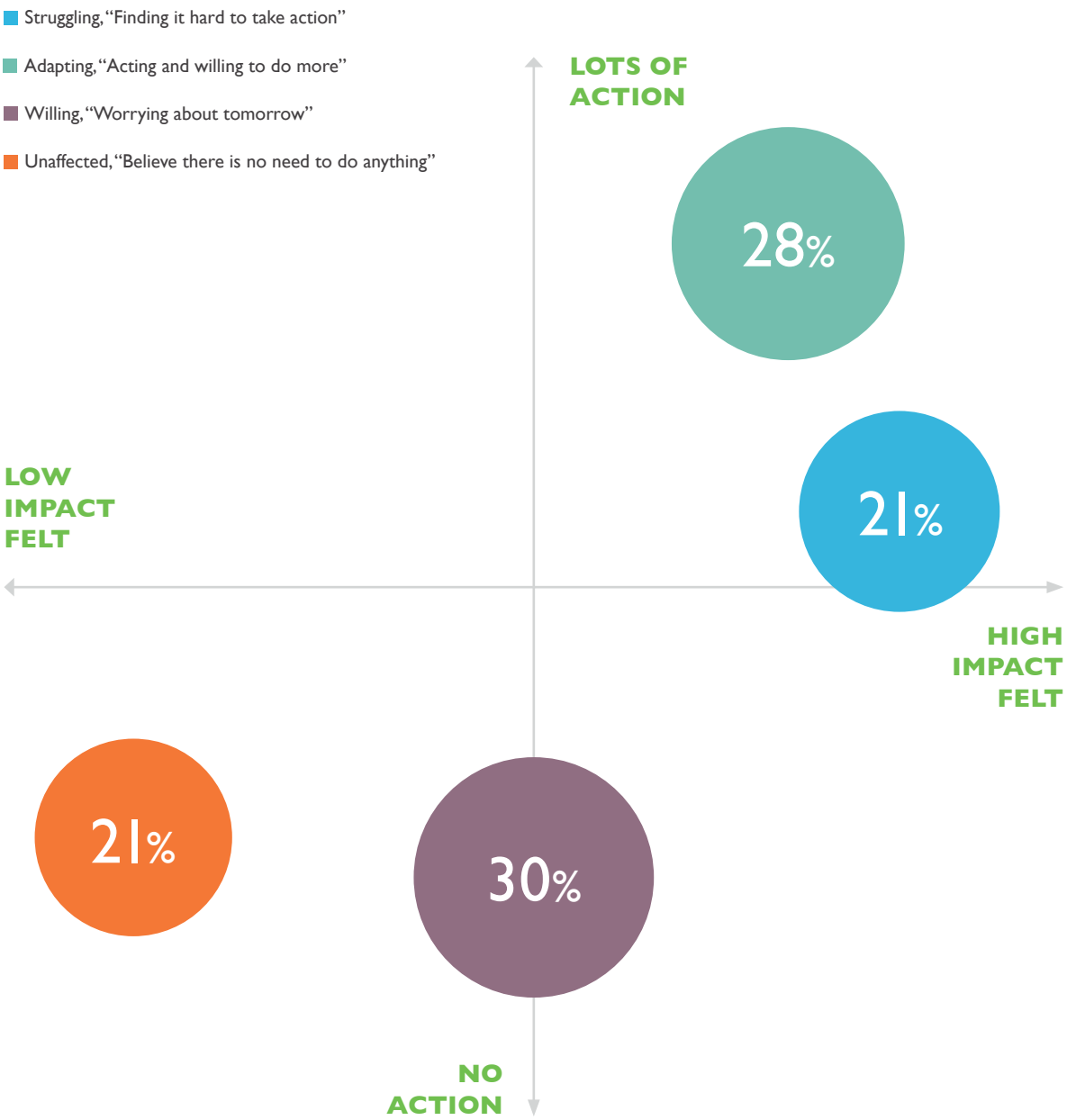
- The impact they feel
- Their access to information
- The degree to which they face social barriers within their community

Based on their answers to these questions, respondents were grouped into four discrete segments, using a process called cluster analysis. Each segment characterises a different group of respondents, based on the factors that enable and prevent them from acting in relation to environmental change. Described as **willing**, **unaffected**, **adapting** or **struggling**, each group has different communication needs and can be supported in different ways.

The size of each segment reflects the extent to which people in Cambodia perceive the impact of climate-related changes and are taking action to respond to them.

MANY PEOPLE ARE WILLING TO TAKE ACTION

Figure 25: The segments in Cambodia



06

SEGMENTS BY DEMOGRAPHICS

Table 7: Breakdown of segments in Cambodia[35]

		All	Willing	Struggling	Unaffected	Adapting
	Base	**1309**	**395**	**267**	**276**	**371**
Age	16–24	**30%**	32%	18%	34%	33%
	25–34	**24%**	20%	24%	18%	32%
	35–44	**19%**	18%	27%	17%	17%
	45–54	**12%**	11%	16%	14%	8%
	55–65	**15%**	19%	16%	17%	10%
Gender	Male	**51%**	46%	51%	48%	59%
	Female	**49%**	54%	49%	52%	41%
Location	Urban	**24%**	24%	22%	26%	22%
	Rural	**76%**	76%	78%	74%	78%
Region	Phnom Penh	**9%**	10%	10%	9%	8%
	Plain	**40%**	39%	42%	44%	37%
	Mountain	**11%**	16%	9%	8%	8%
	Tonle Sap	**33%**	28%	28%	31%	44%
	Coastal	**7%**	7%	10%	8%	3%
Occupation	Professionals	**27%**	26%	29%	23%	31%
	Farmers and fishermen	**36%**	35%	44%	36%	31%
	Skilled/unskilled labourer	**11%**	11%	7%	9%	14%
	Non-working group	**26%**	28%	19%	32%	24%
Education	Primary or below	**43%**	55%	43%	39%	45%
	Lower secondary	**32%**	27%	31%	30%	30%
	Upper secondary	**20%**	12%	23%	23%	19%
	Higher education	**4%**	5%	4%	9%	6%
Change in income over the last five years	Increased	**58%**	57%	57%	52%	64%
	Stayed the same	**12%**	12%	13%	11%	12%
	Decreased	**29%**	31%	34%	25%	29%

[35] In Cambodia, 1,309 of the 1,660 people interviewed were included in the segment groups as there was complete data for the variables used in segmentation for these respondents. The highlighted cells refer to key characteristics which will be discussed below.

More than 50% of Cambodians surveyed fall into one of two segments – willing or adapting. They are either already taking action to respond to challenges arising from climate change or are willing to take certain actions that will maintain their livelihoods in the face of these challenges.

Regional variance in the distribution of the population across the four segments highlights how people feel and respond to impacts differently, depending on where they live. In the Tonle Sap region, people are most likely to be adapting to changes. In contrast, those in the Coastal region are more likely to be struggling to take action.

The cluster analysis also reveals some gender disparity, particularly in the adapting segment, to which men are more likely to belong than women. A disproportionate number of women are in the willing group, suggesting that they would like to make changes but do not yet feel able to act. Communication to inspire and motivate women, and address gender norms around taking action, might encourage them to act in greater numbers.

Struggling (21%)

"Trying to take action but find it very hard"

- Older people, but of working age
- Less educated
- Farmers/fishermen
- Disproportionately in the Coastal region

Cambodians in the **struggling** segment are more likely to be older people with a lower educational level who work as farmers or fishermen. They are also more likely to live in the Coastal region.

People in this segment have already felt a high level of impact as a result of changes in the weather and environment, and report thinking that future impact arising from these changes will also be high. They reported being at high risk of extreme weather events and perceived that overall their life has got worse over the previous five years.

People in this group have taken action to cope with these changes but are still struggling. They have acknowledged that taking action will make a difference, but said that they do not know how to act. They reported feeling under-resourced and lacking information to respond, and being less inclined to think that it is their responsibility to do this – they said that that they need support from NGOs and the government.

This segment faces high social barriers – they reported being much more fearful than other groups of discussing action with others and being more likely to think that their family would not approve of their actions. As such, they prefer to work alone but are open to working together as

a community. Members of the struggling segment are primarily motivated by ideas of improving their children's future.

Aims for communication

- This is the most vulnerable segment. These people need support in the form of more information on simple actions they can take themselves, in order to move away from the perception that acting in response to climate-related changes is someone else's responsibility.
- Members of this segment need support to make discussing and taking action the new norm, rather than something to fear. Building on these people's enthusiasm for working as a community could be the key aim for motivating them.

Adapting (28%)

"Acting and wanting to do more"

- Men
- Younger
- Better educated
- Professionals
- Disproportionately in the Tonle Sap region

People in the **adapting** segment are more likely to be male and young. They are more educated than other Cambodians, and are working as professionals or are at least in the market for employment. They are disproportionately likely to live in the Tonle Sap region.

This segment has already felt moderate levels of impact as a result of changes in the weather and environment, but expects that the future impact of these changes will be high. People in this group have a strong sense of agency, feeling that they can make a difference and they know how to adapt, they have already taken action (and are more than twice as likely to have done so compared to other segments). In line with their perception that the impact of climate change will be significant in the future, members of this segment are proactive and are willing to take further action.

Members of the adapting segment face similar barriers to those of other segments, but unlike others they have started to overcome these barriers. They reported thinking that their family would disapprove of them taking action, but unlike those in the struggling segment they are doing so anyway. Equally, these people are less fearful of discussing actions with others. Overall, they have reported seeing ways they can adapt and innovate and overcome their challenges relating to the impacts of climate change.

Aims for communication

- People in the adapting segment are already undertaking a wide range of actions to cope with change, and it is likely that many innovations will be invented, trialled and tested with this segment. Media and communication can maximise the impact of these innovations by showcasing examples and highlighting good practice.
- Encouraging and enabling members of the adapting segment to share their experiences will give others the chance to learn from them and be inspired to act, particularly in terms of how they have overcome key social barriers.
- While people in this segment are clearer than others on what they can do to adapt to weather and environmental changes, they still feel they need more information in order to respond.

Willing (30%)

"Willing to take action to maintain their livelihood but set in their ways"

- Women
- Younger people
- Less educated
- Not in paid employment
- Disproportionately in the Mountain region

People in the **willing** segment are more likely to be female and young. They reported placing a high value on their religion and traditional beliefs, and being respected in their community is important to them.

People in the willing segment feel that life has got worse in recent years. Members of this segment indicated that they are aware of climate change, but have not discussed about these changes with others in their community. They reported having felt moderate levels of impact but were not doing much in response. They said they are only willing to take actions that mean they can maintain their current lifestyle.

Aims for communication

- Members of this segment need to be encouraged to work with their community to bring about change in response to the impacts of climate change. The idea of adapting could be made more palatable to them by communicating the economic and health benefits of doing so. Showcasing role models like them, for example younger people who are taking more action, could be beneficial to these people, who value fitting in with others.

- Prompting discussion would ignite action among this segment, so communication that showcases innovation and gets people to talk to one another is key.

Unaffected (21%)

"Believe there is no need to do anything"

- Younger
- Lower education level
- Not in paid employment

People in the **unaffected** segment are more likely to be young, but not as young as those in the adapting segment. They have a lower level of education than the overall sample and are not working.

Members of the unaffected segment reported not feeling as affected as others by changes in the climate and the availability of resources. They felt that the impact of these changes has been low so far and could foresee it changing too much.

As a result, people in the unaffected segment have so far taken less action in response to these challenges and are the least likely to act in the future. There are no distinctive barriers to action for these people, possibly because they feel unaffected. Overall, they reported not feeling as strongly about anything compared to other segments, including their motivations to act.

People in this segment have the lowest access to all media forms, which suggests that information about environmental change is not filtering through to them. This assumption is supported by the fact that they were the most likely to say they did not have enough information to respond to these changes – they did not feel as strongly as others because of an information gap. Consequently, they reported not knowing what was going on around them and not seeing others responding to climate-related changes.

Aims for communication

- Although people in this segment have not yet felt much impact from changes in weather patterns and resource availability, they may do in the future. Therefore, communication that helps members of this segment to understand the future potential impacts arising from climate change is needed.
- Members of the unaffected segment are likely to be more receptive to taking action if it helps them to preserve their existing lifestyle and standard of living.
- Additionally, building a sense of awareness and empathy around what other people are facing in Cambodia could motivate this segment to take action.

COMMUNICATION TO ENABLE ACTION

Media and communication have real potential to support people to reduce the impact of changes in weather on their lives. They can help people to build awareness, motivation, self-belief, knowledge and skills to enable them to take action. When used effectively, these tools can support communities to discuss common issues, work together, influence public policies and hold leaders to account. This, in turn, can contribute to stronger long-term systems to support the public.

Ultimately, BBC Media Action believes that communication can contribute to people's ability to improve their economic opportunities, reduce the risk of disasters and cope with crises. To be most effective, communication must take into account the diverse needs of different groups of people.

Drawing on the research findings, the following section outlines recommendations for how the media and communication in Cambodia can support audience members, communities and institutions to meet these challenges.

Build awareness and knowledge: People in Cambodia are feeling the impacts of climate change but are struggling to explain why these changes are happening and what they can do in response. Developing people's knowledge and understanding of the causes of climate change could help them feel better equipped to act. A focus on helping people to understand why things are happening is needed just as much as helping them to act – people need motivation as well as practical guidance.

Engage people with the issue by framing communication around people's values and motivations: As outlined in Section 2, Cambodians place high value on their health and their children's future and education. Framing issues and actions around climate change in terms of how they might affect people's health and their children's future could help to engage the population and encourage them to act.

Empower people to take action themselves: Cambodians feel strongly that NGOs and the government should be doing more in relation to changes in weather patterns and the availability of key resources, but communication could showcase cheap, replicable and easy things that individuals can do themselves.

Break down the social barriers: People in Cambodia reported issues that have prevented them from feeling able to take action in response to the impacts of climate change, such as norms around social disapproval. Showing people who have already overcome these barriers – role models and pioneers – could disrupt existing beliefs and attitudes, and make action more acceptable to others.

Growing knowledge networks: Harnessing the trust that people already have in local leaders and their neighbours, friends and family members could strengthen knowledge networks and increase a sense of community agency. Giving these trusted groups more of a voice in the media could amplify their influence.

Build on enthusiasm for working together as a community: Cambodians have a strong belief in their community's ability to work together, yet common social barriers can derail this. Encouraging a sense of collective responsibility, for example by showcasing model communities that have come together to overcome a challenge, would be beneficial, particularly if the solutions they developed have health or economic benefits.

Turn willingness into actions: Actions in response to the impact of climate change need to be relevant to people in Cambodia and align with their traditional values and beliefs. Community leaders and trusted members of society could model actions that are consistent with local tradition. Encouraging discussion among local leaders could also help in this respect.

Table 8: Key characteristics of the four segments

	Struggling	Adapting	Willing	Unaffected
Impact felt in daily lives	VERY HIGH	HIGH	LOW	VERY LOW
Action taken	HIGH	VERY HIGH	LOW	LOW
Social barriers to taking action	HIGH	VERY LOW	LOW	LOW
Motivations to taking action	LOW	HIGH	HIGH	VERY LOW
Willlingness to act	HIGH	VERY HIGH	LOW	VERY LOW

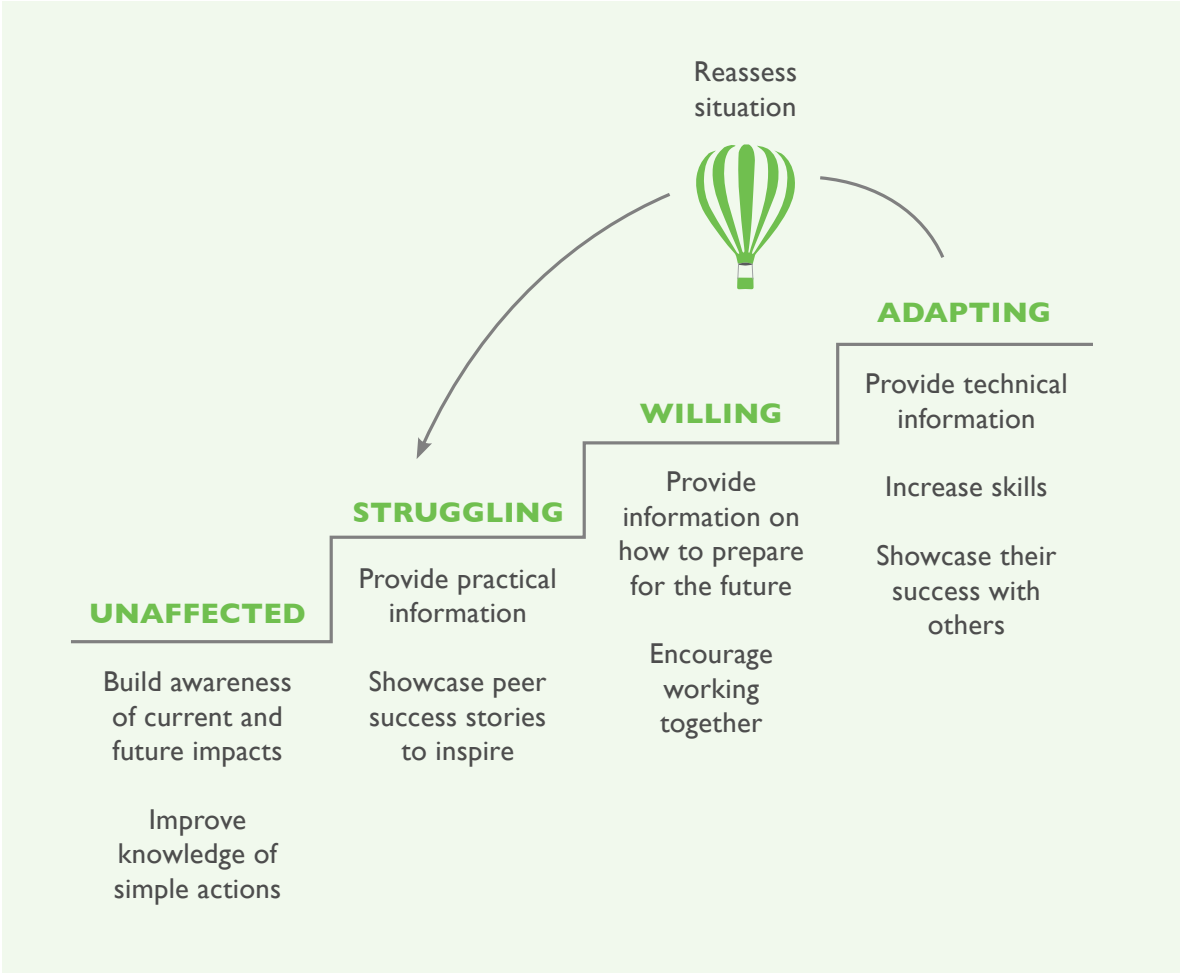
Based on the cluster analysis outlined in Section 6, Table 8 illustrates the main characteristics of people falling within each segment – willing, adapting, struggling or unaffected.

In all cases, it is useful to think of communication strategies as a journey. Building on Table 8, Figure 26 illustrates the main communication needs of people in each segment, and how different guiding principles can be made relevant to each distinctive segment.

When a media intervention begins, people in Cambodia may find themselves at any stage on the communication ladder. The goal is to help them move up the ladder, towards the adapting rung. So, for example, if a large part of a community finds itself in the struggling segment, the first part of a media and communication intervention might focus on providing knowledge. The aim would be that, after some time, these individuals would move into the adapting segment, where witnessing the effects of their own and others' actions would be a more powerful driver of change.

Media and communication initiatives can be designed to meet the needs of one specific segment or to target the communication needs of multiple segments simultaneously. It is vital to monitor if and how people are progressing throughout the project and whether their communication needs have shifted. If so, different communication strategies will be required. When this happens – as the hot air balloon in Figure 26 suggests – programmers may need to go back and address a previous step on the communication ladder.

Figure 26: Using segmentation to define communication strategy



08

PRIORITY AUDIENCES

While this report presents comprehensive data about diverse and representative communities across Cambodia, the population segments – struggling, adapting, willing and unaffected – have been used to help prioritise groups of people that can be targeted through media and face-to-face communication. BBC Media Action concentrates on communication that supports the most vulnerable people to cope with the impacts of changes in the weather and the environment.

The following recommendations on how best to reach these audiences are based on an understanding of the Cambodian segments and the development of a communication strategy founded on the guiding principles outlined above.

FARMERS AND FISHERMEN

Photo: © Ridan Sun

Table 9: Farmers and fishermen across segments

	Willing	Struggling	Unaffected	Adapting
Base: All	395	268	276	372
Base: Farmers and fishermen	137	117	100	117
Farmers and fishermen	**29%**	**25%**	**21%**	**25%**

Who are they?

Farmers and fishermen[36] made up 37% of the interviewees in this study. The majority of these people were men (54%) although women (46%) comprised a significant proportion. There was a higher concentration of farmers in the Plain (40%) and Tonle Sap regions (40%) than other areas of Cambodia.

Why prioritise them?

Feeling the impact on incomes

As highlighted in previous sections, people who rely on land for income are particularly vulnerable to changes in the climate and many are struggling to adapt to these changes. Over half of this group (54%) thought that land for agricultural productivity had declined, with 30% feeling that it had decreased 'a lot' and 35% felt that their household income had decreased in the previous five years as a result of climate changes.

The two regions with the highest proportion of farmers and fishermen were the Plain and Tonle Sap regions, which experienced different challenges.[37]

In the Tonle Sap region, farmers and fishermen were more likely to feel that changes in the environment had a high impact on their ability to earn money compared to those in the Plain region (88% compared to 81%). They were also more likely to have already taken action in response to these changes. When asked unprompted what actions they had taken, around two-thirds said they had changed their job as a result of the changes in the environment (this was still high – 45% – in the Plain region).

These differences are unsurprising given that a disproportionate number of the adapting segment live in the Tonle Sap region, as highlighted in Section 6. People in this group are already doing a lot in reaction to environmental and weather-related changes.

[36] Farmers were defined in the study as agricultural workers/farmers and were grouped together with fishermen/women for the purpose of analysis.
[37] More in-depth research should be conducted in these regions to understand the differences between farmers and fishermen.

High social barriers

Apart from feeling that they needed institutional support, farmers and fishermen were most likely to feel that not having enough resources (64%) or information (55%) were their biggest barriers to making adaptive changes. This group experienced significantly higher social barriers to action than the overall population in Cambodia. Members of this group were particularly fearful about discussing actions with others (42% compared to 37% of the overall sample) and not fitting in with religious beliefs or community culture (42% compared to 35% overall).

While social barriers are high for farmers and fishermen in both the Tonle Sap and Plain regions, these respondents from Plain communities were much more likely to cite that no one they knew was taking action in relation to climate change (cited by 53% of this group), compared to those in the Tonle Sap region (38%). They were also more inclined to think the impacts of climate change were less of a problem for them (45% compared to 36%). This finding is consistent with the higher number of the unaffected segment living in the Plain region.

Information sources

The main source of information on changes in the weather and environment for farmers and fishermen was given as TV (60%), followed by radio (37%). Fifty-four per cent of people in this group reported having access to a TV set in their home or elsewhere. A large proportion of those (79%) reported watching TV at least once a day.

TV5 (43%) and CTN (43%) were the most popular channels among farmers and fishermen, who mostly tuned in from 5–10pm.

Reaching this audience

Communication could demonstrate agricultural solutions to climate-related challenges. Although many farmers and fishermen are already taking action to address these problems, they would benefit from more innovative, low-cost solutions, particularly as this group reported feeling that their income was threatened. For example, farmers and fishermen in the Plain region, who were more likely to say they did not know of other people responding to climate-related changes, could benefit from learning how others – for example their neighbours in Tonle Sap – have adapted by making agricultural changes.

Some of this group, particularly those in the Plain region, felt unaffected by changes in the environment. They might therefore benefit from communication that explains how they might be affected in the future.

YOUNG PEOPLE

Photo: © Ridan Sun

Table 10: Young people across segments

	Willing	Struggling	Unaffected	Adapting
Base: All	395	268	276	372
Base: 16–24-year-olds	126	47	95	122
Base: 25–34-year-olds	79	63	50	118
16–24-year-olds	**32%**	**12%**	**24%**	**31%**
25–34-year-olds	**26%**	**20%**	**16%**	**38%**

Who are they?

This group comprises 16–34-year-olds. Those aged 16–24 make up 28% of the population in Cambodia. Over half of 16–24-year-olds (52%) reported that they were not working, while around a fifth were working as professionals, and another fifth as farmers or fishermen. They have higher levels of education than the general population and are likely to be employed in the future if they are not already working.

25–34-year-olds make up 23% of the population. This age group has been defined as the 'active working age group' – over a third (37%) reported working as professionals, and 33% as farmers or fishermen. Like the younger group, they are also more likely to be better educated than the rest of the population.

08

People in the 25–34-year-old group are more economically driven than those in other groups – they value earning as much money as possible and their biggest concern (after health and their children's future) is not having enough work or a job. They also place greater value than members of other groups on being able to voice opinions on things that concern them, and they value fitting in with others.

Why choose them?

The 16–24 age group is more media active than other age groups, and likely to get relevant information first. While not taking as much action in response to environmental and resource availability changes as the 25–34-year-olds, 16–24-year-olds are willing to do more in the future.

As outlined in Section 6, a disproportionate number of both 16–24-year-olds and 25–34-year-olds fall into the adapting segment, taking the most action in response to the impacts of climate change and preparing for their future. As around a third of the 25–34-year-olds work as farmers or fishermen, this group could model best practice such as new agricultural techniques to those in the struggling or willing groups.

Information sources

Overall, young people in Cambodia are more likely to have access to the internet, use social media and use a smartphone than the general population. Almost all (94%) of 25–34-year-olds reported having access to a mobile phone and using it at least once per day.

For 16–24-year-olds, the most popular platforms for information about changes in the weather and environment were TV (cited by 68%) and social media (39%). This trend was the same for 25–34-year-olds (cited by 39% and 43%, respectively).

The most popular TV channels for 16–24-year-olds were Hong Meas TV (cited by 60%), CTN (57%) and MyTV (54%). For 25–34-year-olds these were CTN (cited by 53%), MyTV (48%) and TV5 (39%). Both groups reported primarily watching TV from 5–10pm.

Reaching this audience

This group is already taking action and so can model adaptive behaviour to other groups. Members of this group value fitting in with others, which could be used as a motivator for further behavioural change. Furthermore, they value speaking about things that are important to them – media and communication could amplify their voice on these issues, inspiring others to take action.

VERY POOR PEOPLE

Photo: © Ridan Sun

Table 11: Very poor people across segments

	Willing	Struggling	Unaffected	Adapting
Base: All	395	268	276	372
Base: The 'very poor'	16	19	15	14
The 'very poor'	**26%**	**30%**	**23%**	**21%**

Who are they?

The 'very poor' are people with very low resources, defined as not having enough money for food. They make up 5% of the population of Cambodia and disproportionately live in the Coastal region. Eighty-six per cent of this group have an income of less than US $200 per month.

In addition, a further 43% of the overall population in Cambodia has a similarly low income. This group have enough money for food but find it difficult to afford things like clothes. They will have similar characteristics to those defined as 'very poor' and are a strong secondary audience, who will engage with similar types of communication.

Why prioritise them?

Very poor people in Cambodia are more worried about meeting immediate needs than those who are better off, citing concerns about issues such as food and water. Consequently, they

are more likely to think that acting in response to environmental and weather changes is less of an immediate priority for them. Three-quarters of this group said they did not have enough resources to take action in response to these changes (compared to 64% of the overall sample).

This group also experiences greater social barriers to action than other groups. Over half (54%) of respondents in this group said they did not know anyone else who was responding to climate-related changes and 53% said that taking action would not align with their religious or community beliefs, which is much higher than the overall average (35%).

This group was much less likely than other groups to feel informed about changes in the climate and environment, and could be described as 'media dark'. Although around half of respondents in this group (48%) said they often discussed these issues with others, this finding was much lower than for other groups, and 52% said they never discussed such things with others.

Information sources

The very poor were less likely to report having access to all media platforms than other groups – around half (51%) said they had access to TV and a third (32%) had access to radio. Two-thirds (67%) of those with TV access tuned in at least once per day, but around a fifth (19%) were just watching TV once a week.[38]

This group reported having a small online footprint, with the majority not having access to the internet, and were less likely than other groups to have an active social media account.

TV was the most popular platform for very poor people to get information about changes in the weather and environment, but this was lower than for other groups (43% of very poor people compared to 65% of the overall sample). Very poor people reported being more likely to get information on these issues from NGOs than the rest of the population (15% compared to 5% overall).

The most popular TV channels for this group were CTN (44%), MyTV (32%) and TV5 (36%), and they were most likely to report watching from 5–10pm.

Reaching this audience

Targeted communication should highlight very poor people's exposure to extreme weather and demonstrate the importance of, and how to prepare for, such events.

Given the low levels of resources available to this group, solutions highlighted in the media need to be low-cost and achievable to help them take action.

[38] Note that the base size here was low (n=41).

WHAT'S NEXT?

This report and all Climate Asia data and tools are available on a fully searchable Climate Asia data portal: dataportal.bbcmediaaction.org. BBC Media Action believes that these resources can improve communication and decision-making by allowing stakeholders to better understand their audiences' needs.

The findings outlined in this report can be explored in more detail using the data portal. For instance, responses to any question can be analysed by key demographics, geographic location or media use.

SHARING THESE FINDINGS AND TOOLS

BBC Media Action invites people to share this report, the links to the data portal, the climate change toolkit and its research tools as widely as possible. BBC Media Action will also work with stakeholders and partners to help them to use this evidence and analysis. BBC Media Action hopes and believes that the more people who use the Climate Asia findings and tools, the greater the chance of effectively supporting people who live with climate change today.

BUILDING ON THIS DATA

This Climate Asia report is just the beginning. The research can be built upon. By working with existing communication initiatives and new projects, stakeholders can bring this data to life for the people who need it most.

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